

# CASE STUDY

Reference JYSK, Denmark:  
Highly Dynamic Distribution Center to Control  
the Growing Variety of Items in the Furniture Business

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**SSI SCHÄFER**



# TAILOR-MADE SYSTEM FOR MORE TRANSPARENCY, CAPACITY AND EFFICIENCY

The Danes have a term that describes a cozy, comfortable living space where you feel completely at home. They call it “hyggelig”. JYSK brings this Scandinavian decor into the homes of a wide variety of consumers. In order for the wide variety of products to arrive in stores and be delivered to customers on time around the world, the logistics must



The company's history began with Lars Larsen, founder of JYSK, in 1979. For the first time ever, he offered everything one would need for a good night's sleep under one roof: Beds, blankets, and pillows. Today, JYSK is a leading retailer of mattresses, furnishings, and home accessories, with more than 2,800 stores worldwide.

Since 2007, JYSK and SSI SCHAEFER have had a trusting partnership and have created three of the most modern

logistics centers in the retail industry in Denmark, Poland and Sweden. SSI SCHAEFER worked as the general contractor in preparing the logistics concept for the project in Uldum, Denmark, and was responsible for the turnkey creation of this major project.

In the first step, three combined high-bay warehouses were constructed with two connected miniloads, which used a 2.5 km pallet conveying system and a 1.8 km bin and carton conveying system.

run perfectly. For this reason, JYSK and SSI SCHAEFER modernized and expanded the existing warehouse location in Denmark and built the largest dynamic distribution center in the country to guarantee transparent material flows and the efficiency of the processes for today and tomorrow.



**The distribution center in Denmark provides an overall capacity of 215,000 storage locations for pallets, plus 45,000 storage locations for trays.**

With the company growth and the continuous expansion of the product portfolio, demands on warehouse capacities and processes have increased. The location has benefited from the completed modernization and expansion measures introduced in 2019.

The logistics center was extended by a fourth high-bay warehouse which added another 82,000 storage locations for pallets and seven additional picking work stations.

Some of the modernization and expansion measures such as the expansion of the miniload were implemented by the SSI SCHAEFER Customer Service & Support (CSS) team as a retrofit, performed without interrupting operations. WAMAS®, the logistics software from SSI SCHAEFER, comprehensively manages and controls all of the processes integrated in the intralogistics.

# PERFECTLY FURNISHED

SSI SCHAEFER worked as the general contractor in preparing the logistics concept including a turnkey implementation.

The tailor-made intralogistics solution was required to handle the wide and permanently growing product portfolio: from small and light items, such as individual screws, to oversized and heavy products, such as sofas. The main focus was on the availability of products during peak times, the reduction of error rates, the ergonomic handling of all items as well as sufficient room to centrally consolidate four external warehouses to prevent unnecessary "product tourism".

"The integrated concept offered by SSI SCHAEFER meets our requirements with flying colors: The intelligent interaction between highly dynamic pallet warehouses and miniloads, the ergonomic picking concept, and the WAMAS® logistics software is what makes the solution so successful."

Allan K. Kjærgaard  
Executive Vice President Logistics JYSK



## PROJECT OBJECTIVES

- Creating an overall concept for intelligent storage and handling of the growing variety of items, including simulation, implementation planning and turnkey installation
- Planning and implementing comprehensive modernization and expansion measures (partly in a retrofit project during operation) to be able to cope with the growing demand in the future
- Permanent availability of all products, even at peak times
- Reducing error rates
- Ergonomic handling of all items and effortless work according to the ergonomics@work!® principle
- Intelligent control of intralogistics processes using the logistics software WAMAS®









Transport of supplied goods to the high-bay warehouse



Powerful conveying system for Euro pallets and big box steel pallets



Consolidation of pallet goods and small-parts goods for order picking

## HIGHLY DYNAMIC PROCESSES FOR OPTIMUM HANDLING OF A VARIETY OF ITEMS

Clearly structured material flows and consistently automated workflows ensure efficient provision of goods.

- The goods supplied on pallets are transferred to the conveying system and after registration, IT gathering and contour check, the goods are transported to one of the four high-bay warehouses. Here, the energy-efficient Exyz storage-retrieval machines take over the pallets at the transfer points for storage.
- The 32 aisles in the high-bay warehouses primarily contain heavy goods and slow movers as well as mass items.
- Pallets that are retrieved from the high-bay warehouses are mainly transported on a highly dynamic floor mounted monorail system that effectively distributes the pallets to the picking or de-palletizing areas. There, the pallets are transported to the ergonomically correct picking level with scissor lift tables. Small goods are de-palletized and loaded onto trays for later order picking. The trays are then transported on a conveying system to one of the two miniloads where they are stored and retrieved using Schäfer Miniload





Wrapping picked pallets

Cranes. In the picking areas, goods from pallets are picked and consolidated with small-part goods for order picking.

- Each picker at the ergonomic picking stations has access to three pallets and eight trays and compiles the orders for two shipping pallets. Picking is supported by a Pick by Light system.
- The completed pallets are lowered by scissor lift tables and transferred to the conveying system. The pallets are transported to a wrapper to secure the load and shipping labels are added.
- Finally, the pallets are made available to the goods-out area and, if necessary, consolidated with complete pallets. They leave the distribution center on trucks which are loaded according to a specific loading sequence, precisely adapted to the requirements of the recipients.



Provision of pallets in the goods-out area



# INTELLIGENTLY CONTROLLING THE GROWING VARIETY OF ITEMS

The greatest challenge is the various sizes and types of items offered. The oversized packages that are typical in furniture retail required a clever solution for efficient processing in the distribution center. JYSK uses custom big box steel pallets which allow safe transportation of particularly large and heavy items. The key feature is the 32 energy-efficient Exyz storage-retrieval machines in the four high-bay warehouses.

These machines can simultaneously store and retrieve either two Euro pallets of up to 1,000 kg each or one big box pallet with up to 1,500 kg. The working environment and the well-being of the employees played an important role in the planning. For this reason, the work stations at the picking level have been designed in line with the strict legal requirements for ergonomics and health protection in Denmark.



Ergonomic picking of retrieved pallets



Therefore, ergonomic picking stations according to the goods-to-person principle supported by a Pick by Light system and modern working aids such as vacuum lifters and scissor lift tables are used in the distribution center. Pallets retrieved from the high-bay warehouses can therefore be lifted or lowered at the push of a button to facilitate an ergonomic, anatomically designed working position.

Optimally adapted gripping processes and internal procedures enable an above average picking performance. There is another special feature in the work environment: Thanks to the use of scissor lift tables, the pallet conveying system is located outside the picking area. Therefore, the employees are able to work with minimal noise pollution.



Picking at ergonomic work stations



WAMAS® efficiently controls all intralogistics processes

WAMAS® comprehensively manages and controls all of the processes integrated in the intralogistics and was decisive in JYSK's choice to award SSI SCHAEFER as general contractor.





# FACTS AND FIGURES

## SSI SCHAEFER Scope of Supply and Services

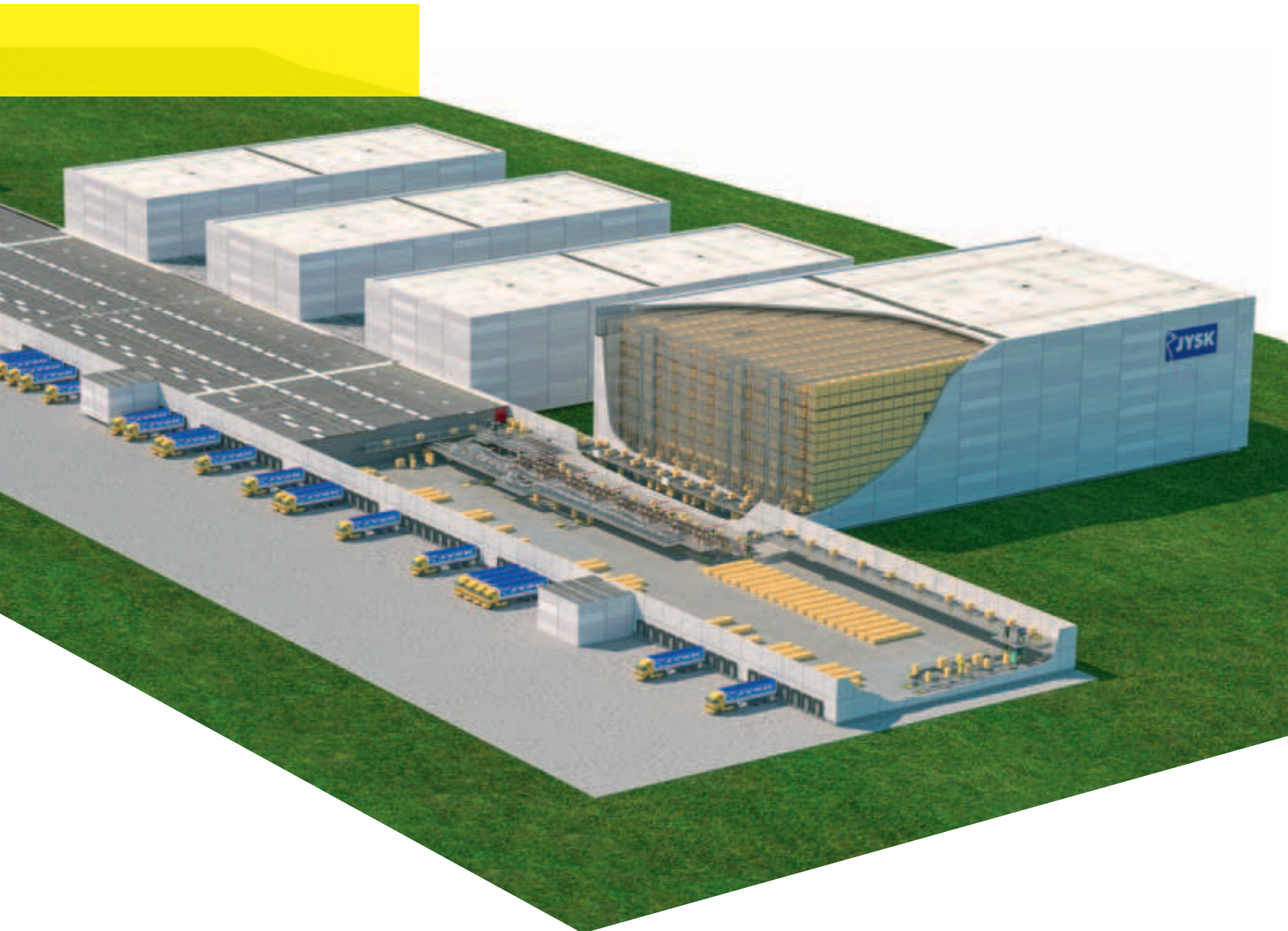
Planning and implementation	
Conception and realization	<ul style="list-style-type: none"> <li>- Turnkey implementation as general contractor</li> <li>- Creation of logistics concept</li> <li>- Simulation and implementation planning</li> <li>- Visualization</li> </ul>
High-bay warehouse	
Number of high-bay warehouses	4
Storage locations	215,000
Aisles	32
Loading aids	Euro pallets, large pallets (big box steel pallets)
Number of storage-retrieval machines	32 energy-efficient double mast storage-retrieval machines type Exyz
Storage type	Double-deep
Miniload	
Number of miniloads	2
Storage locations	45,000
Aisles	18
Loading aids	Trays
Number of storage-retrieval machines in the course of the extension	6 Schäfer Miniload Cranes
Storage type	Single-deep
Picking systems and work stations	
Picking work stations	31 goods-to-person work stations according to the ergonomics@work!® principle with Pick by Light system (up to 3,500 picks / hour)
Goods-in work stations	2
Returns work stations	7
Packing work stations	29
Manual de-palletizing and palletizing work stations	4
Conveying system	
Pallet conveying system	2.5 km
Carton and bin conveying system	1.8 km
Continuous vertical conveyor for pallets	9
Handling systems	System components
Pallet stacker and de-stacker, tray stacker and de-stacker, dynamic scales, label printers, label adding devices	Rack and platform construction Trays (50 x 600 x 800 mm)
Software	
Logistics software	WAMAS®





## System Key Figures

Warehouse size	- 3 high-bay warehouses: each 136 m x 54 m x 39 m (L x W x H) - 4 <sup>th</sup> high-bay warehouse: 150 m x 100 m x 43 m (L x W x H) - 2 miniloads: each 45 m x 28 m x 14 m (L x W x H)
SKUs	5,500
Orders / day	On average 3,500–4,000 m <sup>3</sup> ; 5,000 m <sup>3</sup> at peak times
Shifts / day	3
Working hours / day	24 / 6





# SIX REASONS FOR CHOOSING SSI SCHAEFER

- **Stability**

As a financially independent family business, SSI SCHAEFER is committed to long-term solutions. You can trust that our team of experts will be there for you today, tomorrow and in years to come.

- **Efficiency**

SSI SCHAEFER solutions are scalable and able to grow with your business. You can always upgrade or retrofit.

- **Quality**

As a systems specialist and original equipment manufacturer, SSI SCHAEFER provides tailor-made and high-quality solutions from a single source, specifically designed to meet your challenges.

- **Reliability**

Thanks to our worldwide Customer Service & Support network, SSI SCHAEFER ensures smooth operation of your system, both during and after installation.

- **Know-how**

SSI SCHAEFER solutions are always up-to-date with the latest technological standards and can be easily integrated into an existing (IT) landscape.

- **Internationality**

As a global organization, SSI SCHAEFER has local offices worldwide. With over 70 operative subsidiaries, our team of experts speak your language.

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