



Powder coating of high-quality enclosure for technical systems

Saving costs with dense-phase technology to increase quality and flexibility

de Crignis GmbH, Germany

Performance by design

 **Nordson**

In-house powder coating of high-quality enclosure for technical systems

The company de Crignis has powder coated externally the finishes of its high-quality enclosures for technical systems for years. The intention for having its own system was to make production more flexible and save time and costs. In 150 years of company and family tradition, de Crignis Blechverarbeitung GmbH has grown into a well-known system supplier of equipment enclosures. Their advanced machinery assists the motivated employees in all steps of metal processing - only the finishing has always been entrusted to external specialists.



The challenge: Outsourcing requires high logistics effort

In Germany, almost anyone who parks at a parking meter, then deposits coins or money into the automatic acceptance point is probably interacting with a machine enclosure made by de Crignis. “With the move to our current location in Augsburg, Germany, we made the step from sheet metal processor to system provider for sophisticated enclosures around 20 years ago,” recalls Herwig Kleiner, Managing Director at de Crignis. “Since then, we have had the most modern punching, bending and laser technology at our disposal and since 2007, we have also had an extremely efficient welding shop.”

For most device enclosures, the finishing is an essential part of their functionality: parking ticket machines are exposed to the weather for many years, special demands are made on the powder coating of medical devices, and reverse vending machines must withstand high mechanical specifications. To ensure that the external enclosure still protects the technology installed in them for a long period of time, both the coating materials and the coating processes are engineered for the intended end use. “Until mid-2018, we had the coating done externally,” explains Kleiner. “These steps were outsourced to specialists, but the logistical effort was still enormous.” Preparation for transportation, packaging, and receipt of the finished coated parts cost us almost a five-figure sum every month! In order

to minimize these costs and the dependence on external partners, while at the same time making our own production even more flexible, the de Crignis management decided to install their own powder coating system in-house.

The solution: in-house powder coating

During the search for a suitable solution, CS Oberflächentechnik, Nordson’s representative for the southern part of Germany, was soon found. They offer their customers consulting, planning and construction of a powder coating system all from one source.

„CS Oberflächentechnik was a really lucky choice for us because of their experience with all available powder coating technologies as well as with systems of any size“, says Mr. Kleiner. „And the close and well-rehearsed cooperation between them and Nordson made it possible that the installation was completed only four months after the order was placed and we were able to start testing the operation with our system!

De Crignis installed Nordson’s ColorMax®3 booth with a Spectrum® HD powder feed center and advanced controls. The booth is designed to provide reliable powder containment while also ensuring soft airflow in the spray area. The booth floor is made of the patented composite material “Apogee” and the AirWash automatic floor cleaning system keeps the powder overspray in the booth to an absolute minimum. The ColorMax®3 fast color change powder coating booth is designed for fast, thorough powder contamination, and easy color changes within minutes and is equipped with eight Encore® HD automatic powder coating guns. These are controlled by reciprocators for maximum efficiency and automatic coating.

The Spectrum HD Powder Feed Center, in combination with the HDLV (“High Density, Low Velocity”) pumps of the Encore HD spray system, ensures highly efficient supply of powder. The complete powder management and application solution is designed for convenient powder handling with low operator and maintenance effort, so the powder feed center plays a significant role in the efficiency of the entire system.



“After one year of in-house powder coating in single-shift operation, we are still in a phase of recording data, but we can already safely note three interesting observations as interim results: In terms of quality, throughput time and costs, our expectations have even been far exceeded,” says Kleiner, summarizing his experience.. “The dense-phase technology is absolutely convincing for us in terms of application efficiency and coverage, and even when coating corners and recesses, we achieve a superior coating quality.”

Single coatings are usually applied to layer thicknesses between 60 and 80µ and achieves uniform high coating quality and film thickness without reworking. Particularly demanding enclosures, such as parking meter machines, are double coated to withstand



the effects of weathering for a long period of time. Special coatings, such as those produced by the Augsburg company for Tier 1 suppliers to the aerospace and medical technology industries, are also consistently applied. "We regularly use the function of storing recipes in the powder coating system and retrieving them at any time," explains Mr. Kleiner.



Soft spray from the Encore HD spray guns ensures full coverage in corners and recesses.

"Instead of having to spend time adjusting the system to the new order after a changeover, we simply call up the required parameters from the system controller and off we go," he says and he is very pleased with the minimal set-up times. They also benefit from the user-friendly operation of the entire system via the color touch screen of the PowderPilot® HD control system. All parameters of both the powder application and the booth control are displayed and controlled centrally using easy-to-read icons. For different products and powder materials, numerous, highly adaptable programs can be stored so that processes leading to optimum coating results can be reproduced as desired. The system operator is supported in his work by step-by-step instructions, thus reducing intensive training phases to a minimum.

The result: Unmatched coating quality and savings

As expected, the company has also recorded a major time savings in terms of throughput times, "For the quantity of sheet metal and other parts that we now process in the course of a shift, we had to allow for around five days in the times of outsourced job coating – and we also had a great deal of logistical effort, which is now

also eliminated," says Kleiner. Since time is money, the managing director calculates that without any logistics adds up to monthly savings of around 10,000 euros.

"As I said, we are currently still collecting data that we will systematically evaluate in the near future in order to incorporate the knowledge gained into the further optimization of our processes," says Mr. Kleiner. It is quite possible that de Crignis will then make its knowledge available to external customers. "We cover our own requirements with our highly efficient system in single-shift operation. A second shift would create large capacities that we could offer to sheet metal processors in the region. The powder coating system would then add job coating to our portfolio".



Nordson Industrial Coating Systems

ics.eu@nordson.com | www.nordson.com/ics

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