



Powder coating on a pedestal

A new powder coating system for the coating of forklift trucks

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Installing a powder coating system on a steel podium is one thing. As the supplier, actively co-designing the podium and doubling the production area in the process, however, is another dimension entirely! At STILL in Hamburg, this is how a powder coating system of a very special kind came to be.

For almost 100 years, STILL has been managing the interaction of forklift trucks and warehouse technology, software and services. Its around 8,000 employees ensure that customers' requirements are met with high-quality products from STILL, and that they are able to efficiently and effectively control their warehouse and material flow management. This philosophy also applies within the company to product manufacture. At its head office in Hamburg, the powder coating system that was now over 30 years old was no longer able to cope with these demands, let alone the planned production figures until 2020, which would have completely overwhelmed the plant in terms of quantity and quality.

A steel platform is integrated for the new system

In 2012, planning began on replacing the existing powder coating installation. The specifications included the coating of all kinds of part geometries in anthracite and silver, a very high degree of automation with reserve capacity and reproducible, high-quality coating results. One requirement was a real challenge, as Frank Drevsen, the responsible project manager at STILL, explains: "For the entire new system, we wanted to build a steel construction platform of around 4 metres in height in the production hall, which needed to accommodate all of the components. The space freed up below the podium was in future going to be used for welding and assembly work." This unusual idea discouraged the tendering suppliers somewhat. After all, how were booths, filters and axle systems to be accommodated on the podium? From a static and geometric perspective, this was certainly not a puzzle with a simple solution!



The compact filter systems stand on supports

The experts at J. Wagner GmbH from Markdorf started out thinking not just about the powder coating system's technical design, but they also considered the design characteristics of the podium. "The particular challenge here was the positioning of the filters and associated powder containers. In STILL's case, we needed to distribute the weight of the filter units ideally over



the podium and provide the powder containers with a platform for extraction. During the planning phase, WAGNER constantly adapted the platform to the system's requirements using 3D design software. These plans served as the basis for discussions between STILL, the architect, the statics expert and WAGNER", explains Hans-Joachim Heyn from WAGNER. The challenge was overcome by anchoring the filters using special attachments to pre-defined support points on the steel podium. For the extendable powder carts with injectors for recycling, steel trays were used where they can be moved for cleaning and maintenance. The floor aspirators at the reworking stations also had to be specially designed. "During the project management phase, we were really impressed by the expertise and dedication with which Mr Heyn supported us. His tremendous knowledge was extremely helpful for planning the steel construction platform with the greatest possible practical value and creating a safe design. This is especially apparent from the sophisticated recesses for the booths' modular filter systems", says Frank Drevsen.

Maximum automation with precise gun adjustment

For the coating with the two colours anthracite and silver, an ICF plastic booth with recovery was chosen and supplemented with powder feeding from Big Bags. Due to the tremendous variety of parts, which range from complete forklift truck chassis to small components, all of the 44 Corona automatic guns need to be positioned, moved and in some cases also rotated with precision, depending on the part involved. Some guns also carry out multiple functions. For example if the chassis is coated by travelling underneath it and the same gun unit then immediately carries out a turning movement for the rotating coating of the wheel housing. Exact parts detection and positioning of the guns are performed by light grids and 3D laser scanners. With the varied WAGNER product modules, a compact solution was found that will safeguard capacity well into the future. For reworking, the coaters at STILL have generously dimensioned, brightly lit stations equipped with efficient floor extraction at their disposal. Positioned directly on these are the control units with touchscreen, which can be used to control and program all of the parameters.

Installation during live production

As if the challenges weren't great enough, the system had to be installed in just four weeks, and while production was ongoing. WAGNER's engineers managed even this without problems, and production was able to begin at full capacity from day one. For the definition of all the procedures involved, the WAGNER Technology Centre in Markdorf carried out three sets of testing sequences with STILL that were very



much geared towards the assemblies involved. On the basis of the successful tests, it was perfectly clear in advance that the system would deliver the required results later on. "This was confirmed in full at the commissioning stage. We were pleasantly surprised about how quickly it progressed to the start of production. The work was limited to creating the program, running through it once and the result was already really good", says Frank Drevsen.

Ambitious goals easily met

STILL had set itself the goal, with the new powder coating system, of creating a coating capacity for 32,000 vehicles a year. This goal was safeguarded by the new system and the coating quality has significantly improved. At the same time, the coaters are also more than happy with their new working environment and coating equipment. And, thanks to the unusual idea of the steel platform, STILL has created a new production space. "Right from the start of the project, WAGNER listened to our ideas and wishes. Without their active involvement in the planning phase and the excellent communication between suppliers, we would not have been able to create such a sophisticated, technically high-quality and future-proof solution", says Frank Drevsen, delivering his positive verdict on the project.