SSI SCHÄFER

HIGH BAY WAREHOUSE AND AUTOMATION FOR THE FURNITURE INDUSTRY

Case Study
JYSK, Denmark

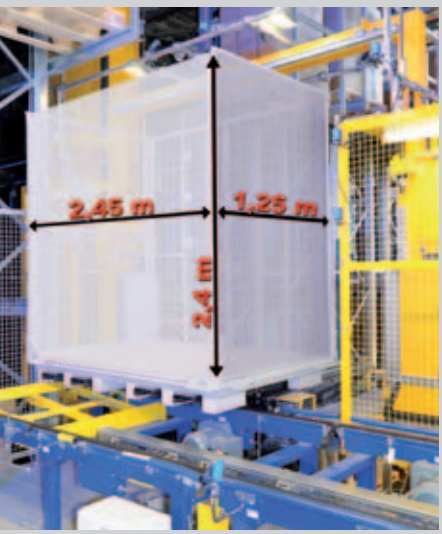
Vacuumlifter, hydraulic scissor type lift tables, roller and telescopic conveyors are the equipment for ergonomically designed work stations in goods receiving

In case of emergency, fire gates seal off the conveyor line to the HBW

Project Objective

- **Consolidating four locations in one**
- **New development of distribution center based on the growth expected for the coming years**
- **Adherence of special Danish regulations concerning fire protection and work positions**
- **High availability of items during peak time**

SRM with four telescopic forks for simultaneous acceptance of 2 Euro or one big-box pallet



Big-box

Fully automatic exchange of damaged pallets

Our Scope of Supply and Services

- **Concept and planning of realisation**
- **Simulation**
- **Turn-key creation (roof/wall)**
- **Pallet and tray conveyor system**
- **Storage and Retrieval Machines**
- **Rack and platform construction**
- **Visualisation**
- **Warehouse management and control of material flow**

High Bay Warehouse (HBW)

L x W x H	3 blocks at 135 x 54 x 39 m
Storage aid	Euro pallets, large pallets, mesh box pallets in three sizes/three heights
Storage positions	134,000 (Euro)
Weight	1,000 kg/large pallets 1,500 kg
Type of storage	double deep

HBW – Storage and Retrieval Machine (SRM)

Number SRMs	21 (double mast)
Load handling device	2 x double-deep telescopic fork
Handling capacity	26 double cycles / SRM

Automatic Small Parts Storage System (Miniload)

L x W x H	2 blocks at 45 x 28 x 14 m
Storage aids	trays
Storage positions	30,000
Number SRM	12 (2 x 6)

Pallet Conveyor System

3.5 km roller conveyors, chain conveyors, 4 feed-in/acceptance stations, 3 vertical conveyors, lifting transfer units, rotating roller conveyor 90°, 20 shuttle vehicles, pallet stacker/de-stacker, check station for empty pallets, pallet rotator, electro Monorail

Customized Logistics for Today, Tomorrow and the Day After Tomorrow

Efficient system technology as well as a future-oriented system and material flow concept are significant factors for success when setting up modern distribution centers.
Example: The Danish furniture manufacturer JYSK, in Germany well-known as “Daenisches Bettenlager”. The European market leader for bedroom, bathroom and living room furniture and decor in Uldum, north of Vejle in eastern Jutland started operating its’ new central warehouse. The warehouse will supply 170 shops in Denmark, Norway, England and the Benelux.
A system with gigantic dimensions. With three combined high bay warehouses and two interlinked automatic small parts storage systems, Denmarks largest logistic warehouse with approximately 200 jobs and 1.43 million cubic meters was built there. Four JYSK locations were consolidated in order to achieve a better quality in delivery due to storing of and access to all items.

Miniload storage and retrieval

Bin conveyor system to order pick positions

Tray Conveyor System
1.7 km belt, strap, roller conveyors, 1 scale
6 cam roller conveyors, 200 belt diverters,
2 tray stacking machines, 1 tray de-stacking machine

Warehouse Management and Control of Material Flow

Hardware	DELL PowerEdge Server, EMC SAN Storage System
Operating system	Windows Server 2003, VMware ESX
Data base system	Oracle Database 10g

Functions

Warehouse management in automatic and several manual areas

Goods receiving/issuing

Order picking with Pick-by-Light and radio data transmission

Consolidation of picked items

Quality control in goods receiving/issuing

Inventory in automatic and manual areas

Control of material flow and supply

Visualisation

Radio data transmission system

Planning and Monitoring:

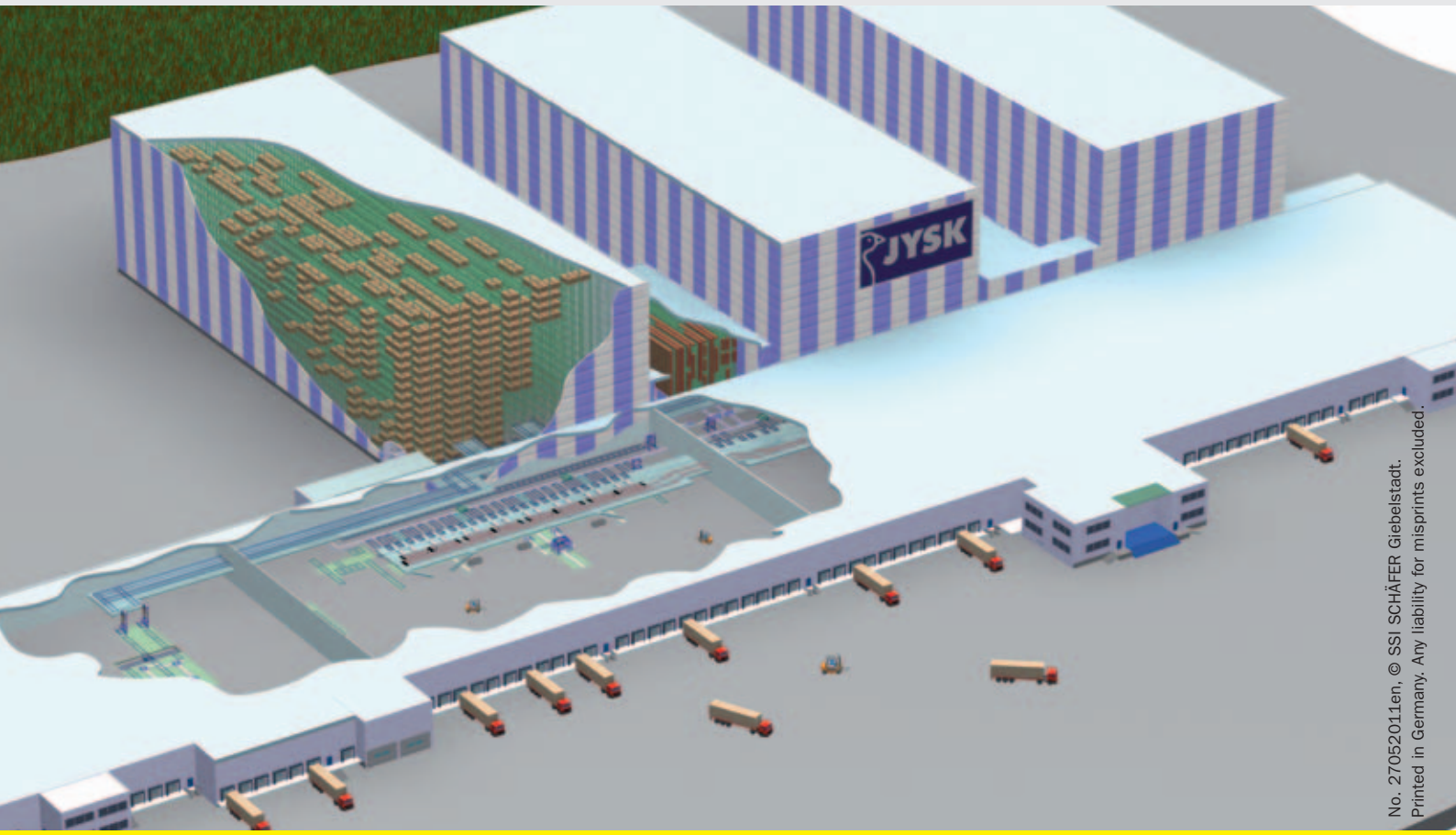
- Planning and optimisation of resources like gates, work stations and fork lifts
- Requirements planning of employees in production
- Monitoring of assembly process and workload of employees
- Avoidance of bottlenecks in production

The lift tables are connected to the chain conveyor system via shuttle vehicles that run underneath the order picking platform

One of the main storage points to the HBW

Operating Figures

- Processing of 24,000 order lines/day
- 220 orders with a picked overall volume of 2,550 cubic meter
- 1,550 picks/h at 24 order picking stations
- 60,000 picked packages and 1,800 order pallets
- 90 trucks/day to JYSK shops



- General contractor
- Planning and consulting
- Warehouse Management System
- Control systems
- Steel structure/racking systems
- Storage and Retrieval Machines
- Conveyor system
- Service and maintenance

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SYSTEM CERTIFIED
ISO 9001:2008 No.07908/0

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