# KAESER Kompressoren

## Screw blower harmonizes with turbo compressors

**Screw blower & turbo compressors**

## Initial situation

Energy-efficient wastewater treatment is more than ever an important issue. The customer of KAESER Kompressoren SE - a wastewater treatment plant in the Lüneburg region of Germany - additionally relied on a solution that could generate air stably in fluctuating weather and had an elegant control system. KAESER used a screw blower in this application, which provided significant energy cost savings and achieved the desired results.

## Challenge

In the course of a year, the screw blower was subjected to a maximum utilization test in trial operation at the wastewater treatment plant. Since the higher-level control technology was adapted to control the turbo compressors with guide vane adjustment, the software had to be adapted to control the screw blower by speed specification. When the blower reaches certain speeds, either a turbo is added or switched off to avoid inefficient overlaps.

Thanks to adjustable ramp times, the up and down speed of the screw blower also does not cause any pressure peaks detrimental to the turbos. A direct performance comparison results from the fact that the blower exactly replaces the previous operation of a turbo with 4000 - 9000 m³/h, almost 24 hours in operation of which 12 hours in stand-alone operation.

## Solution statement

- Thanks to the much more dynamic control behavior and the fact that with displacement compressors the generated volume flow fluctuates much less with changing intake pressures and temperatures, this goal was achieved.
- The desired process values can now be maintained precisely even in extreme weather conditions.
- Less influence of pressure fluctuations on the control behavior of the machine became positively noticeable after a short time, which also simplified control.
- Improved process control thanks to continuous air mass flow and power measurement, as well as significant energy savings
- Savings of around 250,000 kWh / year thanks to the interconnection with the turbos running screw blowers

## Customer value

- When finding a solution for a station concept, it makes sense not to commit to individual machines or technologies in advance, but to take an open approach.
- Priority in the preliminary stages is given to investigating the air demand profile and the real demand pressure. The aim is to consider the operation of the subsequent machine network as a whole.
- Kaeser Kompressoren knows the advantages of both technologies, positive displacement and dynamic compressors, and always offers a customized solution for the customer.

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