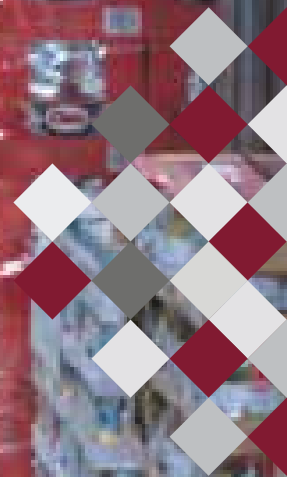




**WHITE PAPER**

# FOOD

**How to deliver on time despite growing product diversity and complex material flows**






# FOOD: CONSUMERS CHANGE THE MARKET

Grabbing vegetables, a frozen pizza, dairy products or meat from the fresh food counter is part of everyday convenience in the supermarket or wholesale store. Consumers expect variety and much more: transparency in production, healthy food, more animal welfare and environmental protection are increasingly setting the market trends. The ability of the food industry to supply fresh products on time and for all tastes is only made possible by high-performance production and closely-timed logistics with enormous storage capacities.

Handling large batches in terms of warehouse logistics and temperature control, the ability to produce and store many varieties at the same time, intelligently combining the growing production with space-saving high-density warehouses and order picking of the delicacies in a wide range of quantities places the highest demands on automated logistics systems.

Stephan Bruns, Sales Director at Westfalia Technologies, explains how the intralogistics specialist relies on time-tested values, viable concepts and cutting-edge components for normal temperature, cold and deep-freeze warehouse systems with a tried-and-tested key technology to position food manufacturers for future growth and success.



The German food industry is steadily increasing its sales. In 2020, it generated a total turnover of 164.03 billion euros (source: Statista.com). However, industrially manufactured products are facing challenges. There is a growing market trend towards organic food and meat substitutes. The interest of consumers in flexitarianism, vegetarianism and veganism, environmental protection, animal welfare and healthy, transparently produced food is growing.

Major food producers are placing even greater emphasis on the transparency of products and delivery routes. They are expanding their range while continuing to produce established products in large batches. In addition, lockdown has further increased the demand for ingredients, semi-finished and finished products for private households and thus also the throughput in warehouses. More and more suppliers of organic food are expanding their production and distribution channels due to the growing interest in sustainable food.

Industry giants as well as former niche suppliers are reconsidering their procurement, production and distribution logistics. They want to ensure stable and transparent supply chains to fulfil their supply obligations even in times of staff shortage in all logistics sectors. Their goal is to bundle cooling and frozen food logistics and to create flexible capacities along the supply chain. Automated warehouse and logistics systems assist them in fulfilling this task.

# INTRALOGISTICS FOR PRODUCTION LINES



## ARE YOUR PRODUCTION LINES READY TO FACE THESE CHALLENGES?

Food producers are constantly developing new products to boost sales. Frequent changes or expansion of production processes cost time and money. They must be dynamically integrated into warehouse operations, and they increase the traffic of industrial trucks and the risk of incidents and delays. New products are frequently produced in smaller batches. Additional set-up times increase the investment risk. The capacity for semi-finished products possibly also limits the batch sizes.



## AUTOMATED INTER-MEDIATE STORAGE

- > The great complexity of material flows can be partially or fully automated. The system is future-proof – it can be expanded step by step, and adjusted to meet changing conditions.
- > Multiple production lines can be seamlessly integrated, including on multiple floors.
- > Multiple load units and high loads can be bundled for transport.
- > Flexible: Units can be stored on a





wide variety of loading aids or without pallets in various sizes and heights, and it is possible to set up different zones for shipping, order-picking and various storage periods and temperatures in a static or dynamic way.

- > Compact: The small amount of routes and the narrow layout provide additional capacities for intermediate storage on a minimum of space. Free space is used for buffer storage.
- > Reducing material handling routes: Storage buffers are customized and integrated directly along the production line.
- > Consistently high performance for maximum throughput: Precise and direct replenishment of multiple production lines or intermediate storage of semi-finished products as needed.
- > Flexible production planning independent of the order volume: maximum intermediate storage capacity for timeshifted orders, reduced set-up times.
- > Customizable: Depending on the required capacity and access frequency, intermediate storage facilities are optionally designed with telescopic forks for single-bay and double-deep storage or with Satellite® technology for multideep storage.
- > Efficient, economic and energy-saving through optimal utilization of conveyor and storage technology, intelligently combining supply and storage and avoiding empty runs.
- > Automated processes accelerate intralogistics, minimize the risk of errors and reduce forklift traffic. Even with an increase in production there is no need for additional staff to perform intermediate storage operations.
- > Reduced production lead times and increased production capacities around the clock and without additional staff.
- > Minimized risk of accidents for employees due to reduced industrial truck traffic.

# WAREHOUSE



## IS YOUR WAREHOUSE READY TO FACE THESE CHALLENGES?

Is your entire range of products in the normal-temperature and temperature-controlled warehouses directly accessible for the next scheduled trucks? The more extensive the range demanded by the market, the higher the throughput in the warehouse and the requirements for rapid and trouble-free distribution. With industrial trucks, the vertical space available for storage and the depth of access are limited. Therefore, warehouses are expanding in surface, but this is expensive and existing space is often limited.



## THE AUTOMATED HIGH-BAY WAREHOUSE

- > Designed for the storage of various sizes, load carriers and high loads, also pallet-free.
- > Particularly gentle handling: Mechanically operated load handling devices store goods in multi-deep channels using rails.
- > High storage density and capacity: Large single-variety batches are perfect for deep storage channels as they make optimum use of the



available space for maximum capacity on a minimum of space at high storage density.

- > High product diversity with maximum capacity: Product diversity and higher access frequencies are mapped by software-based storage strategies and buffer sections for preparing the trucks for transport.
- > Storage heights of more than 40 meters possible.
- > Bundled, synchronous and automated intralogistics: Automated storage, intermediate storage and retrieval, order picking and dispatch of in-house and third-party products in one warehouse. Synchronized storage and preparation of trucks for transport – including overnight. The system can also be supplemented with automated truck loading and unloading systems on request
- > Strengthening the supply chain and bundling logistics: Automated high-bay warehouses bundle logistics at central locations. They create synergies for supply chains and stabilize them as raw materials warehouses, intermediate storage facilities or product warehouses.
- > Reduce the risk of accidents and susceptibility to errors: The material flow on factory premises and your shipping logistics become more efficient, and the risk of accidents and susceptibility to errors of intralogistics processes is significantly reduced.
- > Relieve staff, increase customer satisfaction: Secure and intuitive processes reduce the burden on staff. The number of complaints and returns decreases and customer satisfaction increases. This pays off for your sustainability goals.
- > Save space and energy, increase capacities: Storing enormous quantities in a compact and thus sustainable way means saving space and energy in existing buildings or a self-supporting silo design without the need for additional halls. The system makes optimal use of real estate and existing warehouses of any size.
- > Bundle warehouse management and material flow control in an all-in-one logistics software solution: A powerful warehouse execution system such as Westfalia's Savanna.NET® controls and analyzes all processes. It can be integrated flexibly, operated intuitively and scaled according to requirements.

## **BENEFITS FOR AUTOMATED CHILLED AND COLD STORAGE WAREHOUSES**

- > All warehouse components can be designed for different temperatures down to -35 °C [-31 °F].
- > High storage density and a high level of space utilization minimize the external surfaces and the space that needs to be cooled. This reduces energy consumption.
- > Different temperature-guided zones can be combined in one single high-bay warehouse.
- > High capacity enables full storage and utilization of seasonal harvest products.
- > Automation relieves the burden on staff and minimizes personnel expenditure even with increasing production in extreme working environments – such as a deep-freeze warehouse, where appropriate health and safety and break times must be observed.
- > Complete data transparency for seamless traceability of the transported goods. Full visibility of data and complete control through interfaces for customers of chilled and frozen food logistics service providers.

# ORDER PICKING



## IS YOUR ORDER PICKING READY TO FACE THESE CHALLENGES?

Complete pallets are the backbone of well-stocked food trade. However, B2B customers and consumers want a broad choice. As a consequence, there is a need for simultaneous storage of variable batches and a varied range of products from large batches of vegetables to a wide range of delicatessen. Since B2B relies on straightforwardness and central suppliers, a large variety of products and ready-to-use mixed pallets are in demand. This makes smooth order picking the focus of warehouse logistics.







## DYNAMIC SEMI-AUTOMATED ORDER PICKING

- > Provide bestsellers automatically: Frequently ordered full pallets are set apart for the shipping zone by the warehouse management software while still in the warehouse.
- > Automated replenishment for order picking: If required, available full pallets are automatically transported from the picking area using conveyor technology.
- > Automated replenishment of picking lanes: High amount of picking lanes for "person-to-goods" picking. Empty lanes are automatically replenished and picked goods are transported to the warehouse or shipping zone.
- > Relieve staff and avoid errors: Process automation and "person-to-goods" order picking relieve staff and reduce picking, storage and distribution errors through software-controlled automated checks.
- > More effective processes thanks to lane efficiency: Conveyor technology combines replenishment for order picking with transport to the warehouse and shipping zone. This saves time and energy.

## **GROWN UP IN THE FOOD INDUSTRY**

When the first fully automated storage systems from Borgholzhausen went into operation for the food industry concentrated in southern Lower Saxony and North Rhine-Westphalia in the 1970s, this industry was characterized by a medium variety of goods with large batches and heavy containers. Under these conditions, compact multi-deep storage and a key technology that has been exerting a significant influence from 1983 onwards paved the road to success: the Satellite® load handling device.

Satellite® storage systems which operate on the same principle as the snack machine at the station are ideal for single-variety deep storage channels. They raised the capacity and space utilization ratio of automated high-bay warehouses to a new level, and are hubs and pivots of a branching food logistics network. In addition, they contribute to a safe, flexible and fast supply.

Heavy loads still have to be stored in a bundled and compact manner to save space and energy, and the storage system needs to be efficient to ensure on-time and flawless distribution. Complex warehouse system layouts, modern conveyor and storage technology, PLC control and up-to-date logistics software complement the established and powerful satellite® technology and adapt fully automated warehouse and logistics systems to branched supply chains, high consumer demands, high production output and range depths as well as the picking of batches of any size.

# Conclusion

## WAREHOUSE LOGISTICS FROM A SINGLE SOURCE

We design and build independent storage systems that can be integrated into existing systems and are easy to expand. This way, they can be adapted to the market developments. None of our warehouses is off-the-shelf, we analyze the actual situation individually for each customer. We are committed to providing transparent quotations without any hidden costs. In addition, we strive to provide our customers with on-time delivery and turnkey storage systems with sustainable benefits .

We map all storage requirements with our Savanna.NET® Warehouse Execution System. Thanks to our in-house manufacturing of storage and retrieval machines and PLC control systems as well as a strong network of suppliers, we offer on-time delivery of state-of-the-art technologies for the entire scope of intralogistics. For the required IT infrastructure, we offer TERRA products supplied by WORTMANN AG corporate group of which we are a member. As a general contractor, we manage your project from initial consultation to acceptance and sustainable customer service.

We were the first manufacturer to develop the key technology for the multi-deep, high-density storage of large sizes and loads for different load carriers – the Satellite® storage system. Use these advantages to take the capacity and flexibility of your food production and distribution to a new level!

Would you like to learn more? I look forward to your enquiries and will be happy to advise you.

Stephan Bruns



### STEPHAN BRUNS

The graduate mechanical engineer joined Westfalia in 2017 and has been at home in the intralogistics industry for more than 30 years. As Sales Director Technologies & Systems he is responsible for new systems in the area of supply chain automation.

## OUR VALUES

### **ALL FROM A SINGLE SOURCE**

Logistics planning, mechanical engineering, control systems, software development, installation, and project funding

### **QUALITY MADE IN GERMANY**

All manufactured centrally at the corporate headquarters in Borgholzhausen with our own test center for key units

### **EXPERTISE & FLEXIBILITY**

Consulting, conceptualization, customer solutions made to measure

### **HONESTY & FAIRNESS**

Transparent pricing, fair price-performance ratio

### **CUSTOMER PROXIMITY & AUTHENTICITY**

Flat hierarchies; experts available at every project stage

### **SPEED & COMMITMENT**

Local service centers; customers always supported by the same personal contacts

### **SECURITY & RELIABILITY**

Dedicated and experienced employees ensure investment security and product functionality

### **RESPONSIBILITY**

Job security in Germany, environmental awareness, and social commitment

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