

# ANNUAL REDUCTION OF 4.7 MIO KWH AND 2.2 KT CO2 THROUGH OPTIMISATION WITH NOVENCO® ZERAX® FANS.



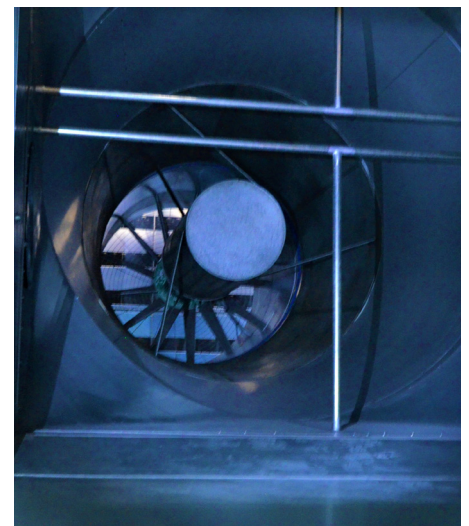
## ENERGY REFURBISHMENT

At Frankfurt Airport Terminal 2, the two air handling centers in Building 151 (West) and Building 150 (East) were energy efficiency renovated in cooperation with NOVENCO Building & Industry. Each control centre consists of three identical chambers each with a volume flow of 300,000 m<sup>3</sup>/h, thus in total the outdoor air volume flow is 1,800,000 m<sup>3</sup>/h.

The air is filtered and heated in the units and led to the downstream air handling units by means of large fans.

## OPTIMISATION FEATURES

- Fan replacement with high-efficiency speed-controlled ZerAx® axial fans
- Fan connection to ducts for dynamic pressure recovery
- Enlargement of the intake and area to reduce pressure drop
- Duct Connections ensure independent fan operation and a significant increase in redundancy
- Reduction of number of silencer baffles, due to quieter ZerAx® fans



ZerAx® AZN 1600 installation in ventilation centre

# ANNUAL REDUCTION AND SAVINGS THROUGH OPTIMISATION WITH NOVENCO® ZERAX® FANS



Frankfurt Airport

## THE CONCEPT

Even in modern plants, the high dynamic fan pressure is unused and the kinetic energy of the air-flow is lost. This is neither economical nor environmentally friendly in view of the enormous challenges posed by the climate protection targets. With modern fans, the total pressure and thus the total energy of the air-flow is utilized. As a result, system efficiencies of up to 85% are achievable. NOVENCO Building & Industry is your partner in achievement of your climate protection goals at a reasonable cost.

## SUMMARY

The use of the ZerAx® fan with state-of-the-art components in combination with advanced system concepts proves the huge potential for reduction of the ecological footprint in ventilation systems. In the Frankfurt Airport project, fewer kWh are consumed, fewer raw materials are used and less CO2 is emitted in comparison with the old ventilation solution.

NOVENCO ZerAx axial fans, with their 92% efficiency, 98% recyclability rate and 20+ years of lifetime, are a long-term, environmentally friendly and efficient solution for a greener future.



ZerAx® AZN-1600 with up to 92% fan efficiency across most of the control range  
Reuse of brackets and diffusers ensure minimal material usage



Blow-out chamber with louvre dampers  
Thanks to the ducts, the flow velocity is kept up to the dampers meaning no more energy is wasted

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### RETROFIT AT FRANKFURT AIRPORT

- CUSTOMER: FRAPORT AG, FRANKFURT/ MAIN, TERMINAL 2
- OBJECT: CENTRAL AIR HANDLING CENTRAL TERMINAL 2
- QUANTITY: 12 ZERAX® FANS WITH 150,000 M<sup>3</sup>/H EACH
- AIR VOLUME: 1.8 MILLION M<sup>3</sup>/H
- ENERGY SAVING: APPROX. 60%, THIS CORRESPONDS ANNUALLY TO 4.7 MIO KWH
- CO2 SAVINGS: 2.2 KT
- REDUCTION OF SYSTEM PRESSURE LOSSES WITH SIMULTANEOUS INCREASE IN OPERATIONAL AVAILABILITY



The old fans from chamber 1  
The diffusers were reused



The newly mounted ZerAx® axial fans optimised for  
the existing plant to utilise the dynamic pressure