

## PRESS RELEASE

*Weinsberg, December 2018*

Smart Combination of KTL and Powder Coating

### **Please Blast, Dip, Powder a 100 times**

**Truck trailers are useful, but also big and heavy. This does not make their transport in the paint shop easy. Giga Coating GmbH recently built a completely new surface treatment plant in Twist. Here, up to 15.7 m long and 9 t heavy large parts are not only coated, but also blasted, dipped, swiveled and heat treated in hanging furnaces. The automated circulation principle creates capacities for up to 100 trailers and special parts per day in two construction stages.**

Whether semi-trailers or trailers - the demand for truck trailers in Europe is high. At System Trailers Fahrzeugbau GmbH in Twist on the Dutch border in Lower Saxony, more than 3500 of these leave the production line every year - 70 to 80 vehicles a week. The specialist designs and manufactures on behalf of well-known manufacturers and has a high manufacturing depth. So far, the chassis was given to external partners only for the coating process. "We had been thinking for some time about taking over the coating ourselves. In our production line, we have achieved a high degree of automation and could thus shorten the cycle times by 30%. The remaining bottleneck was the capacity for coating outside the company. "And we wanted to solve that," explains Ralf Saatkamp, Managing Director of System Trailers Fahrzeugbau. At the same time, he realized that contract coating of large parts in Emsland is a growth market. The dimensioning of the new coating plant was therefore planned with buffers for external orders and at the same time the subsidiary Giga Coating was set up as a contract coater. Vollert from Weinsberg in southern Germany supported the planning. The heavy-duty intralogistics experts have decades of know-how in the design and commissioning of large part painting systems for buses, excavators or railway wagons and effortlessly move loads of up to 50 t and more. Nevertheless, the new system technology from Giga Coating offered a number of innovations: "On the one hand, of course, these are large parts, but also the combination of cathodic dip painting (KTL) and powder coating, combined with a high variety of variants and the desire for an efficient automated circulation concept challenged us," explains Jochen Keinath, Sales Project Manager at Vollert. In addition to the crane technology and the complete material flow system, the team also coordinated with the other system manufacturers: Wheelabrator supplied the sandblasting technology, Afotek the dip coating and furnaces, and Nordson Germany took care of the powder application.

## **Circulation principle Pre-treatment, Dip Coating and Powder Coating**

All plant areas at Giga Coating are placed in a floor space of 60 x 110 m and arranged in such a way that a complete circulation for multiple coatings is possible. "Due to different material thicknesses, we expect different dwell times for the workpieces, which is why it was important to us that we automate the parts, but also convey them individually," explains Ingo Wildermann, Managing Director of Giga Coating GmbH. At the heart of the system are two cathodic dip painting furnaces and two powder kilns, around which the blasting cabin, dipping basin, buffer stations and powder booths are grouped. Seven manipulators with spans up to 18 m pick up the goods carriers for lateral travel and distribute them to the workstations. In the longitudinal direction, stationary friction wheel drives convey the workpieces. This makes it possible to feed individual product carriers individually at any time. Buffer positions between the areas allow different dwell times and also allow individual workpieces to be pulled forward and overhauled as required. In order to guarantee fast, efficient processes, Vollert's control technology automatically sorts the workpieces according to drying time in interaction with the higher-level material flow system and optimally designs the processes. "Another special feature of the system is that the goods carriers pass through all work stations," reports Jochen Keinath. "The product carriers are not exchanged after dip painting, but accompany the workpiece along the entire path from cathodic dip painting until into the furnaces." The so-called wedding - the connection of the product carriers with the workpieces - is a permanent combination at Giga Coating. The seamless circulation process saves time and simplifies goods carrier management.

## **Pre-treatment and Cathodic Dip Painting**

At Giga Coating the trailer parts can reach dimensions of up to 15.70 m x 2.70 m x 1.50 m. After these have been turned in a belt turner to remove residual blasting material, a loading manipulator from Vollert takes them over after the blasting cabin and introduces them into the further circulation. The stator racks with the workpieces are moved to two buffer locations and picked up by two dip manipulators. These serve a length of 55 m 12 tanks for pre-treatment - degreasing, rinsing and zinc phosphating - and for cathodic dip painting. They lower the parts from above into the tanks and place the product carriers there. As a result, the manipulator can move more workpieces during the dwell time. The second immersion manipulator then automatically takes over the stand frames after the specified time has elapsed and takes them to the next immersion basin and finally to the draining area. It is also possible to swivel and tilt the parts on the manipulators - for perfect, area-wide priming results.

## **The Hanging Furnaces of Twist**

Giga Coating pursued three objectives in the planning of the overall plant: coating results in automotive quality, energy efficiency and environmental friendliness. To avoid heat loss as much as possible, the ovens are therefore suspended. Since hot air rises and a lot of heat would escape when the workpieces are moved in and out, the furnaces are closed at the top and on the sides and are operated from below instead. A total of two KTL and two powder furnaces are installed in parallel next to each other - with an expansion option already prepared. A manipulator guides the workpieces into the ovens from below, lifts the parts weighing up to 9 t to a height of 10 m and hooks in the goods carriers. As with dip painting, it can transport further workpieces during heat treatment and operate all four ovens in parallel - up to four product carriers per hour, depending on the drying time. After the treatment in the KTL furnace, a manipulator distributes the trailer or foreign parts to eleven storage locations for cooling before the transport to the powder plant starts. "After a detailed examination of all options, we decided on a combined cathodic dip painting and powder application because it enables us to produce in a more environmentally friendly way and at the same time achieve automotive quality," says Ingo Wildermann. The oven manipulator, which serves the two powder ovens in addition to the cathodic dip painting ovens, once again takes over the powder coating process. The cycle then ends again at the eleven buffer positions, from where the finished coated workpieces return to the cycle via an unloading manipulator for truck loading or multiple coating.

"With this system configuration and equipment, we achieve all of the goals in terms of quality and speed and are at the same time extremely flexible for all variations and combinations of the pre-treatment and coating", Ingo Wang says pleased. In June 2018 Giga Coating started regular operation of the new coating line. Bottlenecks in the completion of trailers and semi-trailers from System Trailers are a thing of the past and at the same time the plant offers sufficient capacity for processing external orders.

## **About Vollert Anlagenbau GmbH**

As specialists for heavy loads and large parts, Vollert Anlagenbau GmbH develops turnkey intralogistics concepts for the aluminum and metal industry. As a general contractor and full-service provider, the service range encompasses state-of-the-art material flow, storage and packaging technology as a stand-alone solution or integrated into a larger logistics environment.

Whether fully automated mega-high bay systems for aluminum coils, intelligent material flow systems for the leading aluminum extrusion press manufacturers, the world's most efficient stacker cranes for the storage of sheet metal plates, automatic crane systems for 50 tons and more or the most modern surface coating systems – Vollert is everywhere.

Vollert's plant and machine solutions are deployed in more than 80 countries around the world and in Asia and South America the company's own subsidiaries strengthen in addition the sales activities. Vollert employs more than 300 people at its company headquarters in Weinsberg. **[www.vollert.de](http://www.vollert.de)**

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**Image 1**



**Image 2**



**Image 3**



**Image 4**



**Image 5**



**Image 6**



**Image 7**