SULZER

Sulzer Pumps

Case Study

Meriden, Connecticut, USA
Upgrading to More Effective Aeration

The wastewater treatment plant in Meriden

The Sulzer Difference

- Nearly silent operation
- Maintenance reduced to little more than an annual filter change
- Output increased by 25% while using 20% less electricity
- Investment payback in just six months

Located in New Haven County, Connecticut, in the eastern USA, the wastewater treatment plant in Meriden has a design inlet flow of 43,911 m^3/day (11.6 mgd) with a maximum inlet flow of 143,386 m^3/day (38.0 mgd). Upgraded in the 1960s and 1980s, the plant has been in existence since the 1800s.

In 2007, the plant initiated a series of major upgrades that had been approved to address its twenty-year growth. Among them were a fourth 1st stage sediment basin, a fourth 1st stage reactor and new, more efficient blowers to upgrade the aeration system.

The Turbocompressor Advantage

Upgrading the aeration system was a major key to reducing the Meriden plant's energy costs. Conventional aerators consume up to 80% of the energy used by a wastewater treatment plant, and the rotary displacement blowers already in use were far from energy-efficient.

Working with the engineering firm AECOM, the plant identified potential in the ABS turbocompressor HST 40 from Sulzer Pumps. Based on an estimated 20-year lifetime, lifecycle analysis of the turbocompressor showed that it would save more than USD 1,000,000.

For the upgrade, two ABS turbocompressors HST 40 were selected. One was installed for non-stop operation, while the other was installed for use as a backup. In addition, the plant installed one smaller unit, an ABS turbocompressor HST 2500. Since they began operating, the Meriden plant has noticed major differences.

Wastewater treatment operations

ABS turbocompressor HST 40

abs

Frank Russo
Plant Manager and Chief Operator
Meriden Wastewater Treatment Plant

Quieter, Cheaper and More Productive

Whereas the old positive displacement blowers were noisy, the ABS turbocompressors HST are practically silent. This is a result of their gearless construction and high-precision magnetic bearing system, which eliminates contact and friction between parts. These features also eliminate a good deal of maintenance, leaving only an annual air filter change and replacement of the cooling fan every 5-6 years if needed.

The turbocompressors spin much faster then conventional aerators, operating in the 30,000 rpm range for greater energy efficiency. In addition, they employ a variable-speed drive, which means they can be sped up or slowed down to match the precise airflow needed. Working in this way has allowed the Meriden plant to increase aeration activity by 25% – while using 20% less electricity than before.

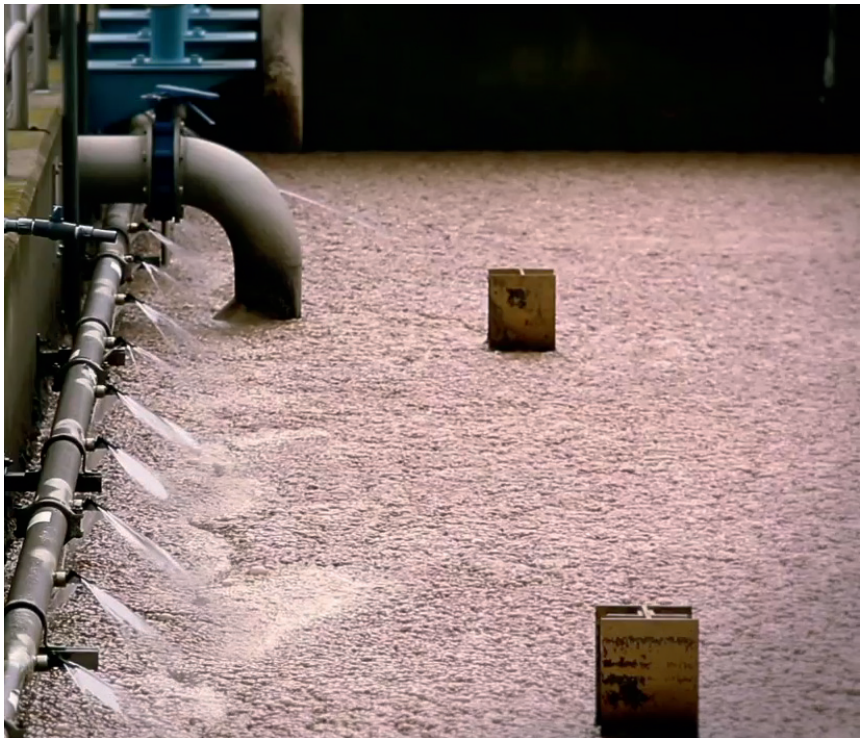
In fact, the turbocompressors have proven even more economical than anticipated. With the plant's combined savings in maintenance and energy consumption, the investment in the ABS turbocompressors HST was paid back in just six months.

Key Benefits

- Nearly silent operation
- Maintenance reduced to little more than an annual filter change
- Output increased by 25% while using 20% less electricity
- Investment payback in just six months

"With our HSTs online, we actually increased aeration activity by some 25%. But we're using 20% less electricity. That's right: More aeration...that costs less!"

Frank Russo
Plant Manager and Chief Operator
Meriden Wastewater Treatment Plant



Contact

Sulzer Pumps Wastewater Solutions USA
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Applicable Markets
Water and Wastewater

Applicable Products
ABS turbocompressor HST 40
ABS turbocompressor HST 2500