



CASE STUDY

# TÖNNIES BEEF

**Bundling of beef production:  
Automated warehouse, picking  
and shipping process**

The family-run Tönnies Group based in Rheda-Wiedenbrück achieved global sales of € 7.3 billion in 2019. The main sales drivers were the slaughtering, cutting, and processing of pigs, sows, and cattle. At its new beef plant in the town of Badbergen, the Tönnies Group by 2020 had invested € 85 million in the development of an ingenious system consisting of refrigeration technology, machine-supported cutting, process-

ing, as well as an automated picking and shipping process.

About 500 employees slaughter up to 5,400 heads of cattle each week, with 95 % of the cattle being sold under the Tönnies Beef brand. Boxed and palletized, the products are moved by pallet truck from production to Westfalia's new, up-to-date maturation warehouse which has 2,500 racks.



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### Project information

-  Food, meat products
-  Badbergen, Germany
-  2020
-  2,500 storage spaces
-  4 storage and retrieval machines
-  Satellite® storage system
-  Pallet (wood and plastic)
-  3 levels in 8 blocks
-  50 m (l), 46 m (w), 8 m (h)
-  Savanna.NET®





## CHALLENGE

In 2017, the Tönnies Group acquired the northern German company Artland Fleisch of Badbergen which has been influential in the production of meat and sausages in the Lower Saxony region of Artland since the 1960s. Production, storage and distribution of beef were to be shifted entirely from the company headquarters in Rheda-Wiedenbrück to an existing property in Badbergen. Every week, up to 5,400 heads of cattle are slaughtered and cut up there. The cutting operation extracts 20

different cuts of meat from one cow, thus being able to cater to a diverse range of individual tastes around the world, anything from lean beef for German consumers, meat with a thick layer of fat for Scandinavian consumers, or entrails, which are in high demand in Asia. Directly after production, this great variety of products must be stored and must mature at certain temperatures for varying lengths of time before being moved out of the warehouse for distribution.



## PROJECT GOALS

- > Bundling of the maturing storage and distribution processes for the entirety of Tönnies Beef products
- > Integration in a grouping of existing properties at the Badbergen site
- > Implemented within less than five months – under COVID-19 conditions
- > Storage of palletized boxes under rigorous hygienic conditions
- > Manual interface with production; fully automated and compact, energy-efficient storage
- > Special maturation storage: Storage and retrieval according to product-specific maturation period at temperatures of 0 to 2 °C
- > Comprehensive IT infrastructure and software for warehouse management and material flow control



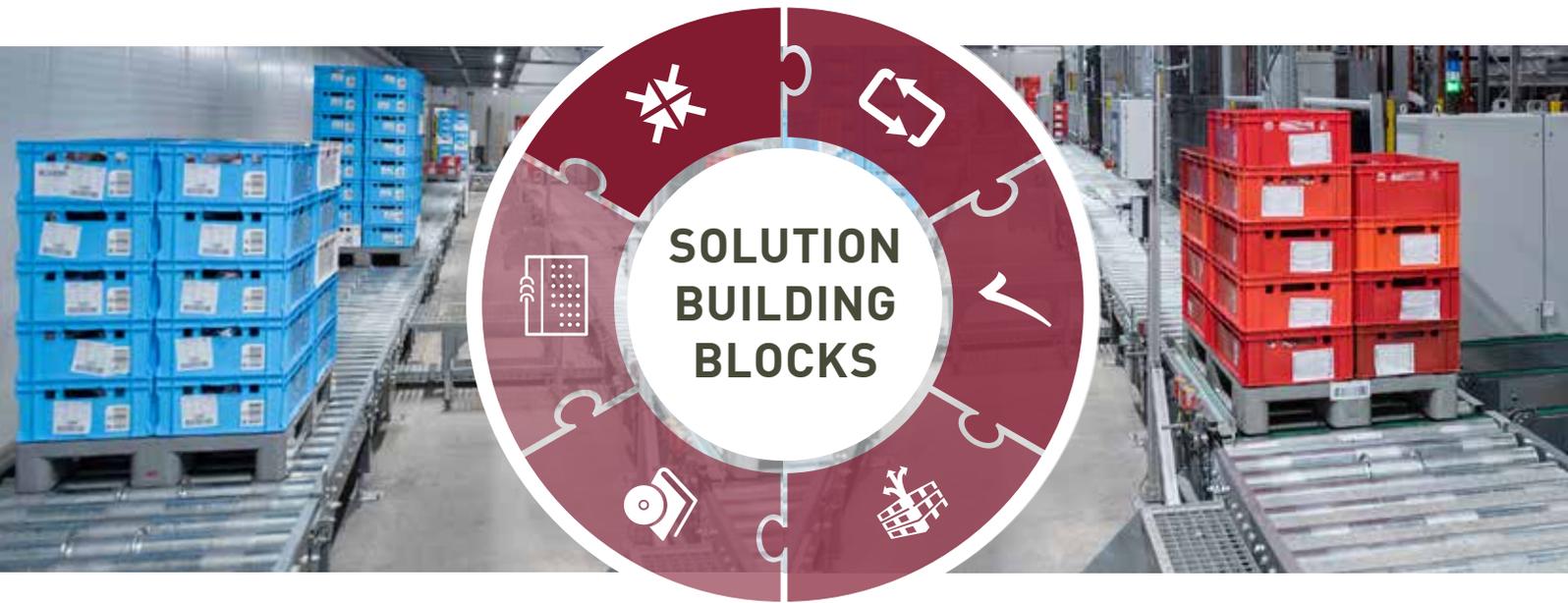
## SOLUTION

The intralogistics hub of the beef plant is a new, automated, maturation warehouse with 2,500 storage spaces for palletized boxes. Westfalia integrated the warehouse in a completely renovated existing warehouse and despite the restrictions due to the COVID-19 pandemic implemented the project within just five months.

The 4-aisle Satellite® warehouse stores units of palletized boxes with a height of about 1.8 meters all the way to the warehouse ceiling. The storage and retrieval machines (SRM) serve three levels in eight blocks and store products multi-deep with up to seven pallets in one channel.

## COOPERATION WITH THE CUSTOMER

*“Despite the first nationwide lockdown, with our in-house services we were able to deliver the automated maturing warehouse on schedule”, says Mathias Spötter, Head of Project Management.*



### **HIGH-DENSITY STORAGE SYSTEM WITH LOW APPROACH DIMENSIONS**

The four storage and retrieval machines have extremely low approach dimensions. The storage height of the upper level is reduced to about one meter only in the vicinity of a ceiling truss in the existing warehouse. In the other areas, the pallets are stored with boxes with a height of about 1.8 meters each per level up to the warehouse ceiling. Utilizing the available space to a maximum, the Satellite® warehouse reduces the amount of space per load unit that needs to be cooled down.

### **AUTOMATION OF WAREHOUSE AND SHIPPING**

Westfalia has analyzed the entire storage, picking, and shipping process and transferred the Tönnies standards to the new site. The boxes from the production line containing the packaged meat products are placed on the lifting platform at floor level by a pallet truck. As soon as the area is released by a safety light barrier, the rolling lifting platform lifts the plastic and wood pallets to the level of the conveyor system. Subsequently, the pallets are run through a contour check. Incorrectly loaded pallets are sorted out immediately. All compliant pallets are conveyed in a conveyor loop, which feeds them into one of the four storage aisles.

### **PRECISE THROUGHPUT THANKS TO SATELLITES AND DOUBLE ROLLER CONVEYOR**

In the four warehouse aisles, storage and retrieval machines equipped with Satellite® take over. With an output of 34 double cycles per hour, the four SRMs store the pallets (which can weigh up to one ton) and, after a certain maturation period at 0° to 2°C, retrieve them again. The pallets with the matured products are transferred to a transverse transfer car with double roller track for transporting up to two pallets. Depending on the order, the transverse transfer car serves the picking and shipping areas with up to 100 full pallets per hour.

### **FLEXIBLE INTERMEDIATE STORAGE OF PICKED PALLETS**

If necessary, the transfer car temporarily re-stores picked pallets that have not been loaded yet. As an alternative, the pallets can be transported via roller conveyors towards the emergency acceptance. If the transfer car is unavailable due to maintenance works, pallet trucks can also assume transport from emergency acceptance to shipping.



## A SOFTWARE FOR WAREHOUSE MANAGEMENT AND MATERIAL FLOW CONTROL

Westfalia's Warehouse Execution System (WES) Savanna.NET® fully controls and monitors both the flow of materials as well as the warehouse administration in this highly specified process. The Savanna.NET® warehouse execution system combines the management, analysis, and control of all existing and new storage system processes in one instance and with a single user surface. Thus, siloed software solutions are replaced. The storage strategy takes into account not only the article number but also customer and batch information. Savanna® is seamlessly connected to the ERP system via a web interface.



## ON-TIME DELIVERY DESPITE COVID-19 RESTRICTIONS

Due to COVID-19 restrictions, no external service providers were available for rack system construction. Despite the immense deadline pressure, our in-house project team, assembly workers specialized in steel construction, and system installation service technicians gave us a significant advantage. Despite the first nationwide lockdown, Westfalia was able to deliver the automated maturation warehouse on schedule. Designed in cooperation and at an early stage and helped by a focused, well-networked project management team, the warehouse went into operation on time at the end of June 2020 – as the automated hub of one of the most modern beef production and logistics centers in the world.



## Conclusion

In the renovation and expansion of the Badbergen site into a modern slaughtering, cutting, and shipping operation for beef products, the maturation warehouse plays a major part in the intralogistics between production, picking and shipping. In an existing hall, it has created precisely tailored maximum capacity for maturation storage through

optimum space-efficiency and very low approach dimensions of the storage and retrieval machines. Despite the restrictions imposed by the COVID-19 pandemic, the warehouse system was implemented in only 5 months thanks to good planning and Westfalia's in-house assembly and service staff.