

MAIL-ORDER LOGISTICS CENTRE

HALDENSLIEBEN



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“Modern technologies and dedicated employees ensure that we offer our distance-selling retailers a regular 24-hour service. Haldensleben is prepared for the logistics challenges of the future!”

Olaf Wallace, head of the mail-order logistics centre Haldensleben

OUR HISTORY

Following the reunification of Germany the distance-selling retail sector flourishes like never before and the logistics capabilities of the Otto Group no longer suffice. A new mail-order logistics centre is needed and the search for a suitable location begins. Haldensleben, 30 kilometres north-west of Magdeburg (Saxony-Anhalt), outshines the competition because of its ideal location at the heart of Europe. The location also scores well because of short approval processes, the speed at which the chosen site is developed and the close cooperation between the town and the investors.

The planning and construction work on the new mail-order logistics centre in Haldensleben takes place between 1991 and 1994. Its modular design means that it can easily be enlarged at a later date. It goes into operation in 1994 and is subsequently enlarged three times.

- 1991 – Planning work begins
- 1994 – The centre goes into operation
- 2000 – Second construction phase completed
- 2003 – Third construction phase completed
- 2011 – Fourth construction phase completed
- 2014 – Fifth construction phase completed

The first construction phase is completed between 1993 and 1994 with the investment volume amounting to around €200 million. The mail-order logistics centre is initially designed to handle some 60 million items a year. By 1996 full capacity is reached.

The second construction phase is completed between 1998 and 2000. €80 million is spent on another high bay warehouse and a new pallet warehouse. The handling capacity of the packaging department increases to 100 million items. The goods-in area is also enlarged.

€120 million is invested in the third construction phase that takes place between 2002 and 2003. The mail-order logistics centre is given a new picking system, an additional packaging area and a larger goods-out area. It can now handle some 160 million items. In other words, every second 12 items, or four consignments, leave the mail-order logistics centre.

In 2010 the mail-order logistics centre is enlarged once more. This time €70 million is invested in the construction of a reserve and client-specific warehouse, an automated returns warehouse and a pallet warehouse. As many as 200 million items can now be handled a year.



The Haldensleben mail-order logistics centre today (top). Opening ceremony in 1994 with Dr Michael Otto, Dr Helmut Kohl and Professor Peer Witten (bottom right).

The mail-order logistics centre in Haldensleben is operated by Hermes Fulfilment GmbH, a member of the Otto Group. Between 1991 and 2011 the Otto Group invests more than €470 million in the Haldensleben mail-order logistics centre. With a floor area the size of 26 football pitches, the mail-order logistics centre is currently one of the largest of its kind in Europe. Hermes Fulfilment employs more than 3,000 people in Haldensleben, making it one of the largest employers in Saxony-Anhalt.





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FULFILMENT



HERMES FULFILMENT AN OVERVIEW

Headquartered in Hamburg, Hermes Fulfilment GmbH is a member of the Otto Group and provides a wide range of supply chain services to the distance-selling retail sector from the company's four logistics centres. These services range from the design of a web store to its operation, from accounts receivable, returns management, financial and call centre services to procurement, warehousing and distribution. Hermes Fulfilment provides logis-

tics services for as many as one million different products and handles some 300 million items a year.

The spectrum of goods ranges from smartphones, tablet devices and textiles to jewellery, furniture and washing machines.

The clients of Hermes Fulfilment GmbH primarily operate in the consumer goods industry.







MODERN

INDUSTRIAL ARCHITECTURE

Some developers and architects wait all their professional life for an opportunity to be involved in the development of a greenfield site. There are fewer restrictions than in areas where there are already a lot of other buildings, so developers and architects have more creative freedom. At the Haldensleben facility bridges made of metal and glass and the elegantly curved contours of the canteen perfectly complement the rectangular shape of the main buildings.

The modular design of the Haldensleben mail-order

logistics centre also gives it that extra edge. The workplaces benefit from access to natural light and fresh air. The concepts of colour psychology are also expertly applied: contrasting colours are used to accentuate certain elements while pastel shades create a friendly working atmosphere.

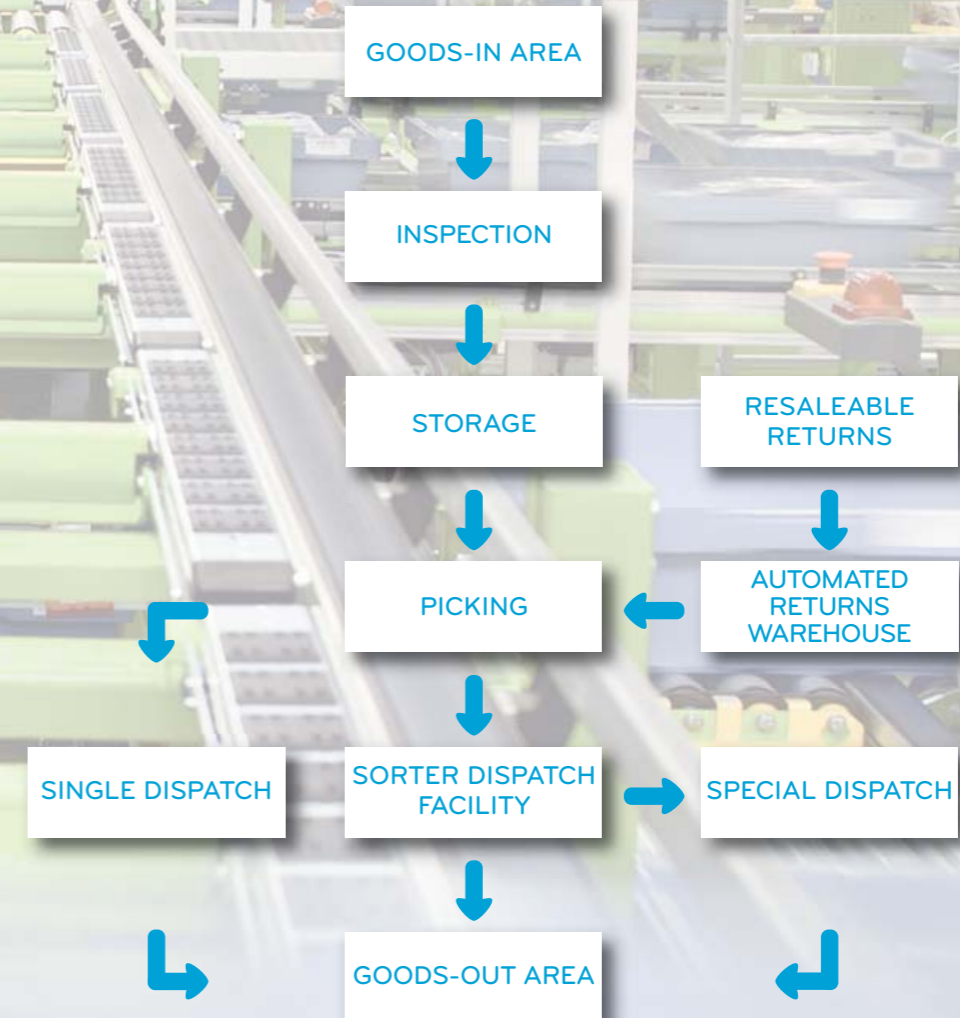
Wood has been used for the flooring and in the workplaces, creating a natural environment for the employees. The buildings are surrounded by plenty of water and green spaces, giving the complex a harmonious overall effect.

The play of colour
between silvery grey
and emotional colours

Surrounded by
plenty of water and
green spaces

Ecological features

MAIL-ORDER PROCESS



GOODS-IN AREA

As many as 40,000 boxes are delivered from all over the world to the Haldensleben mail-order logistics centre every day. These boxes must be no larger than 40 x 40 x 60 cm so that the conveyor system can move the goods through the warehouse to their storage locations. Flexible, width-adjustable telescopic conveyors make the process of unloading the freight containers easier. If a box doesn't fit on the conveyor it will be made to fit: items packed in non-standard-size boxes are repacked. Each box is automatically given a barcode and the data on the barcode is scanned – for

the first but not for the last time. Once the receipt of the items has been recorded in the system all the processes that they progress through before their final dispatch are controlled by computer systems.

After the goods have been unloaded, random controls are conducted on them at 20 workstations on their way to the high bay storage area. Do the goods comply with the retailer's quality standards? Does washing cause the blouse to shrink? Do the colours

and the materials match the sample? Is the drill in working order? If everything is OK the goods are released for sale. If any goods are found to be faulty or defective a decision is made as to whether or not the item can be re-

Surface area:
8,500 square metres

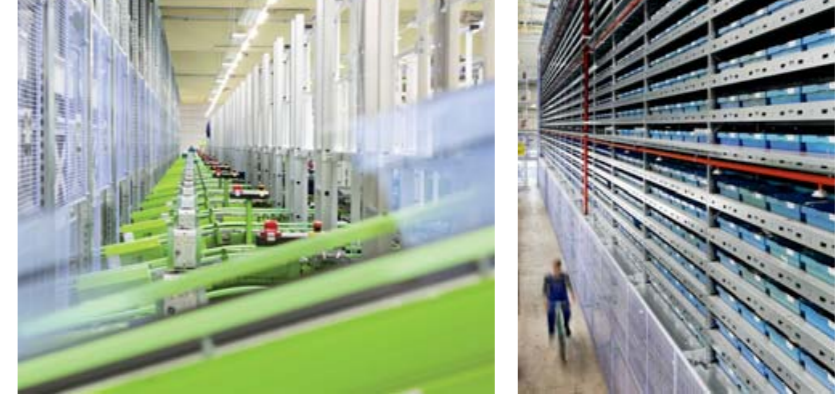
18 goods-in gates

80 trucks received
per day

Random quality controls

worked into a saleable item. If the fault or defect is too serious to be rectified the entire delivery is returned to the supplier.





AUTOMATED RETURNS WAREHOUSE

The automated returns warehouse with a floor area of 6,500 m² provides storage space for returned items that are in a resaleable condition. These are transported by truck in special bins to Haldensleben, often from the returns facility in Hamburg. With the help of a special shuttle technology which is a combined storage and transportation system, as many as 2,000 returns bins can be stored and retrieved every hour. This work is done by 840 shuttles that move up and down 30 different aisles on 28 differ-

Largest shuttle system
in the world

175,000 bin locations

1 million items

30 picking
workstations

ent levels before transporting the bins to one of 30 different picking workstations.

The system has 175,000 bin locations and can store about one million items. The automated returns warehouse in Haldensleben is the largest of its kind in the world. For its returns management system Hermes Fulfilment was presented with the 2013 Logistics Innovation Award of the Association of German Engineers (VDI).

PALLET WAREHOUSE

The pallet warehouse, covering an area of 11,600 m², is the newest building on the site and was part of the fourth phase of the construction work on the mail-order logistics centre. It complements the highly automated system of processing smaller items and is primarily used for the storage of frequently ordered items which can be picked more economically direct from a pallet on the ground. It also provides storage space for items that cannot be handled by the sorting system because

12 goods-in and goods-out gates

24,000 pallet storage locations

1,000 pallet movements a day

of their size, weight or shape, for example larger pieces of audio equipment, small household appliances and DIY products. About 3% of the goods handled at the Haldensleben facility are stored on pallets. The warehouse provides storage locations for some 24,000 pallets.

The pallet warehouse also serves as a transit point for special categories of packed items being shipped to Eastern Europe. This is also where customs issues are handled.





HIGH BAY WAREHOUSE

The high bay warehouse is the centrepiece of the mail-order logistics centre. A total of 1.2 million standard-size supplier boxes containing goods are stored in the two halls, each of which is 120 metres long, 90 metres wide and 30 metres high. If all these boxes were put in a row, it would be 600 kilometres long. Although the boxes are neatly lined up on their shelves, they are in fact organised according to the principle of chaotic storage.

1.2 million boxes

Chaotic storage

61 aisles

39 storage and
retrieval units

The IT system decides where the box should be stored. Each one is put where there happens to be a suitable space for it. There are no fixed storage locations. Mobile laptops are stored next to blouses, watches next to smart phones. Only the ware-

house management system knows the exact location of each box. This system ensures that the available space is exploited to the full. At a speed of 2.5 metres a second several storage and retrieval units move up and down the warehouse aisles. These units weigh a good few metric tons. As their name suggests, their job is to store and retrieve the boxes – as many as 40,000 a day. The entire inventory of the high bay warehouse is turned over every ten weeks.

To protect the goods from fire, the shelves are equipped with fire alarms and automatic sprinklers. You just need to have a look at the size of the pipes installed under the ceiling to have an idea of the volume of water available.

PICKING WAREHOUSE

The boxes are routed along a system of conveyors from the high bay warehouse to the stationary picking warehouse. The warehouse assistants use a slitting knife to cut open the boxes so that the items can be easily removed. The job of these warehouse assistants is to place the boxes on the shelves and ensure that the picking locations are always replenished. They use hand-held scanners to find out exactly where the boxes should be placed. The picking warehouse is also organised according to the principle of chaotic storage. The computer system knows which items are on which shelf and in which box.

Computer-generated aisle-specific pick lists guide the pickers through the picking warehouse, helping them to find the best

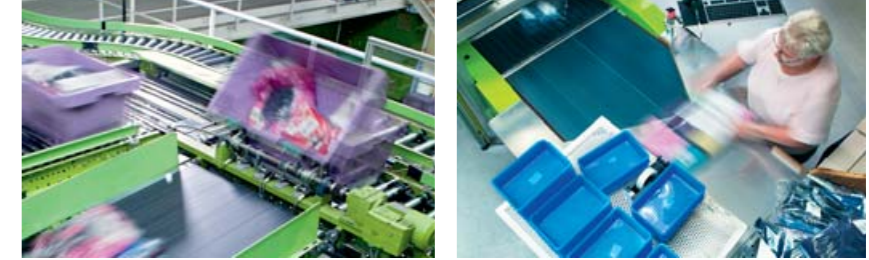
Storage area totalling
75,000 m²

Around 450,000
storage locations

route to the items. Irrespective of which customer order an item belongs to, the items are taken from the shelves, given a pick slip and deposited in one of four plastic bins that each picker has on his or her cart. The computer system decides which item should be put in which bin.

Whereas the stationary picking is done manually, the dynamic picking of frequently ordered items is automated. These items are automatically retrieved from the suppliers' boxes, sorted and labelled. This is four times as fast as when picking is done manually. Whether they are picked manually or automatically, all these items end up in a bin that is transported by conveyor to the next processing point, which is known as the bin buffer area.





BIN BUFFER AREA

The bin buffer area forms the link between the picking area and the goods-out area. It is like a kind of car park. In this area the bins are roughly sorted according to the shipping destination of the items and the time at which the truck is scheduled to leave the mail-order logistics centre with the consignment. The bins only move on to the goods-out area when all of the bins containing items for a specific shipping destination, for example Munich, are

Buffer area for bins containing picked items

24 conveyors, each 60 m long

16 aisles for up to 14,000 bins

ready. The speed at which this is done is determined by the sorting area which is also where the consignments are packaged up. The buffer area uses two different systems: the bins are either delivered to 60-metre-long conveyors or collected in the automatic small items warehouse that has 16 aisles. The bins are then transported by conveyor to the loader workstations and emptied with the help of a tipping device.

SORTER DISPATCH FACILITY

The mail-order logistics centre uses two sorting systems that were specifically engineered for use in Haldensleben. At this stage of the process the items have only been roughly sorted according to their shipping destinations. Now they are sorted into individual customer consignments. At the loader workstations employees place the items on the conveyor with the barcode label clearly visible on the top so that it can easily be read by the scanner. At the same time they check whether it is the right item, in the right size, for the right customer. The sorter then places all the items ordered by one specific customer, perhaps living in Munich, in one compartment. Once all the items that make up the consign-

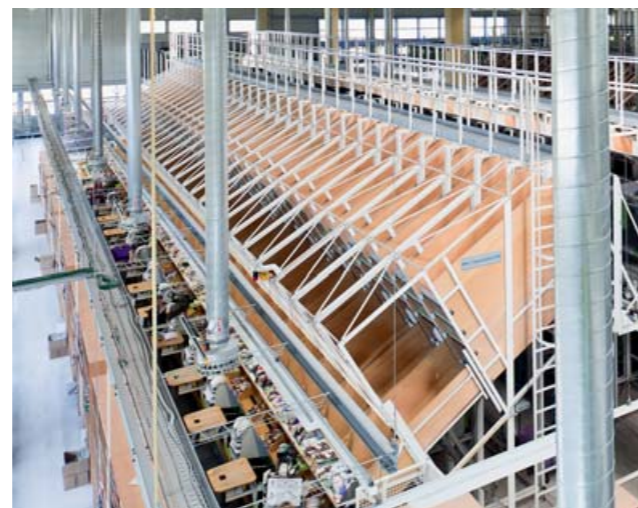
Sorter speed: two metres per second

Consignment assembly

Packaging of items in bags and boxes

ment to this customer have been placed in the compartment, the consignment is packaged up. Boxes and bags of different sizes can be used for this. The computer system decides which type and size of packaging should be used.

The warehouse worker checks the goods against the invoice to ensure that the consignment is complete. He or she will also enclose any brochures, welcome letters, vouchers or gifts provided by the retailer that the customer ordered the items from. The box is then closed securely and the address label affixed to the box – and off it goes to the goods-out area.





SINGLE DISPATCH QUALITY ASSURANCE

Orders that only consist of one item are processed as single dispatch items. Items that for any reason cannot be handled using the standard processes are handled in an area designated for special dispatch items. For this purpose eight quality assurance

38 packing stations for single dispatch items

9 handling stations for special dispatch items

8 pre-dispatch inspection points

stations are positioned at the end of the conveyor system. This is also where quality assurance workers carry out random checks on consignments to make sure that they are complete. Any discrepancies are also corrected in the special dispatch area.



GOODS-OUT AREA

The boxes are automatically tied up with string on their way to the goods-out area which is located in a hub run by Hermes Logistik Gruppe Deutschland (HLGD). With the help of its barcode each consignment is automatically sorted according to its destination and routed down the appropriate chute to be loaded onto a waiting truck at one of the 96 goods-out gates. By this time the goods will have travelled through the Haldensleben mail-order logistics centre along

Automated sorting and loading of as many as 300,000 consignments a day

Deliveries throughout Europe

Approx. 250 trucks handled a day

some 30 kilometres of conveyors. Consignments from other logistics locations belonging to the Otto Group and from clients who have chosen only to use the delivery services of HLGD are also handled at HLGD's hub. Deliveries are made throughout the whole of Europe.

Hermes Fulfilment sees itself as an impartial service provider in the market. The final choice of distribution partner depends on what the retailer wants.





SÜDHAFEN LOCATION

As part of the fourth phase of the construction work a hall measuring 30,000 m² was built at the Südhafen location, about three kilometres away from the original site. This building serves as a reserve warehouse and also handles the business for clients who don't belong to the Otto Group. The new reserve warehouse is supplied with goods from the high bay warehouse at the original site. For the merchandise of the Otto Group the reserve warehouse provides sufficient storage space for some 430,000 boxes on three different levels.

Hermes Fulfilment's client-specific business is not as standardized as the company's own order processing. The order processing of these clients is tailored to their specific warehousing needs. For this reason these goods are processed manually. Depending on the customer's requirements, items might, for example, be wrapped in tissue paper and shipped to customers in attractive boxes. Until 2010 the products of these clients were also stored, picked and packaged at the original site. The capacities that the move has freed up at the original site in Haldensleben are now available for the automated dispatch process.

Storage space for
reserve inventory

Handling of
client-specific business

Storage space for
40,000 hanging garments



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