CASE STUDY

Turbo purification in Havelland

Roskow wastewater treatment plant: reduced energy demand thanks to turbo technology

49.000 PE
Capacity

4.000 m³
Dirt load per day

3 years
Construction time

The problem
Conversion to new treatment process

In order to reduce energy demand and CO_2 emissions, the Roskow wastewater treatment plant carried out extensive construction work between 2021 and 2023. The machine technology, the construction technology and the EI&C and process control technology were completely modernised. The plant is now up to date in terms of energy efficiency.

> The AERZEN machines are reliable and the services are outstanding. We are very satisfied.“
>
> Thomas Hantke
> Technical Director of the Havelland Water and Wastewater Association (WAH)

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EXPECT PERFORMANCE

The solution
Highly efficient turbo blowers

A central component was the energy optimisation of the aeration technology in two aeration tanks.

1 Previously, rotary lobe compressors and positive displacement blowers of the Delta Blower type (2x GM25S) supplied the microorganisms in aeration tanks 1 and 2 with oxygen. These were replaced by five turbo blowers: one AT50 and one AT100 per tank and one AT150 as a central reserve.

2 The aeration elements were also modernised as part of the renewal of the blowers. Instead of candle diffusers, large-format aerators ensure that the air provided by the AERZEN packages reaches the pool. At the same time, the configuration was optimised and the area increased from 60 m^2 to 160 m^2. With the same amount of air, 50% more oxygen can now be entered.

Type of technology	Turbo blower
Version	Overpressure
Volume flow	360 to 16,200 m^3/h
Overpressure	1,000 mbar
Conveying media	Air
Conveying	Oil-free

The result
Lower energy consumption

Following the switch to turbo technology and the new aerators, only two machines will be in operation on average - namely one AT 50 each for aeration tanks 1 and 2. That is an annual saving of 330,000 kWh - and that with a 36% increase in capacity from 36,000 to 49,000 PE.

330,000 kWh

less energy consumption in the aeration

Summary

Thanks to the new technologies - blowers and aeration elements - as well as the construction of a pre-treatment and digested sludge plant, the tank volume could be reduced: instead of three, only two aeration tanks are needed. The third tank, which had its own compressor station with a further three machines, was taken out of permanent operation and serves as a buffer tank.