

Jungheinrich Case Study

Two professionals get sheet metal processing in motion.



 **JUNGHEINRICH**

Automated Guided Vehicle System for DAX MetallForm.

One understands the world of sheet metal like no one else, the other is an experienced automation expert: TRUMPF and Jungheinrich are heavyweights in their fields. The two companies are now pooling their expertise to accelerate the pace of networked sheet metal production using customised intra-logistics solutions. Jungheinrich supplies Automated Guided Vehicle Systems (AGV) for automated material flow. The TruTops Fab Logistic production control module from TRUMPF ensures that the AGVs are always in the right place at the right time. DAX MetallForm has tried it out.

Frank Schmitz, CEO of DAX MetallForm, watches with satisfaction as the yellow Automated Guided Vehicle (AGV) delivers a pallet of laser blanks to the docking station next to the bending machine. As soon as the machine operator has processed the parts and noted this in the TruTops Fab production control module, the AGV picks up the pallet again. This is exactly how convenient and uncomplicated Schmitz imagined it would be when he decided to get his manufacturing processes moving with the help of the partner solution from TRUMPF and Jungheinrich. Tobias Staab, Project Manager Sales Operations AGV at Jungheinrich, explains: "Increasing product variants, decreasing batch numbers and shorter delivery times are also forcing sheet metal processors to reduce indirect processes. The transport of materials and parts from A to B is one of them. An automated material flow guarantees faster throughput times and brings transparency to the processes."

To ensure that even more sheet metal processors are able to benefit from the advantages of an automated material flow in the future, the intralogistics experts at Jungheinrich and the sheet metal specialists at TRUMPF decided to pool their expertise in a partnership. Manuel Schwestka, TruConnect project manager at TRUMPF, adds: "As a system provider, we want to offer our customers integrated solutions from a single source. In the increasingly complex world of sheet metal, this also means the integration of interfaces and partners. Jungheinrich is on the same wavelength as us. Jungheinrich's AGVs are tried and tested, have state-of-the-art technology and our quality and service standards are compatible." And the alliance also offers

The partner solution from TRUMPF and Jungheinrich guarantees faster throughput times.

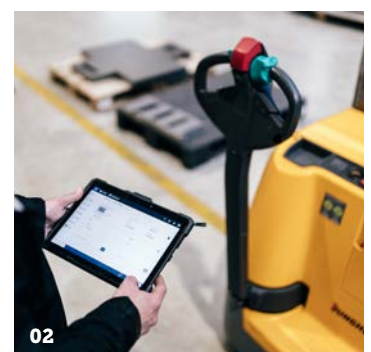
advantages for Jungheinrich. Tobias Staab explains: "Working with TRUMPF, we have the opportunity to determine the specific needs of sheet metal processors so that we can develop customised solutions for them. This will enable us to create a modular system from which many customers in the industry will benefit in the future."

DOUBLE THE BENEFIT.

The partnership between TRUMPF and Jungheinrich has existed since 2019. At the heart of the joint intralogistics solution is the interface between TRUMPF's TruTops Fab production control module and Jungheinrich's AGV logistics interface. The system docks directly into the production plan of the TruTops Fab software. The software schedules entirely automated material movements. The AGVs deliver the materials directly to the machines and work-places which so-called docking stations or buffer them in a warehouse. The docking stations use sensors to detect the load carriers and report receipt of the material to TruTops Fab. After the machine completes processing, the TRUMPF software checks which machine the material must be transported to for further processing according to the production plan and sends a transport order to the AGV's control

01
The automated transport of materials brings transparency to the processes and relieves employees' workload.

02
The TRUMPF TruTops Fab production control module sends a transport order to the AGV's control system via an interface.



system. Schwestka summarises the advantages: "The software takes account of prioritisation and schedules the transports in a route and time-optimised manner. As the system reacts flexibly to spontaneous changes in the production process, dynamically rescheduling transports, the proportion of unproductive auxiliary process and transport times are reduced." Tobias Staab reports: "The advantages of reliable, fast and automatic parts transport make the AGV system an important piece of the puzzle in automation. The customer can sit back and relax because they can rely on the efficient interaction of TruTops Fab and the Automated Guided Vehicles."

25 PERCENT FASTER, 100 PERCENT MORE TRANSPARENT.

The system was tested in the production environment at the TRUMPF Smart Factory in Chicago, USA. At the end of 2020, the partners put the intralogistics solution into operation at DAX MetallForm, based in Cochem. The full-service provider in the sheet metal sector manufactures large-format machine casings and frames as well as a wide range of individual parts. In particular, the time-consuming handling of the small parts increasingly slowed down production at DAX. Schwestka explains: "In sheet metal production, the aim is to optimise indirect processes and reduce throughput times. This is achieved, among other things, with optimal material flow. For the first time, our solution also includes workplaces, machines and areas outside the large warehouse in the automated material flow." Here, machine operators often had to think about material provision and transports themselves. With around 11,000 parts passing through DAX's production every week, this was a very costly and time-consuming process, often at the expense of transparency. Frank Schmitz, CEO of DAX MetallForm, tells us: "Around 80 percent of the parts fit on pallets. These can now be moved through the production process automatically. We always know which parts are where and their processing status. The automated transport solution in combination with the AGV reduces our setup times by around 20 percent and our throughput times by approximately 25 percent."

THE MIX BRINGS FLEXIBILITY.

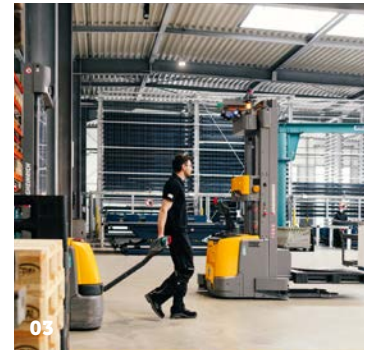
An ERC 213a AGV is currently in operation at DAX. It handles 22 transports per hour

and is so compact that it can transport pallets even in the smallest spaces. A 2.8 kW 3-phase AC motor ensures a constant performance and the electrically controlled, while powerful lift motor ensures smooth, quiet lifting and lowering of the load carriers. Thanks to modern lithium-ion technology and automatic booster charging, the ERC 213a has particularly high availability. Extensive safety sensors also ensure the highest level of safety for the DAX production operators.

To enable customers to gradually switch to full automation, TruTops Fab can also assign a transport order to a worker with a pallet truck or a forklift. For DAX, a mixed operation is just what we needed, says Schmitz: "The AGV takes over the transport of the parts that fit on pallets as a standard task. Our employees use the EJE electric pallet truck from Jungheinrich to transport the large parts. This flexibility suits us."

03
A mixed operation of AGVs and pallet trucks enables a gradual switch to full automation.

04
The AGVs deliver the materials directly to the machines and workplaces which so-called docking stations. They use sensors to detect the load carriers and report receipt of the material to TruTops Fab.





// Working with specialists who have an eye for the big picture gives you a clear advantage //

Frank Schmitz,
CEO of DAX MetallForm

In conversation with **Frank Schmitz,** CEO of DAX MetallForm

How did you find it, working with the cooperation partners from TRUMPF and Jungheinrich?

Anyone who is planning to make process changes knows how many interfaces have to be taken into account. Working with specialists who have an eye for the big picture gives you a clear advantage. The experts from TRUMPF understood the world of sheet metal and were important sparring partners. The specialists from Jungheinrich looked at our production with open eyes and planned the requirements for the use of the Automated Guided Vehicle System (AGV). We did not have to deal with the technical implementation, i.e. the interaction between production control and the AGVs. TRUMPF and Jungheinrich worked it out together. Imagine if I have to implement this with an ERP provider who had no idea about our processes.

What were the challenges?

The load carriers, for example. The Automated Guided Vehicle System requires a standardised dimension for the design of the protective fields. Jungheinrich ensured that we could use plastic pallets that are standard in the industry. In addition, Jungheinrich tested our pallets made of dark plastic at its own factory to ensure that they could be detected by the AGV's laser scanners. This is important to ensure that the pallet sits correctly on the transport forks. All in all, Jungheinrich has ensured that we can use all the necessary load carriers: from 15-kilogram empty pallets to 1,100-kilogram pallet cages.

From your point of view, what specific advantages does the cooperation offer to customers?

Automated material transport offers many options, and nobody knows more about this than a specialist such as Jungheinrich. TRUMPF is able to judge which of these are of interest and offers clear advantages to sheet metal processors. Thanks to the cooperation between the two specialists, I can count on useful logistics solutions landing on my desk in a timely manner.

THE PROJECT AT A GLANCE



Customer:

Dax MetallForm GmbH & Co. KG

Sector:

Sheet Metal Processing

Company size:

110 employees

Location:

Cochem, Germany

Warehouse size:

9,080 m² production space

CHALLENGE

DAX MetallForm has grown significantly. This has pushed the established production processes to their limits. In particular, the handling of the numerous mass-produced parts slowed down production. So the goal was therefore to reduce the handling overheads associated with these parts.

JUNGHEINRICH SOLUTION

Partnership solution between TRUMPF and Jungheinrich for automated material flow control in sheet metal processing. The ECR 213a Automated Guided Vehicle (AGV) is connected to the TRUMPF TruTops Fab Logistic production control module. The two systems communicate with each other to ensure the automated transport of parts.

RESULTS

At Dax MetallForm, the AGV handles 22 transports per hour. This relieves the employees' workload, enabling them to take on other tasks. The joint system solution also reduces setup times at DAX by around 20 percent and throughput times by approximately 25 percent.

IMPRESSIONS



If a docking station is not yet ready to receive a new load carrier, parts can be temporarily stored in buffer warehouses.

The AGVs deliver the materials directly to the machines and workplaces which so-called docking stations. They use sensors to detect the load carriers and report receipt of the material to TruTops Fab.



An ECR 213a AGV is in operation at DAX. It handles 22 transports per hour, automatically transferring around 80 percent of the parts through the production process at DAX.