



## Case study

# High quality standards thanks to air cleaning in the printing plant



### Customer

BÖ-LA  
Siebdrucktechnik  
GmbH



### Location

Radevormwald (DE)



### Sector

Screen printing



### Dust reduction

Up to 87 %

## At a glance

“Even the very first measurement results exceeded our expectations. The particle concentration was able to be reduced by up to 87% by using the air cleaning devices.”

Mike Böing-Messing, CEO

### Challenges

Air cleaning in printing houses is no easy task, as was the case with BÖ-LA. This is because a high concentration of particles and polluted air can hardly be avoided in screen printing plants and with injection moulding and formation systems. In addition, there is a lot of movement of people and goods here – another dust source. The result: Compromised quality due to particle-laden products, high rejection rates and an enormous amount of cleaning work required to get the dust only somewhat under control.

### About BÖ-LA Siebdrucktechnik GmbH

BÖ-LA Siebdrucktechnik GmbH is one of the largest technical screen printing companies in the world and a leading specialist in industrial screen printing applications.

### Benefits

Thanks to the air cleaning systems from Zehnder Clean Air Solutions, the particle concentration has been reduced by up to 87%. This minimises dust-related rejections and ensures higher quality standards. Further advantages include reduced cleaning times and the impeccable appearance of the halls. This has resulted in BÖ-LA strengthening its position as a technology leader and creating an optimal starting point to tap into new markets.



### Top-class screen printing products for innovative applications

At BÖ-LA, almost 300 employees attend to the needs of customers from a variety of industries on a daily basis. Among the major factors contributing to the company's success are its innovative strength, its ability to keep its finger on the pulse of the market and its extensive expertise. BÖ-LA is one of the few companies to offer a one-stop shop for a full range of film insert moulding services, including screen printing, formation and injection moulding. Where its customers are concerned, this means fewer interfaces between one stage and another, smooth workflows and exceptional reliability.

### Putting the screen printing plant under the microscope

BÖ-LA manufactures screen printing products in three factories: the first factory is where the components are printed; the second is home to state-of-the-art formation and injection moulding machines; and the third is where final inspections are conducted and the assembly and logistics centre is located. Although BÖ-LA was working to a high standard in all of these areas, it wanted to take its performance to the next level and reinforce its standing as a technology leader.

In particular, it saw the need for action in its first factory containing the printing plant. Ultimately, the issue on its mind was the growing number of demands being placed on screen printing products. High-gloss components that deliver a piano lacquer appearance are one example of

a trend that is growing in popularity in this industry – **but while matt finishes can forgive the odd speck of dust, even the smallest particles are a problem for piano black finishes.**

There is also an increasing demand for printed electronics products, which require electronic conductor paths to be printed directly onto surfaces. This means that smart, self-illuminating and touch-sensitive plastic components can now be manufactured in a single process, whereas several production stages were necessary in the past. However, dust particles are toxic to printed electronics products: fine and coarse particulates can stop conductor paths from working if they find their way onto these.

**Maintaining the very highest standards of quality therefore means keeping dust far away from the printing process.** BÖ-LA was suffering from some other unfavourable conditions of a structural nature. The printing plant had been expanded bit by bit to meet increasing demand, which meant that there was a lot of movement of people and goods inside it. This was filling the hall with dust – when in fact it needed particle concentrations to be kept to a minimum, otherwise dust particles would become trapped in the wet ink and could no longer be removed. Since the company only ships products that are nothing less than perfect, the items affected by the particles had to be separated out. This in turn was leading to an increased rejection rate, a situation that was unsustainable for BÖ-LA.

Things were different in the second factory, housing the injection moulding department. In theory, any particles that occurred there could be removed by being dusted off. However, this resulted in intensive cleaning work to maintain BÖ-LA's high quality standards –

**and even then, these efforts were not always enough to impress customers, some of whom had already complained.** For all these reasons, the managers knew that the status quo could not continue and that finding a solution was vital.





## Effective dust-busters for the new screen printing plant

BÖ-LA developed a new concept for the 2500 m<sup>2</sup> screen printing plant. Part of the project involved closing off the entire screen printing plant and configuring it as a clean room environment, guaranteeing the lowest possible concentrations of particles and reducing the rejection rate as a result. There were several key components involved in the optimisation process: access authorisation systems, dehumidifiers, positive pressure control systems – **but the most important of these were air cleaning systems, designed to keep dust to a minimum right from the start.**

BÖ-LA's project managers conducted extensive research to find the best solution for cutting down on particles, and this led them to the industrial air cleaning systems from Zehnder Clean Air Solutions.

They arranged to meet the Zehnder experts, who came to Radevormwald to present the technology and explain all the details. The systems seemed to fulfil the needs of the screen printing specialist precisely, but it was still keen to leave nothing to chance. According to Böing-Messing: "We were sceptical because our processes are highly complex, so we arranged a test phase." Zehnder was more than happy to grant this wish – as creating tailored solutions is one of the indoor climate specialist's trade marks.

Everything was agreed and it was then time for action. Zehnder's Service team started by installing the industrial air cleaning systems in the first factory. The patented filter technology in this solution enables the high-performance systems from Zehnder Clean Air Solutions to swallow up airborne particles at the source before they have the chance to compromise products, stock or employees.

## The result: Particles reduced by up to 87% and considerably fewer rejections

With even the very first measurement results exceeding expectations, BÖ-LA also decided to have the air cleaning systems from Zehnder Clean Air Solutions installed in the second factory, responsible for injection moulding and formation. **The result: This made it possible to reduce particle concentration by up to 87%, minimising dust-related rejections, reducing cleaning times and ensuring that the halls maintained a more attractive appearance.**

An anecdote from Böing-Messing illustrates just how effective the Zehnder air cleaning systems are: "One day, we suddenly encountered an exceptionally high dust level in one of the areas of the printing plant. We searched for the cause and finally found the culprit – one of the air cleaning systems had been unplugged. This made it even more clear to us just how well the equipment performs." The project managers at BÖ-LA also praised Zehnder's seamless cooperation with them and its unwavering focus on customer needs, as the equipment was installed without interrupting the company's daily operations.

**Summary:** Industrial air cleaning systems from Zehnder Clean Air Solutions are helping BÖ-LA Siebdrucktechnik GmbH to consolidate and expand the pioneering profile it has in its field, and to tap into new markets.