

HST™ turbocompressor improves energy efficiency at Laon treatment plant in France

Lyonnaise des Eaux, operator of the wastewater treatment plant of Laon (40'000 population equivalent), and the urban community of Pays de Laon as owner of the plant wanted to improve the energy performance of the plant with a compressor that supplies air to the aeration system.



“The energy savings generated by the Sulzer HST turbocompressor versus a screw blower, as well as the reduced need for maintenance, are key for our plant.”

Mr. Boggian, Head Plant Aisne agency Lyonnaise des Eaux

The challenge

In a wastewater treatment plant, the biggest part of the energy costs is caused by the secondary treatment. It is estimated that aeration systems account for 30-70% of the total energy cost of an average wastewater treatment facility.

The wastewater treatment plant of Laon in Aisne carries out the aeration of biological treatment through thin membrane bubble diffusers or Sulzer submersible aerator mixers type ABS OKI. The pressurized air for both systems is supplied by blowers located in a common compressor room.

The Lyonnaise des Eaux plant wanted to explore the possibility of saving energy by replacing the existing blower. Consequently, Mr. Faye, the regional buyer at the plant, contacted Sulzer to learn to know the features and benefits of the new turbocompressors.

The solution

After a thorough consultation, Lyonnaise des Eaux selected the Sulzer bid that stood out with its range of HST turbocompressors with magnetic bearings.

Since early 2014, a Sulzer HST 20-4500-1-150 turbocompressor has been working on site and is backed up by an existing rotary lobe blower on stand-by duty.

Customer benefit

- HST technology with 100% air cooling, compact installation and active magnetic bearing control are the key elements for Lyonnaise des Eaux.
- The HST turbocompressor with comparable flow improves the energy efficiency of the plant by almost 29%.
- Once in operation, maintenance is limited to regular check-ups and occasional change of the air filter.

The Sulzer difference

- 29% improvement in energy ratio according to tests.
- Savings verified on site by benchmarking measurement.
- The HST turbocompressor offers reliable operation and top efficiency at the best whole life cost, while minimizing the environmental impact.

Product data: HST 20-4500-1-150 turbocompressor

- Covering a range of variable airflow 2'000-5'800 Nm³/h, the Sulzer compressor with an output of 150 kW has a discharge pressure of 300 to 900 mbar.
- With its synchronous permanent magnet motor, the HST 20 automatically adjusts to the changing need of air flow and ensures optimal use of energy.
- Magnetic bearings allow the HST 20 turbocompressor to be run in a safe and controlled manner with small impeller clearances.
- The HST 20 turbocompressor is a completely integrated and practically noiseless package. The air cooling system, outlet diffuser, silencers and other components are all incorporated into the cabinet, which eliminates the cost of installing separate accessories.
- The control system of the HST 20 turbocompressor visualizes necessary actions on the touchscreen display and uses stored process data to help operators make far-reaching improvements.

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