

CASE STUDY

Salina's Upgrade Boosts Energy Efficiency

Salina, located in central Kansas with 50,000 inhabitants, is an agriculture community known for wheat production. Their wastewater treatment plant was first built in 1926 and has had four major upgrades since then. The current plant can handle 7.25 mgd (million gallons per day) and currently flows at about 3.5 mgd. It discharges into the Smoky Hill River.

Salina received over 200,000 USD from the Energy Conservation Block Grant Program that supports investments in the most cost effective, clean and reliable energy technologies available. The city had the choice to update their lighting to LED (light emitting diode) or to replace the blowers of their wastewater treatment plant. They decided for the blowers.



Sulzer turbocompressor type ABS HST 2500

The Sulzer difference

With its proven energy savings and lower maintenance cost the turbocompressor type ABS HST provides market leading life-cycle costs, reduced CO₂ emissions and a short pay-back time.

“ *The Sulzer blowers have saved us a lot of energy and been very reliable. We have only changed filters since the installation. The blower room is quiet, before it was very noisy and hot.* ”

Martha Tasker, Director of Utilities, Salina, Kansas

The challenge

Salina had four centrifugal blowers that were installed in 1993. These blowers did not have Variable Frequency Drive (VFD) control, which means that they ran at full speed. Adding the VFD to these blowers would have cost about 40,000 USD. Salina only wanted magnetic bearing blowers and did not even consider air bearing blowers because of the products life span and efficiencies.

The solution

By replacing two of the existing fixed speed centrifugal compressors with two turbocompressors type ABS HST 2500 in June 2011, the wastewater treatment plant has increased energy efficiency as well as reduced energy costs and fossil fuel emissions. The HST utilizes non-contact electromagnetic bearings and a high speed motor, which operates without lubrication or contact, resulting in no mechanical friction or wear. A variable speed control keeps the machine at its optimal operating efficiency at all times, maximizing energy utilization.

Customer benefit

A turbocompressor type ABS HST 2500 utilizes non-contact electromagnetic bearings and a high speed motor. It operates without lubrication or contact, which means no mechanical friction and wear. Therefore the only maintenance required is a yearly change of air filters. The pay-back of the city's portion of the purchase and installation cost was estimated to be 15 months, based on estimated power costs. The yearly power savings are approximately USD 22,800.

Product data

| Turbocompressor type ABS HST2500-1-H-4 | |
|--|----------------|
| Airflow range | 450-2,700 SCFM |
| Pressure rise | up to 18.1 PSI |
| Input power | 68-100 kW |
| Power supply | 380 V-690 V |
| Input frequency | 50/60 Hz |
| Protection class | IP33D |
| Thermal protection | PT100 |



Salina's wastewater treatment plant

For more information on our products and solutions for wastewater treatment, please visit sulzer.com.

Contact

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Applicable markets

Municipal and industrial wastewater treatment

Applicable products

Turbocompressor type ABS HST