



Univeyor provides
complete solution
for TOP-TOY's
new distribution centre





Scandinavia's largest toy distributor

TOP-TOY A/S is the largest toy distributor in Scandinavia. TOP-TOY A/S is the holding company for BR-Legetøj and TOYS'R'US (Scandinavia). Originally BR-Legetøj was founded by Børge Rasmussen, and the company is still headed by his family. His sons, Bjarne and Henrik Gjørup, developed it to its present state.

BR-Legetøj started life as a newsagents with a few toys on the shelves. When the toys proved to be a good seller, the concept of a toy store was born. Henrik Gjørup had been inspired by the concept of a chain of stores (unheard of in Denmark at that time) during a trip to the USA, and he returned with many ideas for the development of the company.

Later, whilst studying, he met the builder of the first shopping centre in Denmark. He then decided to lease premises, which became the first toy store in the BR chain. TOP-TOY has since expanded considerably, first by one store a year and then, during the last decade, doubling its sales every five years. This rapid expansion has put a heavy demand on its central distribution centre.

Today the company is headed by the 3rd generation.

Niels Pagh, Supply Chain Manager
of TOP-TOY, says:

First extension of the warehouse in Greve, Denmark

"We realised in 1999/2000 that our warehouse in Greve was experiencing overwhelming demand and we had to do something to enable its capacity to be increased. We began to analyse our operations and discuss what could be done to meet present and future requirements. We contacted a number of suppliers of automated systems and asked them to present their ideas.

Univeyor came up with a highly innovative and impressive concept. Actually we came close to entering into a contract with another large company with whom we had worked throughout the analysis phase. However, Univeyor came in from the sidelines and presented a very interesting project that excited us all.

Univeyor's proposal incorporated a unique combination of full-size pallet cranes, Layer Pickers and miniload cranes. In this system, goods would be automatically removed from pallets and, if they were not required immediately, Univeyor's miniload cranes would handle the processing and storage of surplus goods for the next batch.

The entire process was automated and we were pleasantly surprised to find that, rather than costing more, it also promised significant cost savings.

We signed a contract and the installation phase began quickly. Although we experienced some delay, as the supplier of the control system did not perform according to agreement during installation, this was soon resolved and the co-operation on IT issues worked just fine.

Second extension phase

This brings us to our latest project, which went into operation in 2005.

The company has continued to grow rapidly. Our aim for 2010 is to be twice the size that we were in 2003, therefore we had to review our whole operation. We realised that, although we had gained a vast knowledge of fully automated systems; we had over-estimated the capacity of such a system.

We contacted several automation companies with our requirements and asked for a proposal. Univeyor was chosen once again, after producing an impressive tender which would allow us to integrate existing equipment into the new system, giving maximum return on our investment.

To me, Univeyor was an obvious choice for the extension – they came up with an excellent concept and the price was very competitive. We at TOP-TOY rate Univeyor very highly. We know that their equipment is technically cutting-edge and any minor problems are always resolved.

The implementation of the Phase 2 extension proceeded according to plan and at this time Logimatic was introduced to the project as an IT partner to Univeyor and they proved themselves capable of solving the task.

One of the major challenges for us was to carry out the implementation of the new system without interrupting our normal operation. In fact, the system was converted and the control system replaced without interruption to the supply to our stores - a major achievement."



Goods receipt – Full pallet storage – Low-frequency picking storage
In the goods receipt area, units are stacked on pallets, scanned and recorded by the system. They are then conveyed to the relevant storage locations.

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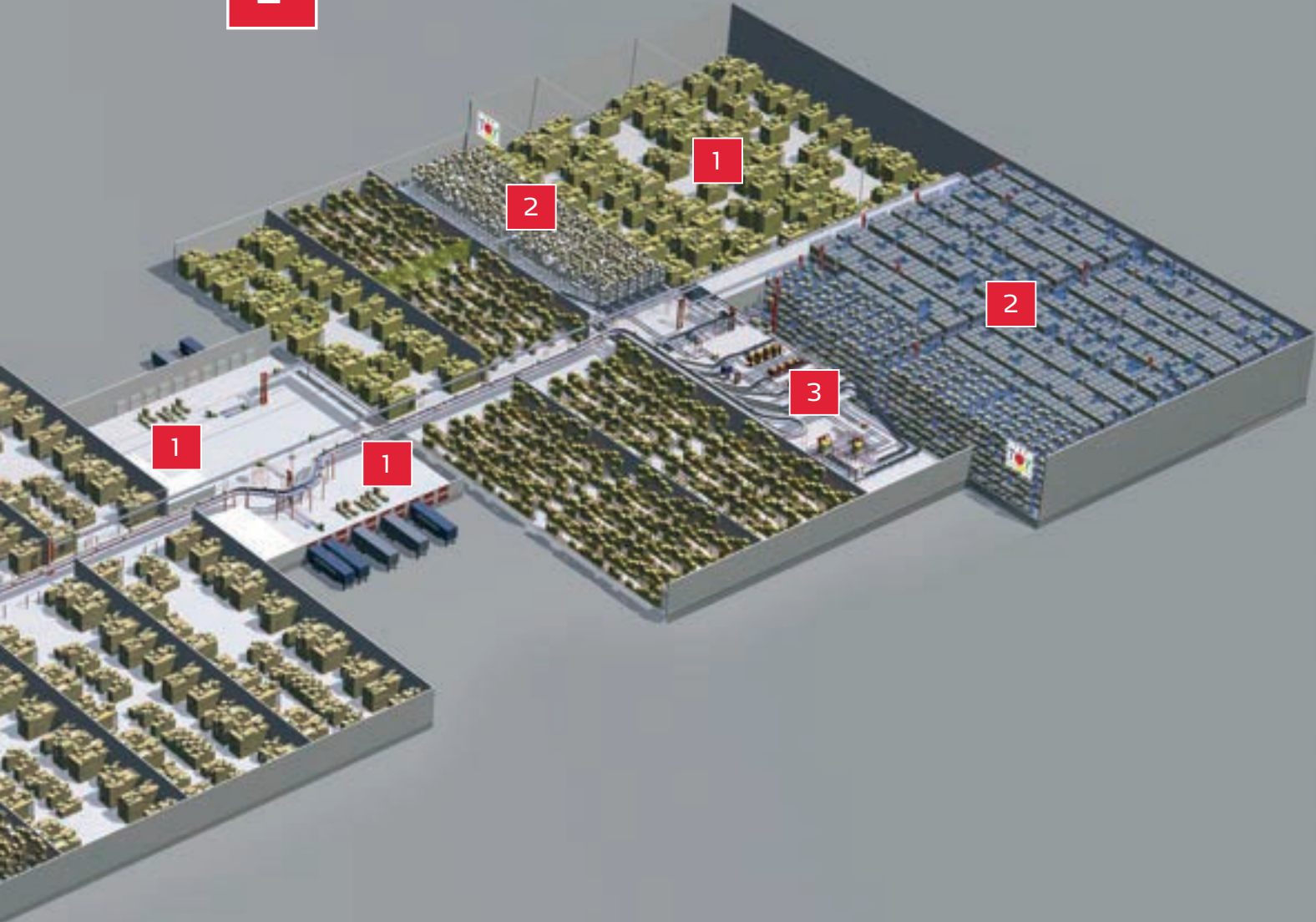
Cross-docking, sortation and despatch

The sorter handles the batch sortation for stores. At every chute, goods are palletised and then automatically stretch-wrapped and conveyed to the despatch area. The forwarding agent then takes over the pallets and transports them to stores all over Scandinavia.

Automated high-bay store and miniload store

For batch picking, pallets are conveyed from the automated high-bay store and full pallet store to the two Layer Pickers or to the manual pick stations. Picked pallets are returned to the automated high-bay store, and surplus cartons from the Layer Picker travel to the miniload store. These cartons then form part of batches to be picked at a later date.

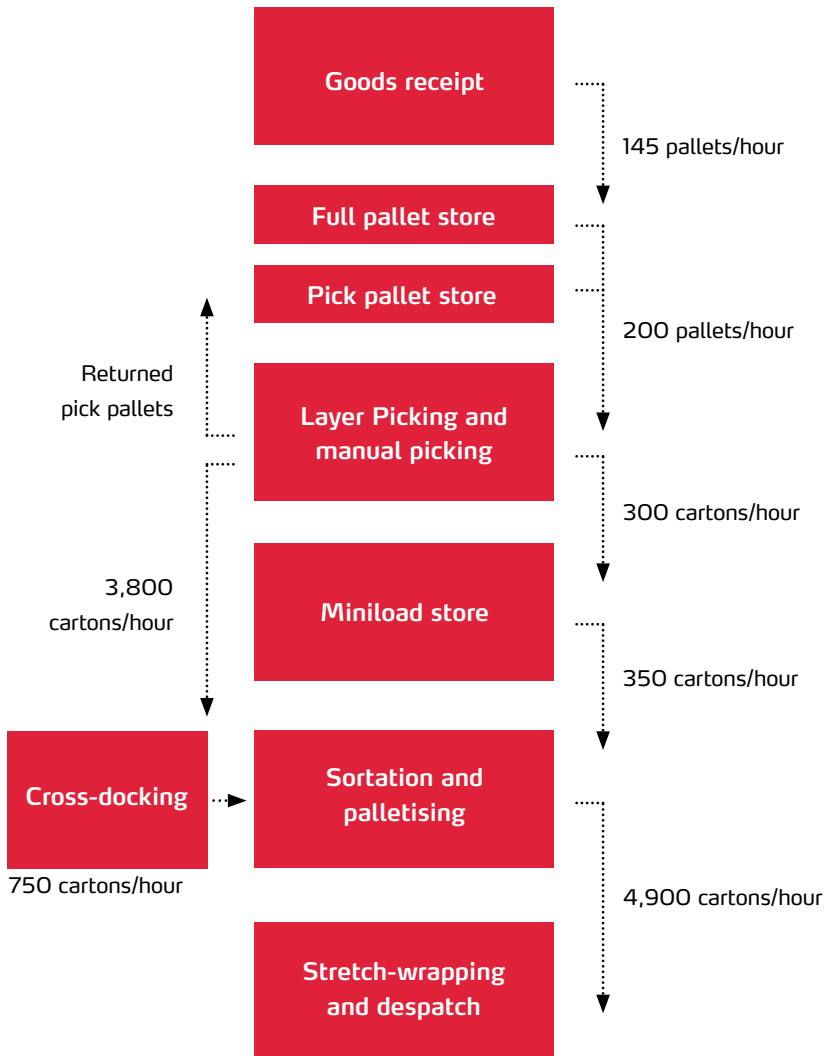
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Layer Picker and manual picking

Pallets are conveyed to the two Layer Pickers, which automatically take off cartons in full layers. Low-frequency goods and pallets with "slanting" layers are handled at the manual pick stations. Cartons are transported to the sorter and are conveyed to the other end of the building.



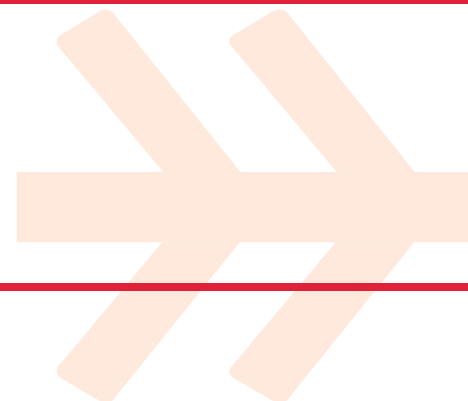
Keeping efficient track of transportation

In order for the new Univeyor system to be accommodated, the company knew the existing building in Greve would have to be extended for a second time. But due to building work being carried out for another company in a neighbouring unit, the building could not be extended in the preferred direction. The extension had to be built at the opposite end to the Layer Picker and manual picking stations.

Several questions were raised during the planning process, not least - with a building length of 480m, should a conveyor be installed to run through all the halls or should goods be transported on pallets to the sorter?

It was decided to bring the goods to the sorter: the quickest option was to let the sorter fetch the goods from the production hall and transport them to the opposite end of the building, thus working as a conveyor.

Cartons being picked at the manual pick stations and Layer Pickers have no bar codes added, but are tracked and sent directly onto the sorter. This provides identification of cartons on each of the 1,174 trays in the sorter.





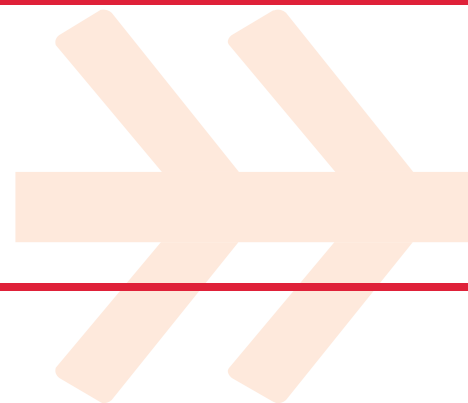
Future-proof distribution centre

TOP-TOY's new distribution centre is designed specifically for the handling, packing, distribution and despatch of toys for stores in the BR-Legetøj and TOYS'R'US chains in Scandinavia.

Since TOP-TOY's central distribution centre was first established in 1996, it has been extended twice, once in 2002 and again in 2005, resulting in an ultra-modern facility, with 60,000m² under one roof, (equal to 4 football pitches).

TOP-TOY is an expanding business, which is the reason for the investment in a new distribution centre. The purpose of the extension was to offer the best possible service to TOP-TOY's 200 plus stores, and also to be ready for the major expansion planned.

The new distribution centre in Greve has been designed to cope with further expansion into the Scandinavian toy market in order to be able to supply approximately 300 stores by 2010.



Goods packed in shipping containers are received into the distribution centre from all over the world.



In the goods receipt area, all cartons are recorded and placed on pallets, then conveyed directly to storage locations.



When the new system was installed in 2005, a storage operation for low-frequency goods was established. The low-frequency goods are manually picked items. You never know when the season for sale of e.g. paddling pools starts and therefore largely all goods are represented in the low-frequency store.

Automatic conveying of pallets from goods receipt into high-bay store.

No more bottlenecks

When the centre was extended in 2005, the old sorter was replaced by a new version with 80 discharge points. In 2006 this was increased to 120 discharge points.

This increase in capacity will prevent any risk of bottlenecks, which was a problem with the old sorter. At the same time, the despatch area, where the 34 despatch bays are located, has been extended to more than 4000m².

The new concept handles high-frequency goods also by means of cross-docking. In the other end of the building - close to the sorter chutes - there are 34 inbound doors which allow the high-frequency goods arriving directly in shipping containers to go onto the sorter. At Christmas and in other peak situations, many goods take this quick route through the building.

The new sorter enables TOP-TOY to sort in batches to all of their 200 plus stores. At each chute, cartons are placed on pallets, automatically stretch-wrapped and labelled, ready for conveying to the despatch area, where the transport companies take over.

TOP-TOY has outsourced their transportation to a number of forwarding agents, who manage the transportation of goods to stores all over Scandinavia.



4

FACT:

Pallets are automatically stretch-wrapped and labelled. The system's capacity is 379 pallets per hour and over 200,000 pallets a year leave the centre.



Based on comprehensive analyses and detailed consideration of advantages and disadvantages, TOP-TOY chose to have only one central distribution centre serving all stores in Scandinavia.



When pallets have entered onto the system and the cranes of the automated high-bay store, only the Warehouse Control System knows exactly where they are placed. Pallets are allocated to the eight double-deep cranes and three single-deep cranes, ensuring that no single item is represented in just one crane aisle.

Some companies prefer batch picking, others prefer order picking. TOP-TOY has opted for a combination of both. Batch-picking is applied to goods suited for automated sortation, whereas more unusual items - for instance, hula-hoops, space hoppers and flag poles, are manually picked.

Automated high-bay store and miniload store

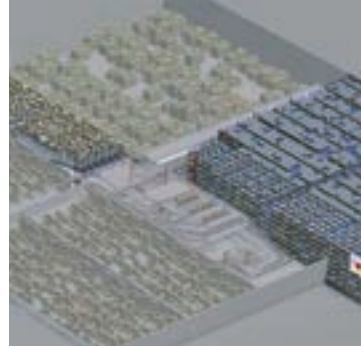
From central storage to efficient distribution centre

From being a central storage depot, TOP-TOY in Greve has developed into a central distribution centre. Some years ago, TOP-TOY realized that not all goods could be stored under the same roof. They needed space to obtain the packing capacity required to serve their stores.

TOP-TOY has approximately 25,000 pallets located in external storage.

During batch operation, pallets are fetched from storage and travel to one of the two Layer Pickers or to manual pick stations. If not all items are required, pallets are conveyed into the on-site high-bay store.

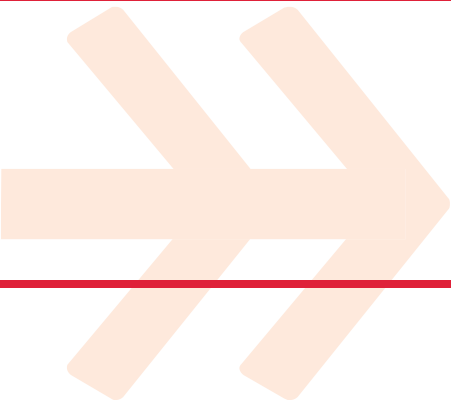
Only full layers are taken from pick pallets and the pallets return to the automated high-bay store. Surplus cartons from the Layer Picker travel to the miniload store, where they are stored on longspan shelving without separators between them. Then cartons may enter into a later batch, depending on the quantity required.



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FACT:

The high-bay store consists of 11 MAN pallet cranes with approximately 17,600 pallet locations. The miniload store is equipped with 6 Univeyor miniload cranes, with room for around 10,450 cartons.



Cartons are sent directly onto the sorter in the production hall and conveyed to the opposite end of the building. The cartons have no bar codes, but tracking is made of each of the 1,174 trays of the sorter.



TOP-TOY was among the first to apply the unique Univeyor Layer Picker®.

The major advantage of batch picking is that each item number only needs to be picked once.

The heart of the distribution centre

The two Layer Pickers, supplied with the original phase, are the heart of the distribution centre, but with the extension and conversion of the building in 2005, three manual pick stations were also added. Each station allows for picking from four pallets, making it possible to handle complicated and low-frequency items with no adverse effect on the flow of goods.

Pallets from the stores are conveyed to the two Layer Pickers that automatically pick full layers.

Both from the manual pick stations and from the Layer Pickers, cartons travel onto the sorter and down to sortation at the other end of the building.



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FACT:

The two Layer Pickers combined pick 1,800 cartons from 140 pallets per hour. Each Layer Picker is capable of picking up a layer of 300 kg.



Chain conveyors, known for their reliability, are used to transport the palletised goods from the sorter area to despatch.



At cross-docking, a container is backed directly to a telescopic conveyor. The telescopic conveyor extends into the container and the exact number of cartons required for the batch in question is placed onto the conveyor. These goods are loaded and are conveyed on the just-in-time principle. Both handling time and storage space are saved. In addition, an extra location is gained from which picking directly to the sorter can be made.



It is very important for TOP-TOY that the goods are conveyed on the sorter with maximum availability - the worst-case scenario is a breakdown during peak times. Univeyor knew that a combination of high capacity and high reliability was crucial when implementing the new system.

One of the system's great strengths is its ability to cope with a large fluctuation in parcel throughput with the same manpower.

Goods receipt – Full pallet storage – Low-frequency pick storage

All goods are recorded upon receipt

In the goods receipt area, goods are unloaded from shipping containers and placed onto pallets. The barcodes are scanned and the goods are recorded on the system. Pallets then travel directly to the relevant storage location.

For order picking, pallets are retrieved from storage and conveyed to the manual pick stations and the Layer Pickers.

If the goods are to form part of the current sortation batch, pallets travel directly to the production hall, where the goods are either picked manually or in layers by the two Layer Pickers.

One of the modifications in 2005 was the establishment of a store for low-frequency goods. If an item number had previously not been represented by parcels in the miniload store, disproportionately much effort was spent picking one parcel from a layer because the rest of the parcels were sent to the miniload store. Furthermore, there was a risk of bottlenecks if the cranes were busy.



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FACT:

40% of sales occur in the six weeks prior to Christmas.

The system had to have the capacity to cope with such an increase in flow. A successful Christmas 2005 has already proven the capabilities of the new facility.

The control system was replaced during normal operation and some extra control features were added to ensure that the existing system was able to operate with the new control system.





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