

Jungheinrich Case Study

Pasta production in times of coronavirus: automated intralogistics versus panic buying.



Intralogistics solution for Erfurter Teigwaren GmbH.

The outbreak of the corona epidemic has brought production to a standstill in many industries. However, this is not the case for Erfurter Teigwaren GmbH – Germany’s oldest and largest pasta manufacturer. The company has been producing pasta in all shapes and sizes since 1793, yet it has never seen such high demand. Its machines are running around the clock. Logistics service provider Maintrans relies on automation solutions from Jungheinrich to operate the newly opened finished goods warehouse. Automated Guided Vehicle systems together with a semi-automatic shuttle compact storage system enable reliable operation even when working at maximum capacity.

Pasta in every conceivable shape and size is one of Germany’s favourite dishes. On average, Germans eat around 8 kilos of pasta per year. Even before we had heard of the coronavirus, Erfurter Teigwaren GmbH was working around the clock to produce up to 100,000 tons of pasta per year. The company does not sell its own brands, but anyone reaching for a well-known brand of pasta in the supermarket or discount store is more than likely taking home pasta made by Erfurt. Since the outbreak of the coronavirus epidemic, the demand for pasta has risen at an exponential rate. No sooner have the pasta shelves in the supermarket been filled than the goods are already out of stock. “We are up against customers panic buying”, says Stephan Kürsten, Managing Director of Maintrans. This is an enormous challenge for production and logistics.

A PARTNERSHIP BASED ON TRUST.

Meeting the demand for pasta during the coronavirus outbreak calls for the most state-of-the-art production facilities and sophisticated logistics. Luckily, Erfurt Teigwaren GmbH has both. In 2017, the new Plant No. 2 was built right next to the existing plant. These plants can produce spaghetti, fusilli, penne, rigatoni, tagliatelle or vermicelli – to name just a few – around the clock. The pasta is packaged fully automatically in 500 gram bags and packed in cardboard boxes, before being loaded on pallets and transported to the warehouse using conveyor technology. Once the pasta reaches the warehouse, Maintrans Logistik GmbH takes over. The company has managed the pasta manufacturer’s logistics systems since 2010. Over the years, Erfurt pasta and Maintrans have built up a close and trusting partnership and, in recent years, the pair have successfully grown and expanded the company hand in hand.

SPACE-SAVING STORAGE.

Once the decision was made to build Plant No. 2, it was clear to both partners that a new warehouse would also be required. The previous solution consisting of an external warehouse, which was serviced with stacker trucks in shuttle operation, no longer appeared sustainable given the expanded capacities. The new building was to be connected directly to both the old and new production facilities and would be used to store finished goods, inventory stock and reserved stock. The building also had to be deployed for goods outward. And all in a fairly confined space. The site in the Erfurt city area only had an available floor space of 5760 square metres for the new warehouse, so efficiency was paramount.

INTRALOGISTICS SOLUTION FROM JUNGHEINRICH.

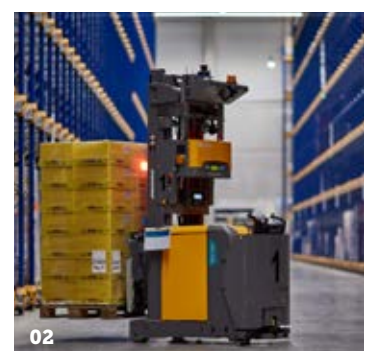
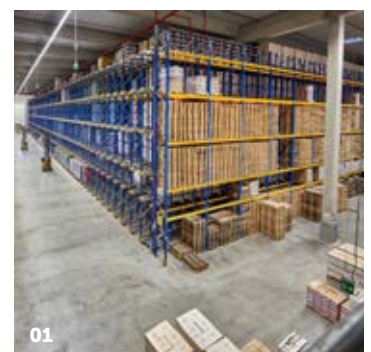
Hamburg-based company Jungheinrich AG received an order to supply high-performance and space-saving warehouse logistics from a single source. Automation and digitisation of the processes were key objectives of the project from the outset. Maintrans wanted to achieve a high level of process reliability, especially for frequently recurring processes. Experts from Jungheinrich developed a solution that was unlike anything ever seen before. The key element was a shuttle compact storage system supplied by EKS 215a Automated Guided Vehicle systems in fully automatic operation.

THE SHUTTLE COMPACT STORAGE SYSTEM.

The new warehouse measures 130 metres in length and is 55 metres wide. In the centre of the warehouse is a long aisle in which two EKS 215a Automated Guided Vehicles trans-

01
26,000 pallet storage locations are housed in the shuttle compact storage system.

02
The shuttle compact storage system is supplied by two EKS 215a Automated Guided Vehicles.



port the pallets in automated operation. To the right and left of this aisle, the shuttle compact storage system reaches heights of 14 metres. A total of 26,000 pallet storage locations are housed in pallet channels. And the best thing is, up to 19 pallets can be buffered in a row in every channel. Under Pallet Carriers (UPC) are responsible for transporting the pallets within the channels. These shuttles independently drive under the pallets, lift them and move them back and forth within the channel. Although this means that a defined sequence of stacking and retrieval of pallets must be followed, it optimises the use of the available space. Compared to other racking solutions, far more pallets can be accommodated in the same amount of warehouse space.

SEMI-AUTOMATIC STORAGE AND RETRIEVAL OF PALLETS.

The entire storage and retrieval process functions according to the following principle: EKS 215a Automated Guided Vehicle systems take the pre-packed pasta pallets from the conveyor system, which runs from production to the warehouse, and transport the pallets to the location where they are to be stored on the rack. The pallets are transported by type 320 manual reach trucks and placed in the channel designated by the WMS. The operators are supported by the liftNAVIGATION semi-automatic rack height select, which makes storage and retrieval at height much simpler. After all, the operators are working at heights of up to 14 metres.

Under Pallet Carriers are responsible for transport within the pallet channels. There are a total of six of these vehicles in the Erfurt warehouse. The Under Pallet Carriers are also deployed into the pallet channels by the reach trucks. Once in the channels, they drive independently under the pallets and carry out storage or retrieval within the aisle. As soon as the first aisle is complete, the reach truck moves the shuttle into the next aisle. The UPCs are connected to the Warehouse Management System via the Jungheinrich logistics interface. This specially developed middleware ensures that the information exchanged can be implemented and enables quick and easy integration into existing system environments without functional changes to the WMS. Orders are transmitted to the UPC via a bi-directional radio link run on the registration-free ISM band. Lithium-ion batteries provide the shuttles with energy for up

to 10 hours. They can be charged at any standard 230 V socket. In order to ensure operation around the clock, Jungheinrich also designed the battery container so that the battery can be replaced in seconds.

AUTOMATED GUIDED VEHICLE SYSTEMS TAKE THE STRAIN OFF EMPLOYEES.

The EKS 215a, which automatically transports the pallets between goods receipt and the warehouse, is an Automated Guided Vehicle based on a Jungheinrich medium/high level order picker.

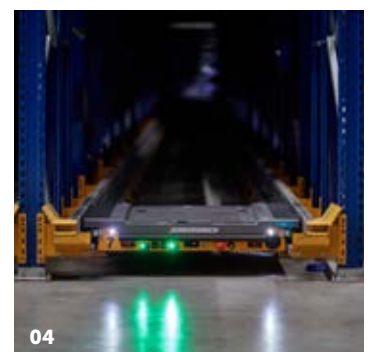
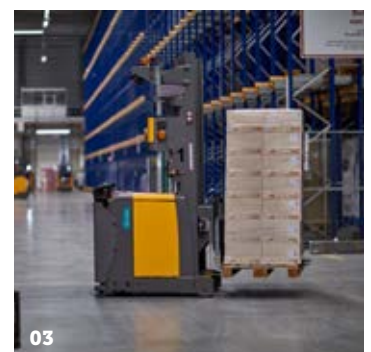
Jungheinrich only automates tried and tested truck types from series production. The truck navigates through the hall with the help of a laser, and reflectors distributed throughout the warehouse light the way. Thanks to these automation and navigation components, the EKS 215a trucks are able to carry out their transport tasks without an operator. They are therefore particularly suited to carrying out frequently recurring tasks. As a result, the susceptibility to errors decreases and efficiency increases. As the number of skilled operators continues to decline, this also relieves the strain on the available resources. Employees can now focus on more important tasks. The EKS 215a is suitable for mixed operation with manual trucks and pedestrians. The TÜV-certified CAN bus control system and personal protection scanners in the drive direction and load direction guarantee the safety of the warehouse, personnel and goods by scanning the route in front of the automated vehicle for obstacles, depending on the speed. If an obstacle is detected on the route ahead, the AGV safely brakes to a stop.

FULL SERVICE AROUND THE CLOCK.

Continuous availability of the devices is also guaranteed. To ensure this remains the case, Maintrans has concluded a full service contract for all trucks with Jungheinrich. Jungheinrich service engineers are on call 24 hours a day, seven days a week. The weekly shifts are covered by a total of 13 employees. If something goes wrong, the Jungheinrich service engineers are on site within four hours of receiving a call from Maintrans. After all, the factory cannot simply grind to a halt. Because even 226 years after the Erfurt pasta manufacturer was founded, the population are hungrier than ever for pasta.

03
The EKS 215a works in mixed operation with manual reach trucks.

04
Under Pallet Carriers (UPC) independently drive under the pallets, lift them and move them back and forth within the channel.



THE PROJECT AT A GLANCE



Customer:	Erfurter Teigwaren GmbH
Sector:	Pasta manufacturer
Company size:	Approximately 100 employees
Location:	Erfurt, Germany
Warehouse size:	5,760 m ² warehouse space

CHALLENGE

Increase efficiency and achieve process reliability while coping with a limited warehouse space.

JUNGHEINRICH SOLUTION

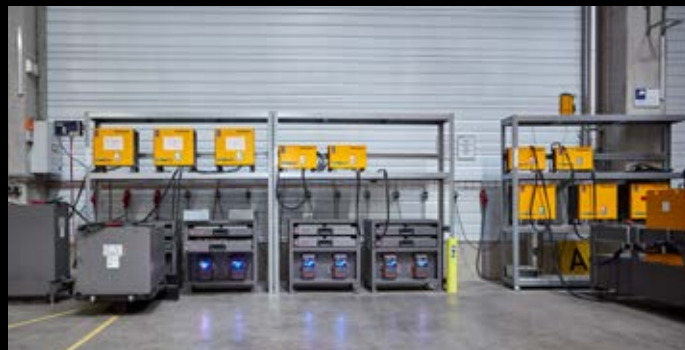
Automation and digitalisation of the warehouse with two AGVs EKS 215a and a semi-automatic shuttle compact storage system.

RESULTS

A trustful collaboration combining manual and automated processes that increase efficiency, relieve employees' workload and maximise warehouse utilisation.

IMPRESSIONS

Given automation and navigation components, the EKS 215a trucks are able to carry out their transport tasks without an operator.



To ensure operation around the clock, Jungheinrich designed the battery container so that the shuttles' lithium-ion batteries can be replaced in seconds.

A shuttle compact storage system teamed up with the Automated Guided Vehicle system enable reliable operation even when working at maximum capacity.