DISTRIBUTION CENTRE OF ONE OF THE UK’S LEADING DISCOUNT RETAILERS

Case Study
TJ Morris Limited, Liverpool (UK)
Project Objective

- Increasing storage capacity
- Maximising pick efficiency
- Maintaining a low labour overhead
- Increasing operational efficiency
- Maximising flexibility
- Increasing throughput

Our Scope of Supply and Services

- Compilation of logistics concept
- Simulation
- Project planning and management
- Turn-key creation
  (roof/wall/building services, sprinkler, base plate)
- Pallet conveyor system
- Tote conveyor system
- Storage and Retrieval Machines
- High Bay Warehouse and racking system
- Visualisation
- Warehouse Management and Control System

High Bay Warehouse (HBW)

- L x W x H: 112 x 105 x 32 m
- Storage aid: UK Chep-Pallet
- Storage positions: 46,200 pcs.
- Storage type: triple deep

Storage and Retrieval Machine (SRM)

- Number of SRMs / aisles: 11
- Load handling device: Satellite vehicle
- Horizontal travel speed: 200 m/min.
- Lifting speed: 70 m/min.
- Handling capacity: 300 double cycles/h

Automatic small parts storage system (Miniload)

- L x W x H: 78 x 15 x 12 m
- Storage aid: Totes
- Storage positions: 24,656 pcs.
- Weight: 25 kg
- Storage type: double deep
Optimum Solution Increases Flexibility to Accommodate Future Growth Within Fast Moving Retail Business

Trading as Home Bargains, TJ Morris Limited, is one of the UK’s fastest growing discount retailers. Due to store expansion, the Home Bargains existing operation was close to reaching capacity when SSI SCHAEFER was asked to provide a solution to significantly increase bulk storage of the distribution centre. At the same time, the opportunity was taken to make the whole picking operation – for pallets, cases and individual pieces – both more efficient and operator-friendly. To augment the existing storage and to accommodate the constantly growing volume and number of palletised products, a 32-metre high-bay extension to the DC was built to provide a storage capacity for more than 46,000 pallets. These pallets are automatically brought down by cranes to replenish pallet live storage picking-tunnel locations at ground level within the high-bay, from which operators case-pick using a voice-directed picking system. The automatic replenishment by the cranes has delivered an enormous saving in manpower and enables TJ Morris to achieve an extremely high product throughput with vastly improved store delivery times. High-bay cranes also deliver pallets to replenish conventional wide aisle pallet racking locations as well as feeding pallets to the Miniload storage system, where slower, slower moving products are decanted into totes for single item-picking. The Miniload cranes work on the same principle as those in the high-bay, replenishing the carton-live storage picking locations along the sides of the Miniload storage system. SSI SCHAEFER also supplied the storage totes; two sizes were provided, one to accommodate stored products and another to ship items out to stores. Both pallet crane and Miniload storage

“Without the expertise and systems technology provided by SSI SCHAEFER our operation would have struggled to meet the demands placed upon the business by the increased sales of a rapidly expanding store base throughout the UK. Expanding our storage capability and automating areas of our distribution operation has enabled us to achieve our growth targets and drive down our operational costs.”

Joe Morris

Miniload Storage and Retrieval Machine (SRM)
Number of SRMs / aisles 4
Load handling device Combi-telescope
Horizontal travel speed 360 m/min.
Lifting speed 180 m/min.
Handling capacity 202 double cycles/h

Pallet conveyor system
Components:
Roller conveyor, chain conveyor (overall length 860 m), feed-in/acceptance station, rotary table with roller conveyor 90°, shuttle vehicles, pallet stacker/de-stacker, pallet stacker straightener station, integrated pallet elevators.

Tote conveyor system
Components:
Belt-, strap-, roller conveyors (overall length 1,100 m), sorter, scales, repacking table, conical roller curve, belt diverter, chain diverter, lifting station with roller conveyor, stacking and de-stacking machines, automated strapping and tote ID printing.

Warehouse Management System
Hardware HP-Compaq
Operating system Linux
Database system Oracle
WMS Software ant
Functions
- Warehouse management
- Goods receiving/issuing
- Picking
- Material flow control
- Visualisation
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