Building & Industry
NOVENCO
SCHAKO Group

Pharma production site optimizes HVAC system for efficiency and future capacity

The project

A major pharmaceutical production facility in Denmark upgraded a critical part of its HVAC ventilation system as part of a broader energy optimization strategy.

The project focused on replacing existing belt-driven centrifugal fan within the air handling unit with high-efficiency axial fan technology.

The new solution was specified to support stable long-term operation in a regulated pharmaceutical environment. It also had to allow future capacity expansion without compromising current performance or efficiency.

System integration was carried out with attention to both energy optimization and operational reliability.



ZerAx axial fan installed in the air handling unit, delivering high efficiency and future-ready capacity

The challenge

The previous system was characterised by high energy consumption and, due to its belt-driven centrifugal fan technology, also resulted in higher noise levels and increased maintenance requirements.

The new installation was dimensioned to support both current operating conditions and future production requirements, with additional capacity built in to provide greater operational flexibility. This ensured scalability for potential production increases and long-term adaptability.

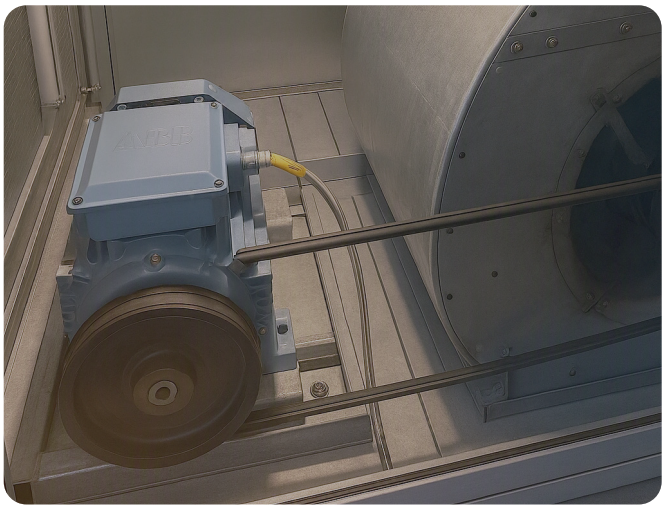
However, the added capacity also meant that the system was not operating strictly at the most energy-efficient point for the current load profile and the installed fan technology.

The solution

NOVENCO supplied ZerAx AZL Ø710 high-efficiency axial fan as a retrofit solution to replace the existing centrifugal belt-driven unit.

The ZerAx fan reduced system losses by eliminating belt transmission and improving aerodynamic efficiency. This simplified the installation and improved overall operational stability.

The solution was engineered for pharmaceutical HVAC application, where energy efficiency and reliability are key requirements. At the same time, the design maintained flexibility for future system demand increases.



Outdated belt-driven centrifugal fan before retrofit



Upgraded air handling unit with axial fan technology

The results

The retrofit delivered an energy reduction of approximately 20% under current operating conditions.

The improvement was achieved despite the intentional overdimensioning of the new system.

Significant noise reduction was also achieved. The extremely low sound level was noticeable enough that the client initially questioned whether the system was running.

In similar retrofit applications, properly matched duty points typically enable energy savings in the range of 40–50%.

The project improved ROI through reduced energy consumption and lower mechanical losses, while supporting long-term operational flexibility in a pharmaceutical production environment.

Following the successful implementation, additional ZerAx fans have been ordered as part of future facility upgrade projects.