

ebm-papst fans in the ZeitHaus of the Autostadt in Wolfsburg New air for classic cars

The ZeitHaus in the middle of the Autostadt in Wolfsburg is the perfect spot for car enthusiasts. The five-floor exhibition space houses vehicle after vehicle. After a ventilation system retrofit, ebm-papst fans ensure the right climate for people and cars, saving energy and money.

The ZeitHaus automotive museum offers more than 260 classic and modern classic cars from over 60 different brands. While classic cars continued to fascinate visitors, the old ventilation system in the museum was worn out, and the old belt-driven fans were around 20 years old.

Savings target: 25 % lower energy consumption

With a retrofit, Autostadt GmbH and Heizungs-, Luft- und Klimaprodukte GmbH were able to bring the ventilation system up to the latest state of the art. "The main aim was to achieve an energy saving of almost 30 kW/h or 25 percent by upgrading to state-of-the-art technology," says Patrick Fricke, Technical Object Manager at Autostadt GmbH. The retrofit was also a kind of pilot project. The aim was to establish whether the theoretical energy saving calculations could also be confirmed in the field.

Reaching the target with up-to-date data

Several measurements in the ZeitHaus have shown that the old system's values deviated 5-10 percent from the actual air flow, and the old system's static efficiency was actually 15 percent lower for the supply air and 20 percent lower for the exhaust air than it seemed. Using the FanScout selection software from ebm-papst, two FanGrids with twelve RadiPac fans on the supply side were chosen, also from ebm-papst. With a power consumption of 6 kW each, they achieve a total air flow of 79,000 m³/h. The nine fans for the exhaust air achieve a total of 69,750 m³/h, each with a power consumption of 4.45 kW.

A smart calculation

The pilot project was a complete success: "The calculated savings were exceeded in the field," says Fricke. The retrofit eliminated additional interference points. This meant, for example, that the air flows have been optimized through heat exchangers and sound absorbers, reducing the pressure loss and resulting in a reduced power consumption. The two FanGrids improve the inflow to the heat exchanger and, therefore, bring additional power gains. Furthermore, the system has greater operational reliability: if there are problems with one fan, the others compensate for the missing power, ensuring constant operation of the ventilation system. Not to mention that the bearings of the new RadiPac fans no longer need to be greased: they run on maintenance-free bearings.

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Caption: The ZeitHaus in the middle of the Autostadt in Wolfsburg. The views through the glass front hint at what can be explored on the inside over the five-floor exhibition area: classic and modern classic cars that get a car lover's heart beating faster. (Photo: Autostadt GmbH)



Caption: The Zeithaus automobile museum houses vehicle after vehicle. After a retrofit, the new ventilation system follows suit: one FanGrid houses RadiPac after RadiPac and saves 25 % in energy. (Photo: ebm-papst)

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Fig. 1 Autostadt GmbH
Fig. 2 ebm-papst
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About ebm-papst

The ebm-papst Group, a family-owned company in Mulfingen, Germany, is the world market leader in fans and drives. Founded in 1963, the technology leader with its core competences motor technology, electronics and aerodynamics, has set international market standards ever since. With over 20,000 products, ebm-papst offers customized, energy-efficient and intelligent solutions for virtually any ventilation and drive technology requirements.

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In fiscal year 2019/20, the hidden champion achieved a turnover of 2.188 billion euros and employed almost 15,000 people in 29 production sites (e.g. in Germany, China and the US) as well as in 48 sales locations. With their fan and drive solutions, ebm-papst defines and sets the benchmark in practically all industries, such as ventilation, air-conditioning and refrigeration, heating, automotive, IT, mechanical engineering, catering and household appliances, intralogistics and medical engineering.