

## **PRESS RELEASE**

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### **Painting in breath-taking heights**

**Vollert developed a particularly space-efficient paint shop on two levels for machine and plant constructor KraussMaffei. The workpieces are moving on a crane track at a height of twelve metres. The walk-on painting and working area for the workers is located six metres high on the first floor, and the space underneath can be fully used – protected by a rock-solid fall protection for large parts with weights of up to 30 tons.**

The components of the plants for producing and processing plastics that are painted above-ground in the new Parsdorf plant of KMT KraussMaffei Technologies near Munich weigh up to 30 tons. That's not the end of it either since some machine parts can reach weights of up to 100 tons. Those, however, are painted manually rather than in the circulation procedure. "KraussMaffei set us multiple tasks to solve at once since special large parts need to be painted manually while transport and coating of parts weighing up to 30 tons are to happen partly automated – and the entire filter and painting technology had to be placed very space-savingly in an existing hall, too," Jochen Keinath, head of finishing technology sales at Vollert Anlagenbau from Weinsberg, reports. "The limited space and highly frequented logistics paths in the existing hall made us think of a two-level plant, though without being certain of its feasibility in detail – in particular in light of work safety. After all, employees keep on working in the logistics areas and on workstations on the ground floor as well. Together with Vollert's experts, we developed the two-level concept with fall protection in order to optimally meet our needs," explains Wuyang Li, project manager at KraussMaffei.

### **First double-floor paint shop for parts weighing 30 tons**

The heavy-duty and intralogistics specialists at Vollert planned a two-level system with conveyor technology above, integrating it into the existing hall at the new Munich/Parsdorf production site of KraussMaffei as a free-standing steel structure. The ground floor now holds the manual paint shop for large parts with up to 100 tons, storage places and walkways along with the paint warehouse, paint supply, as well as the filter and washing technology for extraction of the paint mist for the paint booths above. "These filters are usually installed in the basement underneath the booths," Jochen Keinath explains. "That wasn't an option here for constructional reasons. Therefore, we put the booths for cleaning and painting the workpieces at first-floor height." Vollert planned and delivered the plant and heavy-duty conveyors, including steel structures, from a single source. The painting technology comes

from Heimer Lackieranlagen from Bielefeld. "As far as we are aware, this is the first double-floor paint shop of this kind world-wide. We have designed plants on multiple levels a few times before in the area of prefabricated concrete plants; maximal loads of up to 25 workpieces at 30 tons each and the accessible level underneath, however, make this plant at KraussMaffei's facility stand out."

### **A single manipulator constitutes the entire conveyor technology**

The conveyor technology's special feature is that no chain conveyors or directly driven goods carriers are needed for transport at all. A single manipulator is all it takes to distribute the workpieces among various workstations. For this, Vollert installed a crane track at a height of twelve metres for the distribution manipulator to run on along a length of 80 metres to serve the workplaces and paint booths on either side. The manipulator has stationary friction wheels to move the goods carriers forward and push them on and off at the various workstations. The paint and drying booths thus can make do without any live drives.

The system starts out on the ground floor, where workpieces at sizes of up to 4.8 m length, 2.4 m width, and heights of up to 2.8 m are suspended in goods carriers individually or in groups. The carriers are designed as double-track goods carriers for better load distribution to handle the heavy weights. Three input and output stations are available to insert the workpieces into the plant and remove them from it again. After merging, a lifter moves the goods carriers up twelve metres to the height of the manipulator crane track, which takes them over for further distribution.

### **Maximal flexibility in the process**

On the first floor, the system comprises 26 stations, including four masking ones, one cleaning booth, two wet paint booths, and four dryer booths. The remaining places are storage places and are used for sequencing, interim storage, buffering, and cooling the workpieces. The special plant layout makes it possible to advance individual workpieces, overtake them, or keep them back for rework at any time without interrupting the plant flow. This ensures a cycle time of 45 minutes. The storage places are targeted automatically by the Vollert system's control unit after the workpieces are fed in, as well as in the further coating process. Transport in the walk-in work booths and masking stations takes place after acknowledgement by the workers.

Florian Gruber, responsible for operation of the paint shop at KMT KraussMaffei, is very happy: "The new system has some great advantages for us. Several input and output stations let us serve three different end assembly segments from a single system in a value-

flow-oriented manner. We are now also perfectly flexible in terms of process design for our diverse parts families, as well as for sequence planning thanks to multiple sequence storages. Our previous system – a strict circulation system – hardly allowed us to set priorities. Now, we can act highly flexibly and supply even pressing service orders immediately. At the same time, we were able to clearly increase the cycle time with the new paint shop.”

### **Rock fall protection as fall arrestor**

The plant’s fall protection concept is another special feature. Workers’ walkways must be protected from falling workpieces in emergencies in order to permit full use of the space underneath the paint shop and the workpieces suspended overhead. It’s not a simple task at weights of up to 30 tons, through the Vollert specialists had a special idea here, too. Jochen Keinath: “We use special nets that are usually used for rock protection and to protect from falling boulders. They secure the space underneath the conveyor now – and they can catch falling loads of up to 30 tons.” To make the safety system rock-steady without interruption, a fall protection barrier designed as a catching basket underneath the manipulator and moving along with it additionally supplements the safety concept.

“The rock fall net is, of course, special. Our staff like it a lot since it reflects our commitment to employee safety, which enjoys the highest priority for us. We want to exclude all dangers from the very first here. We discussed all potential risks for our employees with Vollert in advance of the plans already, trying to find solutions. Vollert’s concept with the catching basket travelling along and the safety nets eventually convinced us. The employers’ liability insurance association also reacted very positively to this,” reports project manager Wuyang Li.

“With the new plant at KraussMaffei we have implemented a particularly space-saving layout that optimally uses the available area. Arranging it on two levels allows us to greatly reduce the footprint without having to cut down on speed. Partial automation simplifies and accelerates processes while at the same time ensuring damage-free transport,” Jochen Keinath concludes.

## **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**

Logistics area below, paint shop above: Vollert developed an extremely space-saving two-floor paint shop for large parts of up to 30 tons for KMT KraussMaffei.



**Image 2**

Special catching nets secure the work area on the ground floor against falling workpieces with weights of up to 30 tons in an emergency.



**Image 3**

Several input and output stations transport workpieces from the ground floor twelve metres up to the height of the crane track on the first floor.



**Image 4**

There is a total of 26 stations here, with the paint, cleaning and drying booths underneath, along with storage places for sequencing and cooling. The manipulator in the background takes care of workpiece distribution. A catching basket (red) underneath the load additionally secures the workpieces.



**Image 5**

The paint booths at KraussMaffei are located on the first floor, the paint supply, filter and washing technology for extraction of the paint mist on the ground floor underneath.



**Image 6**

Relocation of the cleaning, paint, and drying booths to the first floor leaves enough space on the ground floor for manual painting of large parts of up to 100 tons, as well as for storage places, walkways, and the paint warehouse.