

Pure competence in air.

# MODULAR FAN ARRAY CONFIGURATIONS WITH ZERAX<sup>®</sup>

Building & Industry

**NOVENCO** 

SCHAKO Group

- Data Center cooling
- Customized modular fan arrays
- Lifetime 20+ years
- Efficiencies up to 92%
- Low sound levels
- Zero maintenance
- Sustainable production



# WELCOME TO THE FANS OF FUTURE



**NOVENCO Building & Industry is a leading provider of ultra high efficiency air movement solutions with offices and representatives across the world.**

**Our ZerAx® fans are world leading when it comes to durability, efficiency and sound levels. The lowest in the industry Total Cost of Ownerships (TCO) with zero downtimes, 20+ years of lifetime, unmatched efficiencies up to 92% and low sound levels, makes NOVENCO's fans probably the most profitable and the quietest in the world.**

**With all in-house processes covering design, research, development, manufacturing, commissioning and start-up, we have the ability to meet each request.**

**NOVENCO's solutions provide the lowest energy consumption in the industry with very low CO<sub>2</sub> emissions, which contribute to sustainability.**

**Low sound levels of our fans, allow data centers to be located close to residential areas.**

**Our pure competence in air makes our solutions suite all types of critical facilities.**



# Powered by **ZerAx<sup>®</sup>**



20+ years of lifetime



Efficiencies up to 92%



Very low energy consumption



Very low sound levels



Zero maintenance



Sustainable production



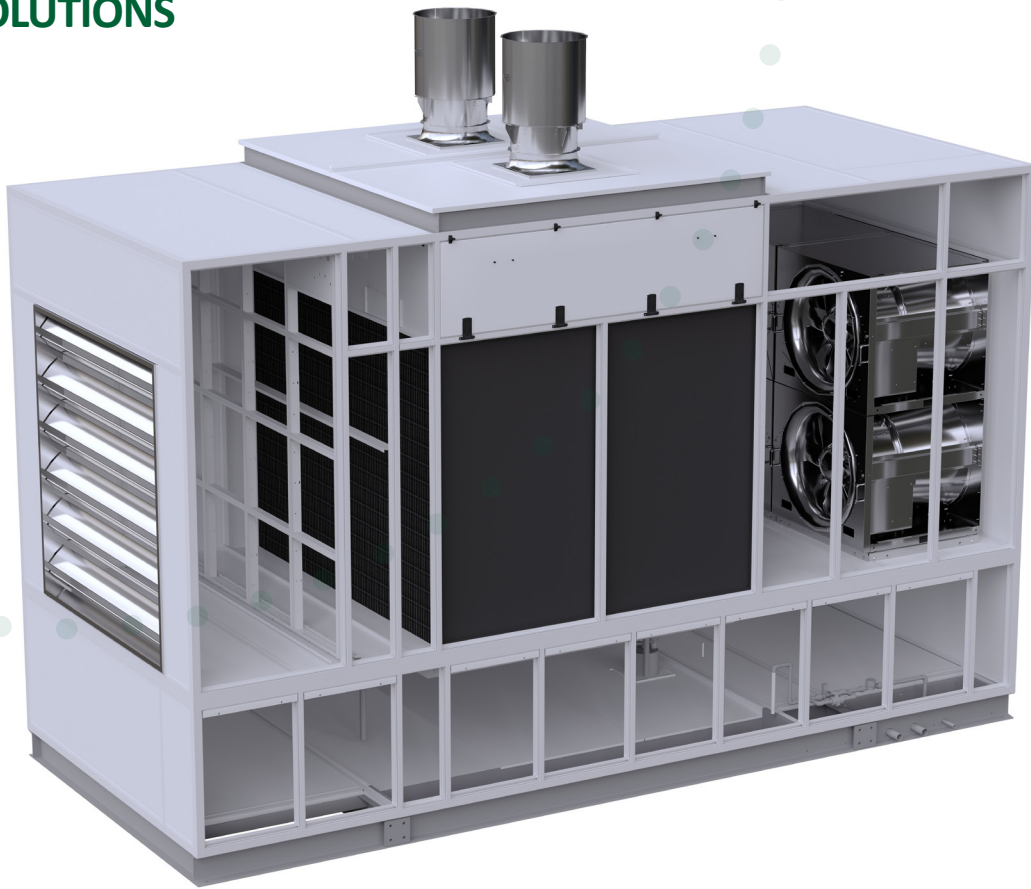
Highly recyclable



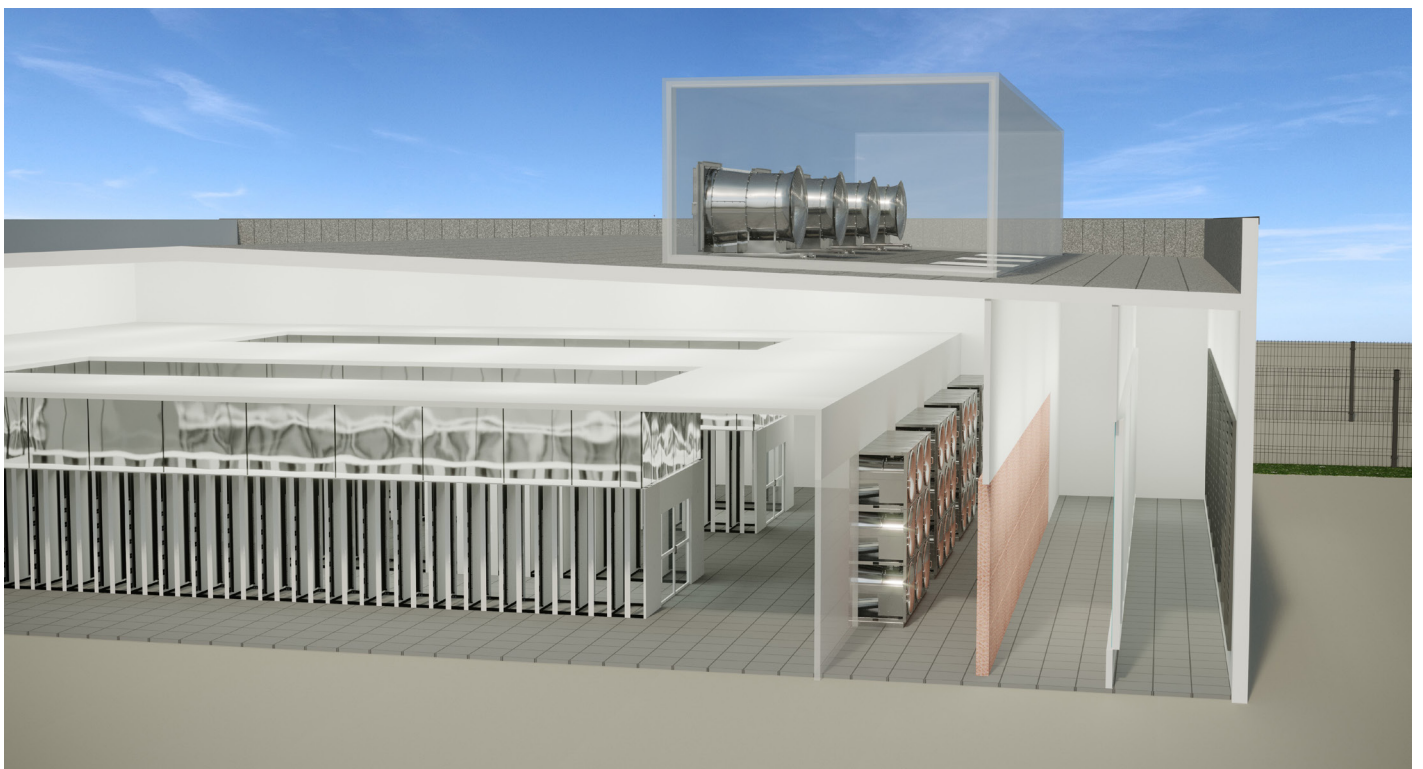


# FAN APPLICATION

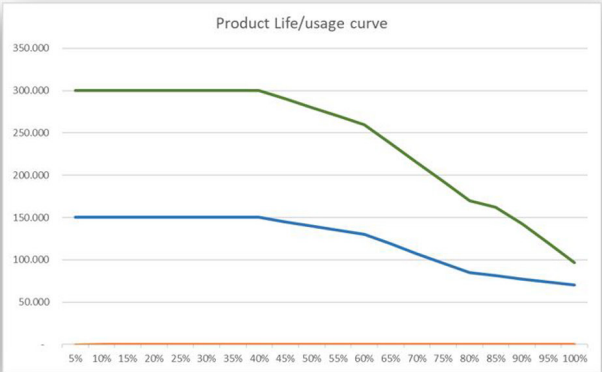
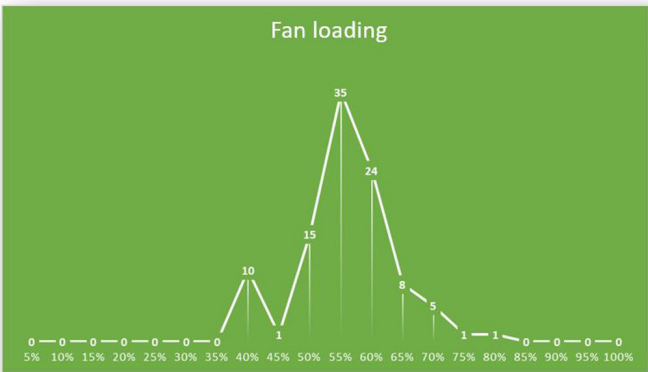
## AHU SOLUTIONS



## BUILDING INTEGRATED SOLUTIONS



# PRODUCT LIFETIMES OF 20+ YEARS MEANS ZERO MAINTENANCE



Standard motor with normal bearings	15,1y
Up-graded motor with ceramic bearings	30,0y

## ZERAX FANS® AND GROUND-BREAKING EFFICIENCIES

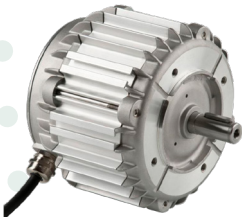
With motor and frequency drive efficiencies both reaching above 95%, the ZerAx fan efficiency of 92% brings the overall system efficiency to an impressive 85%. This is 20-25 percentage points better than the closest alternative solutions, such as direct-driven centrifugal plug fans with EC motors. It is the highest possible total system efficiency available on the market.



92%

NOVENCO ZERAX®  
HIGH EFFICIENT AXIAL FAN

x



95%

PM MOTOR

x



97%

DANFOSS VLT® WITH MOTOR  
INDEPENDENT TECHNOLOGY

=



85%

EC+

# INTAKE AIR WITH ZERAX<sup>®</sup>

The cooling principles for data halls are either direct or indirect with the difference being whether the indoor air recirculates as in the indirect solutions. Which of these appeals most in the design of the cooling facilities depends on the quality of the outdoor air. Too dry, too wet or unclean air are all conditions that can call for expensive air treatment to make the air useable, and hence speak in favour of indirect designs. That said the locations and regions on the globe where direct cooling is the logical and feasible choice are indeed plentiful. NOVENCO Building & Industry has design and delivery experiences with both direct and indirect systems.

## DIRECT FREE COOLING

- Free-standing array configurations with ZerAx<sup>®</sup> bricks
- Integrated or external VFD's
- Diffuser optimization per application
- Use of the outdoor air
- Grates and filters for simple air processing
- Cooling and de-humidification for advance air treatment
- Exchangers for heat recovery





# THE MOST QUIET EXHAUST AIR

Next after the quality of the intake air and the optimal distribution thereof, the efficient removal or recirculation of the exhaust air from the data halls is significant for the operability and economy of the data centres.

## ZERAX® EXHAUST FANS

- Minimum noise
- Efficient removal of the air
- Diameters up to Ø2,000 mm
- Air volumes up to 110 m³/s
- Applicable for direct and indirect cooling solutions
- Horizontal or vertical mounting

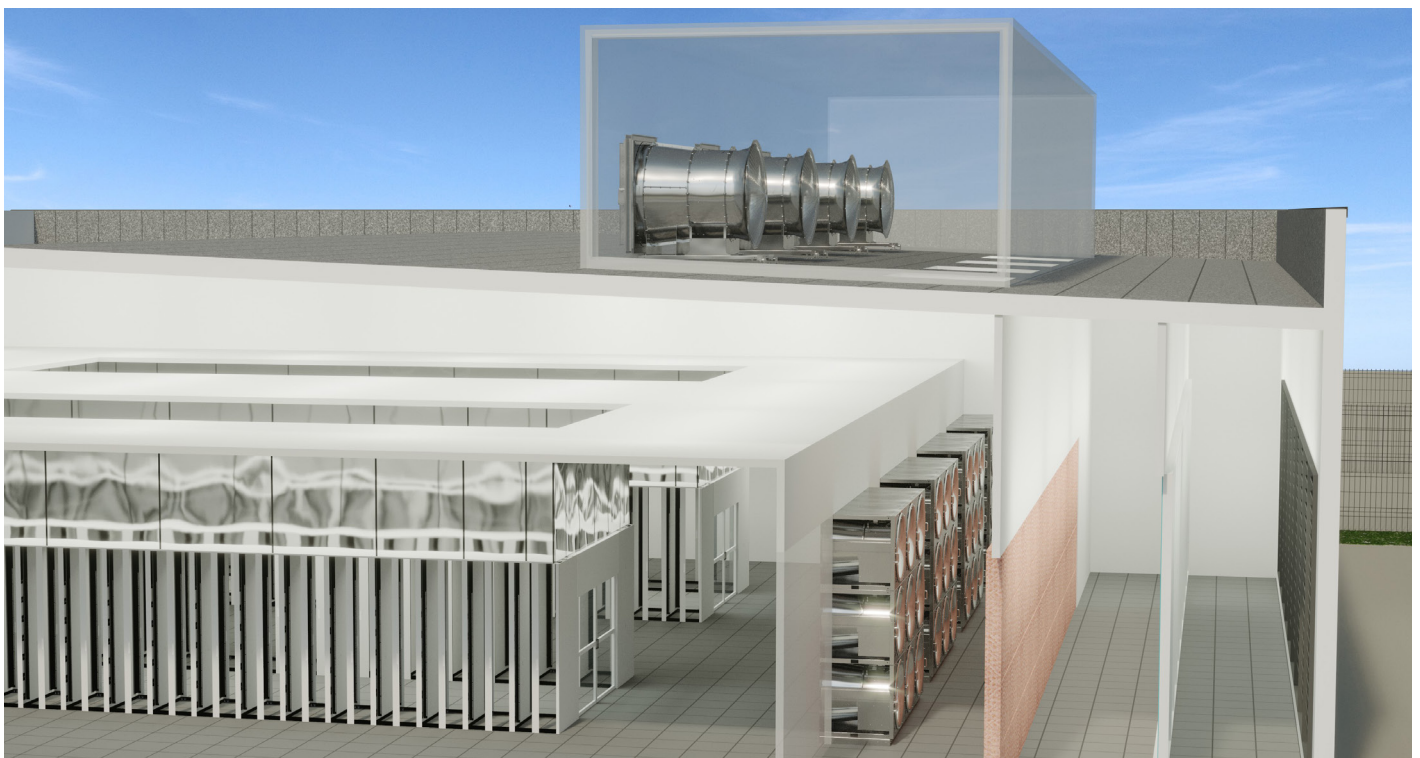
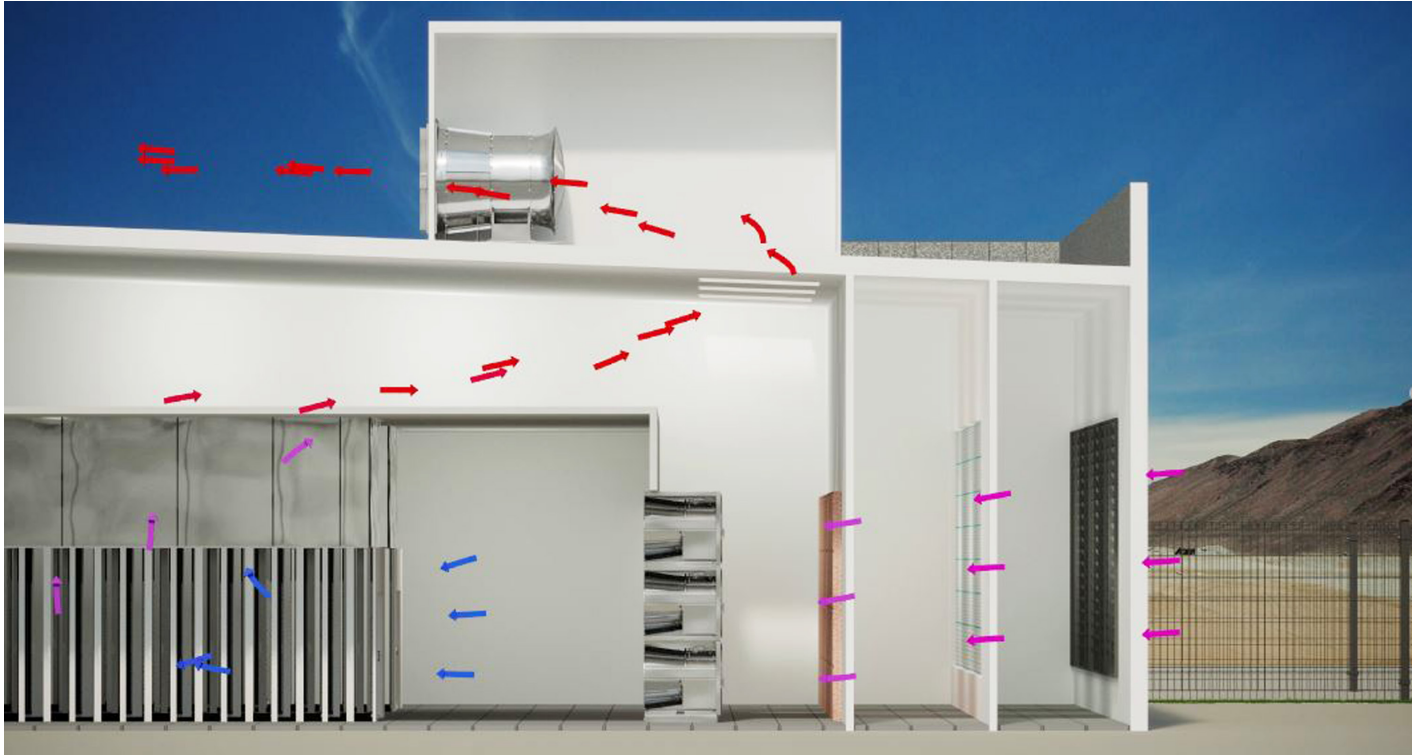


NOVENCO ZERAX® EXHAUST FAN - HORIZONTAL MOUNTING



NOVENCO ZERAX® EXHAUST FAN - VERTICAL MOUNTING

# HIGH EFFICIENCY SUPPLY FANS COMBINED WITH THE MOST QUIET EXHAUST AIR





# STRONG REFERENCES

## DATA CENTER, NORTHERN SCANDINAVIA

This data center is located close to the Arctic Circle in Northern Scandinavia. The favourable location ensures easy access to natural cooling and provides optimal conditions for employment of the free-cooling principle used in control of the temperatures in the data halls. The facility is as large as 13 football fields and is one of the world's most energy-efficient facilities.

NOVENCO Building & Industry has delivered 52 specially designed NOVENCO ZerAx® fan arrays, each consisting of nine fans, and 56 ZerAx® relief fans. In this project the ZerAx® fans are key components that ensure a significant reduction of the energy consumption and save the environment for 365 tons of CO<sub>2</sub> each year. Moreover, the sound level of only 84 dB makes this data center one of the quietest in the world.



## DATA CENTER, UNITED STATES

Located in the western United States on an area the size of 26 football fields, this data center is part of the valuable infrastructure bringing applications and services to more than two billion people across the globe.

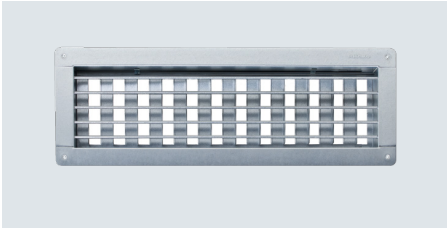
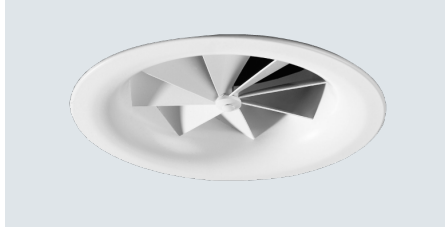
This new data center will be, upon completion, among the most advanced, energy and water-efficient facilities in the world, setting new standards for data centers across the world. NOVENCO Building & Industry has delivered its innovative direct free-cooling solutions consisting of 112 fan arrays and 224 relief fans, based on the unique and patented NOVENCO ZerAx® fan technology. The advanced fan technology makes the ZerAx® fans the best on the market in terms of highest levels of efficiency and lowest TCO over an expected lifetime of 20+ years.



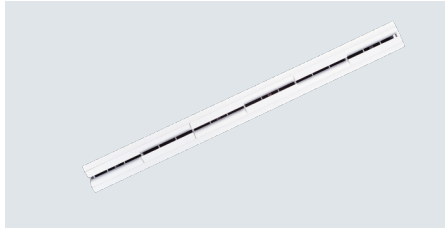
# AIR DISTRIBUTION PRODUCTS



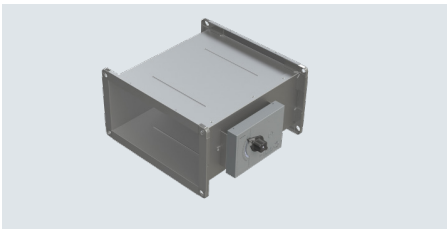
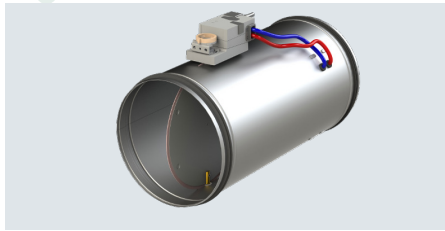
**DIFFUSERS**



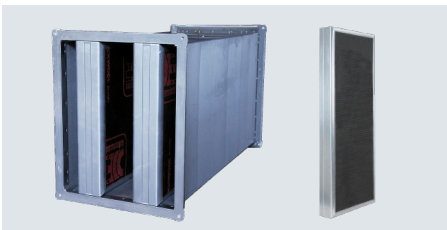
**GRILLS**



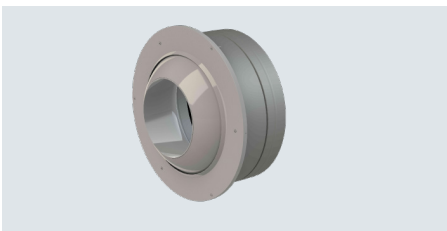
**DAMPERS**



**FLOW REGULATORS**



**SILENCERS AND BAFFLE PLATES**



**NOZZLES**



# SCHAKO GROUP

The 1.000 employees in all five companies of the SCHAKO Group are specialised in ventilation. The companies are reliable and competent partners for all solutions within ventilation, air-conditioning, fire protection and smoke extraction technologies. We develop, produce and deliver reliable, high-quality, energy-efficient and economical products and systems.

Building & Industry

**NOVENCO** 

Energy-efficient ventilation and life safety systems for buildings, industries and infrastructures.

**REVEN** 

Air cleaning systems in commercial kitchens and industries.

**SCHAKO** 

Ventilation and air-conditioning in commercial and public buildings.

**SCHNEIDER** 

Special ventilation engineering in all kinds of laboratories.

**SIROCCO** 

Air technology and smoke extraction systems for industries and tunnels.

**SCHAKO** 

Group

Pure competence in air.

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SCHAKO Group



DANISH DATA CENTER  
INDUSTRY



DUTCH  
DATA CENTER  
ASSOCIATION

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