



Powder coating perforations Case Study

Oberflächentechnik Löningen GmbH, Löningen

Performance by design



Powder coating perforations

Oberflächentechnik Lönigen coats perforated sheeting for trucks as well as for agricultural and construction machinery.

„We are a wholly-owned subsidiary of Friedrich Graepel AG and coat perforated sheeting,“ says Markus Pape, Managing Director of Oberflächentechnik Lönigen GmbH & Co. KG. Among other things, the perforated metal sheets are used as insect screens in trucks or ventilation grilles in tractors and construction machinery as well as rotary radiator frames in combine-harvesters.

Up until 2014, Graepel had the perforated sheeting coated by external contract coating companies. „However, the sheets have many tiny ridges at the edges of the perforations. Powder coating these ridges and the webs, some of which are smaller than the holes, places high demands on the process and we were not always satisfied with the external coating quality.“

Start with second-hand system

For this reason, in 2014, the Lönigen-based company started to use a second-hand system which had been adapted to the company's own requirements through several modifications carried out by IAS in Austria. The initial equipment included the P+F conveyors, the basin for wet chemical pretreatment with the KTL coating and the powder coating booths. On top of this was a new KTL dryer and a powder curing oven, which was also new.

„We wanted to see whether it was worth having our own powder coating system before investing in a brand new one,“ explains Markus Pape.

„Due to the cutting process, a lot of drawing and punching oil adheres to the perforated sheeting, 80% of which we rinse off with spray degreasing,“ continues Pape.

Further pre-treatment involves the process steps of immersion degreasing, rinsing, staining, rinsing, preservation, rinsing and ultrafiltration rinsing. If required, the pieces also go through cathodic dip-coating. „We're very happy with the system. However, the existing powder coating booth soon proved a weak point in the coating process.“

Oberflächentechnik Lönigen GmbH produces batch size 1 and, with the existing system, a color change took approximately 2.5 hours.



The characteristics of the dense-phase technology used include a very soft powder cloud as well as excellent coverage with indentations. This enables high-quality coating of the perforated sheeting.

New powder coating technology

Graepel's contract coating company wanted to reduce this time while also increasing the quality of the coating. „We looked at several systems, conducted tests and decided on the dense-phase technology from Nordson,“ says Pape. „It convinced us through its efficiency and its coating quality.“

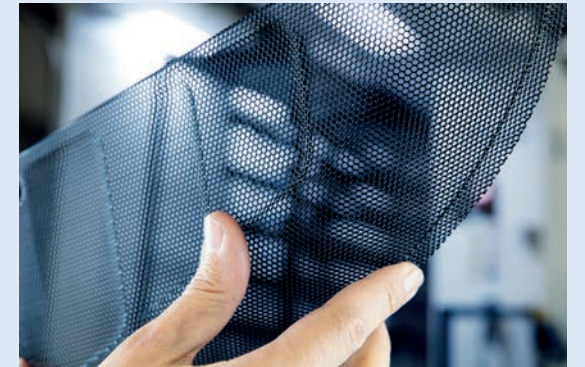
With this technology, HDLV pumps transport the powder to the gun at low speed and with a minimum of air. „This is a key aspect for coating perforated sheeting in particular.“

And how long does a color change take now?

„Just 10 minutes,“ says Markus Pape delightedly. The investment in the new technology comes with another advantage for the powder coating company: Its mother company Graepel has developed the innovative „DuraVent“ ventilation grille. It has larger, honeycomb-shaped holes and therefore places even higher demands on the coating.

How does Oberflächentechnik Lönigen ensure the quality of the coating?

„We have our own laboratory in which we examine the bath quality, among other things, and conduct checks. The daily salt spray tests we have been conducting since the company was founded provide us with a process security that has also convinced our customers. We can also guarantee that the DuraVent sheet metal blanks we coat can withstand over 1,000 hours in the salt spray test according to DIN ISO 9227,“ reports Markus Pape.



With the new fast color change booth, Oberflächen-technik Lönigen **improved the quality of the powder coating** and slashed the time required for **color changes from 2.5 hours to just 10 minutes.**



Systems engineering and installation

Among other things, the overall package for the powder coating included the „ColorMax³“ fast color change booth with floor cleaning system and a special floor material which prevents powder adhesion and supports swift cleaning.

Other components include the „Spectrum HD“ powder center, which ensures consistent results regardless of the operator, and the „PowderPilot HD“ for precise digital steering of the system. Other components are twelve automatic and two manual guns as well as HDLV transfer pumps and HDLV gun pumps.

Following intensive pre-planning and preparation, the dismantling of the old powder coating system and installation of the new one was completed in 14 days. In August 2017, Oberflächentechnik Löningen GmbH & Co. KG was able to start operation of their new powder technology.



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