

FIT FOR THE FUTURE WITH NEW AHU TECHNOLOGY



STRATEGY 2025 - VOLKSWAGEN ON THE ROAD TO SUSTAINABLE MOBILITY

The Volkswagen Group is Europe's largest automobile manufacturer with production sites in seven European countries.

With the group-wide future program "Strategy 2025", Volkswagen wants to get fit for the future with the vision of becoming a world-leading provider of sustainable mobility. Sustainable means also responsible care for the environment. Sustainable growth is the basis of medium-term future planning and the associated increase in value and image of any company. In that context, the new generation of air handling units with axial fans can contribute greatly in all areas of ventilation and air conditioning.

AXIAL FANS IN OPERATION

Since the beginning of 2017, Volkswagen has been intensively investigating the technical possibilities of high-efficiency axial fans and has carried out a whole series of tests, measurements and practical trials. At the beginning of 2018, it was time for the next step: implementation of the obtained results and knowledge in new air conditioning technology. Two production sites in two countries had air handling units with new technology and highly efficient axial fans installed – at Porsche in Stuttgart/Zuffenhausen, Germany and at Volkswagen Navarra in Pamplona, Spain.



Highly efficient axial fans with aerodynamic design for the highest pressure increase

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THE PROJECT OVERVIEW

- **AHU MANUFACTURER: TRUBEL KLIMATECHNIK**
- **INSTALLATION LOCATION: PAMPLONA, SPAIN**
- **NUMBERS: 3 AHUs WITH 80,000 m³/h EACH
3 AHUs WITH 60,000 m³/h EACH**
- **CAPACITY: 420,000 m³/h**

VOLKSWAGEN NAVARRA, PIONEER AND ROLE MODEL FOR THE USE OF SUSTAINABLE VENTILATION TECHNOLOGY

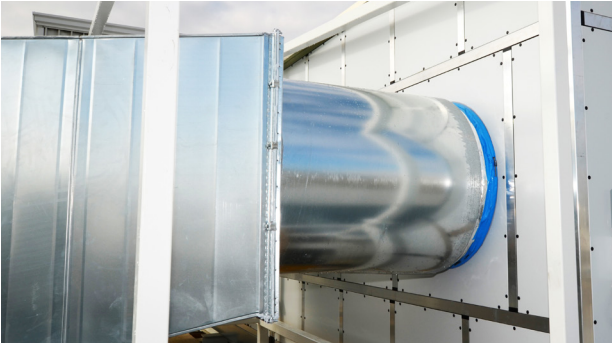
Volkswagen Navarra assumes daily responsibility for the environment, safety and society. Thereby resource management and emissions receive special attention. Through innovation and impressive planning at the site, the goal is to continuously reduce energy consumption and the associated CO₂ emissions. For this strategic interest, the new device technology with the new ZerAx[®] axial fans was deliberately chosen as a solution for the renewal of the ventilation in the assembly hall.

THE VOLKSWAGEN PROJECT

The ventilation had to be completely renewed for one of the largest production buildings of the factory. Higher air volumes were needed and the space available for the installation of the equipment was insufficient. Therefore, a new installation location for the AHUs had to be found on the roof. The large 80,000 m³/h units were placed on a steel platform on the connection between two buildings. In addition to saving energy, the criteria unit size, weight saving and noise reduction were therefore also key requirements.



NOVENCO ZerAx[®]axial fans in parallel operation



Connection between fan outlet and duct system



The demands placed on the air conditioning of buildings increase steadily. Axial fans can make a significant contribution to combining technical requirements with sustainable building design. The new trend-setting AHU technology has fully met all expectations. Asier Matorell, Factory Planning Manager, Volkswagen Navarra (left) and Axel Rossmannek, Head of Supply Planning Volkswagen Wolfsburg.



Three roof-installed AHUs, each with 60,000 m³/h





Roof-installed AHUs, each on a steel construction

A NEW AIR CONDITIONING GENERATION

The high demands could only be met with the new generation of air handling units, in which the highly efficient axial fans from NOVENCO were optimally utilised.

The last equipment was put into operation in mid-December and exceeded all expectations.

The ZerAx® axial fans currently represent the world's leading fan technology with fan efficiencies of up to 92%. NOVENCO, however, went one step further by optimising the ZerAx® even more for use in the air handling units.

NEW GENERATION OF AIR CONDITIONING

- ALL DEVICES WITH TWO PARALLEL SUPPLY AND EXHAUST FANS

- NEWLY DEVELOPED DIFFUSERS 1.5 x D, OPTIMISED FOR FREE OUTLET

- NEW EC MOTORS UP TO 31 KW AND DANFOSS EC+ CONCEPT

- NEW AHU TECHNOLOGY LEADS TO 20% ENERGY SAVINGS AND IS 30% SHORTER AND 30% LIGHTER



View of air supply and exhaust unit

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VOLKSWAGEN NAVARRA IN PAMPLONA: THE PRODUCTION LOCATION OF THE VW POLO AND T-CROSS

INTERACTION OF DIFFERENT COMPONENTS

The key phrase here is intelligent interaction of the system components. At NOVENCO this interaction is embodied in the term EC⁺ and is developed in cooperation with Danfoss, Denmark. Only the optimal interaction of the system components fan- motor- electronics – diffuser, makes the full potential of a highly efficient fan realisable.



Photo: Volkswagen Navarra, Pamplona

SYSTEM EFFICIENCY INCREASE:

- AXIAL FANS WITH UP TO 92% EFFICIENCY
- NEWLY DEVELOPED EC MOTORS WITH UP TO 31 KW POWER AND EFFICIENCIES OF UP TO 96%
- OPTIMISED FREQUENCY INVERTERS FOR EC MOTORS WITH UP TO 98% EFFICIENCY
- NEWLY DEVELOPED DIFFUSERS, OPTIMISED FOR FREE OUTLET



ZerAx® fan - view of the acoustic diffuser: aerodynamic component and silencer in one.



Centrally above the company premises hover the latest generation of AHU devices. The supply air fans are directly at the end of the device.