

Turbocompressors drive down operating costs of a German wastewater treatment plant

The wastewater treatment plant of Sögel, a joint municipality located in the Emsland region of Lower Saxony with approximately 16'000 inhabitants, has seen a series of upgrades to a capacity of 66'500 PE (population equivalent) in recent years. Aside from domestic wastewater, also industrial wastewater from some food industry factories is treated at the plant. As part of the ongoing upgrade, Sulzer delivered five HST™ turbocompressors.



“Due to our very positive experience with the first four aggregates, we decided to order this most recent one without obtaining an extended warranty.”

Johannes Riepe, Operations Manager at the Sögel wastewater treatment plant

The challenge

The wastewater treatment plant used to comprise up to seven rotary piston blowers. Process-related increases in pressure were, however, causing single unit failures with rising frequency. In addition, the relatively high share of industrial wastewater of up to 75% led to large load fluctuations within a few hours. These fluctuations require a rapid response in terms of air supply.

The solution

Following an assessment of a range of technological solutions, the treatment plant of Sögel decided to acquire turbocompressors. The decision was partly made on account of recommendations by a neighbouring municipality, which has already been operating Sulzer's turbocompressors for some years.

The supply of oxygen to the aeration tanks 1, 2, 4 and 5 of the treatment plant is now handled by five centrally controlled turbocompressors. While 1-3 units are running during normal operation, additional turbocompressors can be switched on during peak load times to meet considerable increases in the polluting load.

Customer benefit

- Specific energy consumption reduced by up to 50%
- Lower heat build-up
- Lower noise levels
- Less vibration
- Nearly maintenance-free operation, reduced to replacing filters
- The earlier rotary piston blowers required checking of oil levels and belt tension on a daily basis, replacing filters, oil and bearings by internal and external specialists, and demounting and dismantling of units to enable maintenance.



Product data

The HST turbocompressor features an advanced design with proven magnetic bearing technology and a high-speed motor driven through a built-in frequency converter.

HST2500-1-H-4 turbocompressor

| | |
|--------------------|-------------------|
| Airflow range | 1'000-3'700 Nm³/h |
| Pressure rise | 60-85 kPa |
| Input power | 83 kW |
| Power supply | 380-690 V |
| Input frequency | 50/60 Hz |
| Protection class | IP33D |
| Thermal protection | PT100 |



The Sulzer difference

Reduction in maintenance costs: According to a conservative estimate by the operator, the conversion to Sulzer equipment translates into yearly savings of 10'000 euros in maintenance costs.

Reduced energy consumption: By converting to turbocompressors, installing new aeration units and optimising the controls, the specific energy consumption of the wastewater treatment plant has been reduced by more than 50% in the past six years. More than 80% of this reduction is due to the installed turbocompressors.

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