Case study

Clean air in the workplace for the metalworking sector

Customer

Alfred Wagner Stahl-Technik & Zuschnitt GmbH

Location

Pasching (AT)

Sector

Metalworking

Dust reduction

> 60 %

■ Decorative radiators ■ Comfortable indoor ventilation ■ Heating and cooling ceilings ■ **Industrial air cleaning**

At a glance

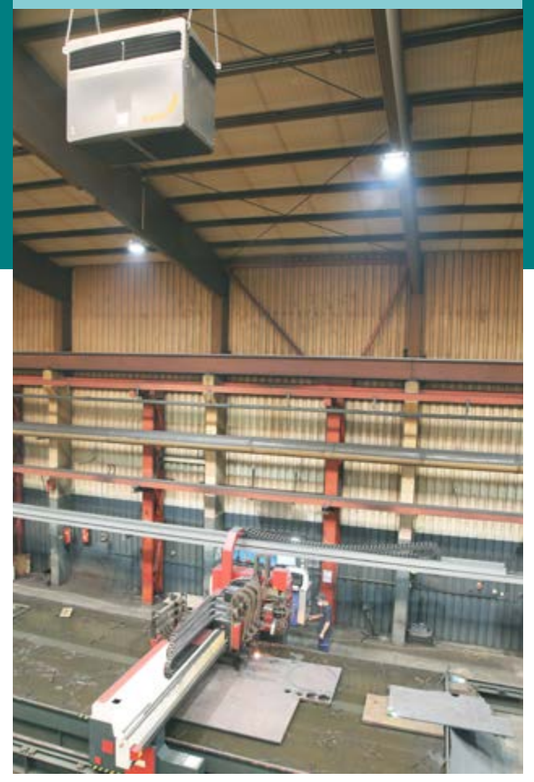
“The climate in the production hall is noticeably more pleasant, the metallic odour has been significantly reduced, and the impression of ‘fogginess’ has drastically improved.”
Christian Aufreiter, Operations Manager

Challenges

For Wagner Stahl-Technik, minimising health risks for their employees was a great concern. However, the amount of fine particulate matter in the metalworking sector is particularly high. These suspended particles can endanger the health of employees. In addition, the smoke released by the flame cutting machines collected under the ceiling, creating an unpleasant ‘stagnant air’. On top of that, dust was affecting the functionality and service life of machines as well as the quality of the parts produced.

Beneftis

The dust analysis after commissioning the air cleaning systems from Zehnder Clean Air Solutions showed an average reduction in particles of over 60%. This has resulted in a marked improvement in the quality of the breathing air and therefore the working conditions for the staff. Wagner Stahl-Technik also assumes that, due to the lower dust levels, the susceptibility and maintenance requirements of the machines and the production equipment can be reduced.



About Wagner Stahl-Technik

Alfred Wagner Stahl-Technik & -Zuschnitt GmbH is a specialist in high-quality metal products and components, with a focus on special vehicle construction as well as mechanical and plant engineering.

Clean air at the workplace

As part of an investment campaign in the productivity of the company that launched in recent years, Wagner Stahl-Technik has paid constant attention to keeping the health risks facing employees to a minimum when designing its work areas. “The issue of fine particulate matter has long been a part of our world. However, there is still too little attention paid to indoor air quality. Yet the quality of indoor air is enormously important, especially in the workplace,” clarifies Christian Aufreiter, Operations Manager at Wagner Stahl-Technik.

The amount of fine particulate matter is particularly high in the metalworking industry. This brings with it significant health hazards. “Given that our employees are exposed to these hazards for eight hours a day, we can’t take the importance of air quality seriously enough,” Aufreiter maintains. Furthermore, increased dust levels during operations have additional consequences. **Dust also affects the functionality and service life of machines and has a negative impact on the quality of the parts produced.**

In order to deal with the problem of ‘dust’, the Pasching-based manufacturing company therefore relies on state-of-the-art extraction technology for its machines and has also recently invested in air cleaning systems from Zehnder Clean Air Solutions. First, there will be a total of nine devices for bay 1, where flame cutting machines and a deburring line see high production levels on a daily basis. Another six devices for bay 4, which houses two more flame cutting machines and a sandblasting line, are to follow in the next phase.

Solution based on measuring fine particulate matter

Before installing the air cleaning systems, the experts from Zehnder first carry out precise measurements of the dust levels on site. Over a period of seven days, the suspended matter in the production hall air is counted and recorded using certified measuring devices.

“Based on these measurements, we analyse the current situation and determine the ideal actions to be taken. Depending on the size of the company and the amount of dust, we create a solution with a precisely coordinated number of air filter systems and optimised filter configuration,” explains Harald Schuster, Country Manager Austria at Zehnder Clean Air Solutions.
Mounted on the ceiling of the production hall, the installation of the Zehnder devices at Wagner went quickly and smoothly during ongoing production operations. “The advantage of installing the devices on the ceiling is that it doesn’t waste valuable floor space,” notes Aufreiter. Harald Schuster follows up with the explanation: “We pick up the particles where they are produced. This means we always try to place our equipment above the dust source. This ensures the removal of air borne dust particles before they are inhaled by employees or deposited on machines, equipment, raw materials or parts. Conventional devices that are located on the floor do not come anywhere near achieving this high level of efficiency.”

Operations Manager Christian Aufreiter sees another advantage of the Zehnder solution. **The fact that the air cleaning systems are offered exclusively under rental contracts including service means that there are no high investment costs required for their purchase in the short term**.

Drastic reduction of particulate-matter load

To optimise ‘dust extraction’ of the air in production hall 1 at Wagner Stahl-Technik, Zehnder decided to use a total of nine air cleaning systems from the CleanAir 6 product series. The devices are operated 24 hours a day and collectively manage to circulate all of the air in the production hall more than twice an hour. “Based on our experience, we know that, for the metalworking sector in production halls of this size, this level of performance is necessary in order to efficiently minimise dust and smoke levels,” Schuster states.

The experts from Zehnder were proved right. In the first measurement two weeks after commissioning the devices, the results exceeded Christian Aufreiter’s expectations: “The dust analysis showed an average reduction of more than 60%.”

Patented Flimmer filter technology

This is made possible by the special filter combination from Zehnder Clean Air Solutions. The polypropylene fibres of the Flimmer filter are electrostatically charged and attract the incoming particles. “Particles collect on the fibres of the three-dimensional Flimmer filter in the direction of airflow. This ensures a constant and even airflow. Thanks to the large effective area, the dust holding capacity is higher than with conventional filters,” Schuster adds.

After the Flimmer filter, the media filter springs into action, catching all of the particles that were not collected by the Flimmer filter. This further increases the dust holding capacity of the filter system and keeps the level of efficiency high over a longer period of time. **“Conventional filters clog much faster and need to be replaced more often than our filter solution.** With Wagner, for example, changing the filter every five months should be enough,” explains the Zehnder expert with confidence, adding: Our service contract ensures one hundred per cent functionality. Zehnder takes care of the installation, filter changes, maintenance and repair.”

Clear atmosphere for optimum working conditions

The fact that the Zehnder solution ensures a clear atmosphere at Wagner Stahl-Technik is proven not only by the extremely positive measurement results achieved, but also by the more subjective experience of Operations Manager Aufreiter and his staff: **“The climate in the production hall is noticeably more pleasant, and the metallic odour is much less perceptible. The impression of ‘fogginess’ has also drastically improved.”**

In addition, the air cleaning devices from Zehnder ensure that the air is circulated, resulting in the ‘stagnant air’ no longer remaining in the production hall. “Smoke released from the flame cutting machines used to accumulate under the ceiling and just stubbornly linger there. That scenario is a thing of the past, as the **smoke clouds dissipate very quickly now,”** reports the Operations Manager from experience.

In addition to the considerable improvement in the breathing air and thereby employee working conditions, Harald Schuster is convinced that the machines will also benefit over the long term. Christian Aufreiter is absolutely certain: “I also expect that the reduced dust levels will have a very positive effect on the susceptibility and maintenance requirements of the machines and production equipment.”

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Images: x-Technik