



Case study

# Success with long-lasting effects through innovative air cleaning devices



**Customer**

POLYTEC Car Styling GmbH



**Location**

Hörsching (AT)



**Sector**

Automotive supplier



**Dust reduction**

Up to 85 %

## At a glance

“Thanks to the air cleaning systems from Zehnder Clean Air Solutions, dust hasn’t got a chance in our company, and it hasn’t had a chance for a long time. The air cleaning devices have been doing their job reliably for years now.”

Horst Kolar, Head of Maintenance

### Challenges

POLYTEC Car Styling GmbH supplies genuine plastic accessories to renowned car brands worldwide. The company owes its success to a number of factors, such as its excellent performance in production processes like painting and polishing. But all of these activities lead to a large amount of dust build-up, which was visible from a distance and settled on the freshly painted and polished products. Products containing dust had to be reworked, which reduced productivity and jeopardised the company’s high quality standards. One possible solution was an air cleaning device for the automotive industry.

### About Polytec Car Styling GmbH

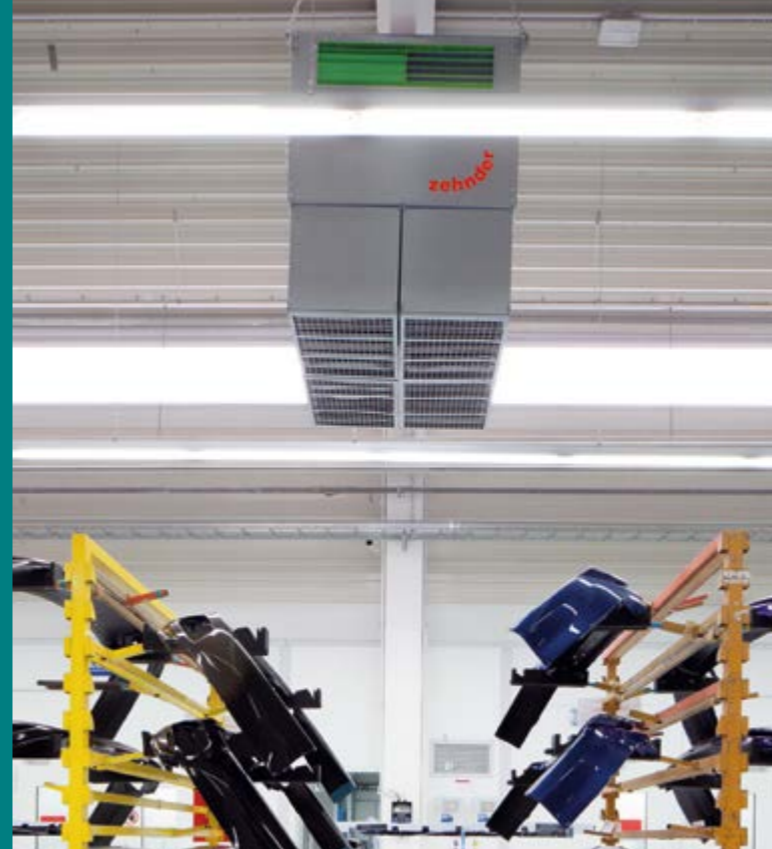
Dust is a touchy subject for POLYTEC Car Styling GmbH in Hörsching, which supplies renowned global brands in the automotive industry with genuine plastic accessories. As a specialist in all things plastic, the POLYTEC GROUP operates at 21 locations with 3500 employees worldwide. Injection moulding, fibre-reinforced plastics and customised industrial solutions using polyurethane are among the core competencies of the company, which has been listed on the stock exchange since 2006. Among other things, the POLYTEC GROUP owes its success to

### Benefits

At POLYTEC, air cleaning devices from Zehnder Clean Air Solutions have reduced particles by up to 85%, ensuring cleaner, clearer air. This has spared the company extensive cleaning work in the work areas and has prevented dust from becoming embedded in the painted objects. It is no longer necessary to rework products containing dust through repeated sanding and painting, for example. This results in more efficient work processes, assurance of high quality standards and ultimately satisfied customers thanks to the excellent product quality.



its excellent performance in downstream production processes such as paintwork and polishing as well as the just-in-time and just-in-sequence delivery of its products.



“Good things are here to stay for those who wait” could be the modern version of the well-known saying, particularly when referring to air cleaning technology from the Zehnder Group. With its “Clean air solutions” division, Zehnder is one of Europe’s leading innovators and has had many years of success in the field of industrial air cleaning. A recent dust concentration measurement taken in the production area at POLYTEC Car Styling GmbH in the Austrian town of Hörsching confirmed the effectiveness of Zehnder’s air cleaning systems: **six years after installation, they still reliably extract the dust from the air and reduce the particulate-matter load.** A study has confirmed that the average particulate-matter load has effectively and sustainably been reduced by approx. 85% since the installation of Zehnder Clean air solutions.

“This sustainability test was for us the proof that the air cleaning in our production spaces is still functioning perfectly,” reports Horst Kolar, head of maintenance at POLYTEC. “Thanks to Zehnder Clean air solutions, we are still safe and sound when it comes to particulate-matter load six years after the installation of the air cleaning equipment. In particular, the efficient air cleaning in our painting and drying tunnel, which covers approx. 8000 m<sup>3</sup>, ensures that we satisfy our quality standard and perfects the level of performance we offer to our customers. This is because we reliably prevent dust from getting into our painted products. Time and cost-intensive rework such as repeated sanding and painting therefore becomes unnecessary and the customer receives dust-free, perfectly painted products,” explains Kolar, summarising the specific benefits of the

Zehnder air cleaning systems in the work process. **“At our premises, dust has no chance!”** emphasises the engineer.

This is quite the opposite to the situation encountered prior to installing the Zehnder air cleaning systems. “At the time, the dust was even visible from a great distance,” describes Kolar. From his office in the production hall, the Head of Production could see the dust on the products when the sunlight was shining on them in a certain way. This was reason enough for him to tackle the issue of “dust” and “particulate-matter load” and search for an effective and practical air cleaning solution. When exploring the market for suitable providers, he finally became aware of renowned indoor climate specialist Zehnder and its air cleaning systems.

### Professional fine dust measurement reveals all

The experts at Zehnder first carried out extensive dust concentration measurements in the painting and drying tunnel as well as in the polishing room at POLYTEC. These highlighted just how high the PM10 particulate-matter load in the two production spaces actually was. A certified measuring instrument recorded the load of fine particulate matter as being between 0.1 and 10 µm (= micrometre = one-thousandth of a millimetre) over a period of six days and presented it as a mean value. According to international guidelines, mean values of a maximum of 50 µg/m<sup>3</sup> of air are the upper load limit for fine particulate matter outdoors. In POLYTEC’s drying area, a PM10 particulate-matter load with peak values of up to 700 µg/m<sup>3</sup> was reached. The statistical mean value over the six-day measuring period amounted to 96 µg/m<sup>3</sup> and therefore exceeded the guidelines for outdoor applications by almost 100%.

These were grounds enough for POLYTEC to work together with Zehnder to create a handling concept for air cleaning: in the 8000 m<sup>3</sup> painting and drying tunnel, two Zehnder CleanAir 12 air cleaning systems were installed, which have an air cleaning capacity up to 12,000 m<sup>3</sup>/h. One Zehnder CleanAir 12 proved sufficient for the 2200 m<sup>3</sup> polishing room. This is also where the freshly polished products are stored temporarily until the next work process or until they are ready for packaging and delivery. It is particularly when the polished products are left overnight that dust can settle on them – but this is now prevented very effectively by the Zehnder air cleaning equip-

ment. What's more, POLYTEC saves itself an additional cleaning process in each application, as the air cleaning equipment runs from 3 p.m. when production ceases for the day until 6 a.m. the next morning when work starts again, ensuring clean and dust-free air.

## Impressive results

The air cleaning systems were installed quickly and professionally on the ceilings of the painting and drying tunnel and in the polishing room. Each system was suspended from the ceilings within two hours with the aid of forklifts present on site and a special Zehnder chain attachment system. Six months after the air cleaning systems were installed and after they had had their filters replaced for the first time, the PM10 particulate-matter load measurements reached a peak value of 100 µg/m<sup>3</sup> and a statistical mean value of 14 µg/m<sup>3</sup> over a measuring period of seven days. **The PM10 particulate-matter load had seen its peak values reduced by approx. 86% and its mean values by approx. 85%.** In the polishing room too, a reduction in the peak values of approx. 80% and in the statistical mean value of approx. 60% was confirmed.

These astounding reductions in dust levels are achieved by particularly powerful fine dust filters, which form the core of Zehnder filter technology thanks to innovative flimmer technology. Unlike standard filters, the Flimmer filter does not filter dust through deposits in a fabric web but along extremely fine 200 µm long polypropylene fibres. The electrostatically charged polypropylene fibres bind fine and coarse dust together. Another advantage of the Zehnder air cleaning system is the high dust absorbing capacity of the filters. This characteristic means that the filters have a long service life and low power consumption because the pressure loss within the filter is kept very low.



## Long-term success

“For six years, the Zehnder air cleaning equipment has been providing an extremely reliable service,” states a delighted Horst Kolar. “We only replace the filters twice a year – a quick and practical process. **Other than that, air cleaning virtually looks after itself thanks to Zehnder Clean Air Solutions,**” he concludes. Thanks to the high level of satisfaction that POLYTEC Car Styling GmbH has experienced with Zehnder technology, the company is planning to take the topic of “air cleaning” into account right from start for its upcoming project to construct additional factories.