



Efficient and highly consistent powder coating

Highest quality, more flexibility and economy

Linak Profiles A/S, Denmark

Performance by design

Nordson

Linak Profiles relies on modern metal processing and finishing technology

Four years ago, Linak Profiles, known until 2018 as AKK Industri ApS in Sønderborg, Denmark, converted its production to solve its growth-related capacity requirements for lifting columns while at the same time increasing production efficiency. LINAK Lifting Columns are hi-tech electrical devices able to convert rotational motion in low voltage DC motors into linear push/pull movement. In the newly built hall, state-of-the-art robots and production facilities have since then ensured extensive automation of the processes involved in the manufacturing of lifting columns for height adjustment of contemporary office desks.



The Challenge

“In order to raise or lower the desk, precisely engineered profiles are required,” explains Kim Paulsen, plant operator at Linak Profiles. “Also, to meet the high design demands, it is important to provide these profiles in a wide variety of shapes and colors.” In addition, the sliders of the multi-part columns have very narrow tolerances and must have a uniform coating for accurate mobility.

The Solution

Linak Profiles decided to build a completely new factory building in 2016, equipping it with state-of-the-art technology and relying on a high degree of automation to achieve a higher efficiency and throughput. In a production area of around 6,500 m² in Sønderborg, around 50 employees have been developed and produced approximately 20,000 lifting columns engineered to the highest quality every week since its opening. The welding is carried out by robots with extreme precision and high speed. In powder coating the Venturi spraying system is replaced by the high-performance dense phase technology with Nordson HDLV® pumps.



Lifting columns from LINAK offer smart height adjustment of e.g. contemporary office desks.



The soft spray of the Encore HD powder coating system ensures maximum process control

The efficient powder coating system is divided into pre-treatment, heating, powder application and finishing areas. After pre-treatment, the parts are transported to the cubed ColorMax3 coating booth.

The total of seven Encore® HD automatic spray systems apply uniform coating with a high level of process control over a long period of time to ensure extremely consistent powder application. The Nordson Encore HD spray system delivers powder to the products with minimum air resulting in a soft spray and high application efficiency. This avoids manual rework during production. An Encore HD manual spray system is also available for coating special shapes.

The ColorMax³ booth is designed for fast color changes to minimize production interruptions and can accommodate up to 10 color changes per shift. The application efficiency is maximized due to

the combination of the soft spray delivered by the Encore HD spray systems and high density of the products loading on the line. The minimal oversprayed powder is recovered through a twin-cyclone system with more than a 95% reclaim efficiency.

The Spectrum® HD powder feed center offers a clean coating environment and optimum powder handling conditions for production confidence and reduces operator interaction. The powder coating system is controlled by the PowderPilot® HD control system. An icon-based touch screen user interface provides the operator with relevant information about the status of individual system modules and step-by-step instructions when, during a color change, for example an operator interaction is needed.

Four years have passed since the technology upgrade and the powder coating system leaves no desire for modernization or renewal.



Up to 10 color changes per shift – the color change data recorded by the system is part of the toolkit for monitoring operating efficiency and for continuous improvement.

“Compared to the previous system in the old plant with Venturi pump technology, we save powder material of around 30%. Throughout our three-shift operation we coat consistently day in, day out with a layer thickness between 80 µ ±10 µ – which is crucial for assembly of the products,” explains Kim Paulsen. “The sliders of our multi-part columns have such tight tolerances that an uneven coating would complicate assembly and cause stuttering during the testing, leading to damage and malfunction.” Mr. Paulsen adds.

The Benefits: Highest quality, more flexibility and economy

“Building a new facility and then renewing all the production components at the same time was a challenge for everyone involved,” recalls Mr. Paulsen. “Once the robots for cutting, punching and welding moved in and the new powder coating system, conveyor, pre-treatment and ovens installed, it still took about a year before the automated modules worked well together and everything ran smoothly. The plant operator did report one exception, “Our



The fast color change system includes the Spectrum HD powder feed center with PowderPilot HD control system, ColorMax³ powder booth and seven Encore HD automatic powder guns.

Nordson representative kept his word. Peter Johansen of Lakteknik ApS promised a trouble-free and on-schedule installation of the powder coating system, and the very professional and experienced Nordson team was successful in getting that right: The entire system worked exactly as it should from day one!"

In addition to the efficiency, flexibility and robustness of the system, it is particularly easy to operate. Although Linak Profiles use two operators per shift, this is purely a safety measure, for a backup in the event of an illness. "The powder coating system from Nordson is easy to program, user friendly and all surfaces that need to be cleaned or maintained are easily accessible. Even with our 7 to 10 color changes per shift, this can easily be done by one person alone," says Kim Paulsen, summarizing his experience. "We are very pleased with our decision to partner with Nordson. With their unmatched customer service, we feel confident that Nordson will continue to make powder coating easy for our operations. The benefits we see are very clear, we couldn't be happier," states Mr. Paulsen.

Finally, he adds: "I am very excited to see what other great technologies Nordson will develop in the future!"

LINAK Profiles

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