

Sulzer turbocompressors boost overall efficiency of wastewater treatment in a paper mill

This paper mill was established in the nineteenth century. Today, the mill has two modern paper machines, which produce more than 500 000 tons per annum of high-quality printing papers. The biological treatment plant was built in 1988 and it cleans both the mill's effluents and the municipal wastewater of the nearby city area, with a total capacity of 400 000 population equivalent. In 2015, the client decided to upgrade the complete blower station for easier operation, increased energy efficiency, and optimal adjustment of the air flow to all biological basins.



“The HST turbocompressors not only save a lot of energy, but they are also easy to use. It is now a pleasure to work in a quiet and clean compressor room.”

Fabrice Martin, Business Development Manager

The challenge

The blower station included two old turbo blowers that required frequent and costly maintenance, mainly the gearbox and diffuser vanes. The plant was running out of original spares. Furthermore, a more recent screw blower did not perform as was promised by the manufacturer. In addition to the blowers, the renewal of the complete station included accessories, piping, and electrical equipment. This renewal was to be done without disrupting the plant operation and in harsh conditions with a noise level of up to 113 dBA.

The solution

The client received proposals from various suppliers, but finally chose Sulzer because of the comprehensive solution. In addition to four highly-efficient HST 6000-2-H-6 turbocompressors, Sulzer offered a complete redesign of the inlet and outlet piping with filters, and an optimal arrangement of the new equipment in the existing facilities. The HST turbocompressors are controlled by one MCU (Master Control Unit), which allows an optimal number of machines to run simultaneously at the best operating efficiency, whatever the aeration needs of the plant are.

Customer benefit

Sulzer works in close technical cooperation with the world's leading pulp and paper producers. Many successful HST references at other wastewater treatment plants of paper mills were an additional guarantee that the new Sulzer turbocompressors would provide complete customer satisfaction.

The compactness of the HSTs facilitated the arrangement and the renovation of the compressor room.

The upgrade was done in 2016. It resulted in significant energy savings of up to 10% and a dramatic noise reduction to less than 85 dBA.

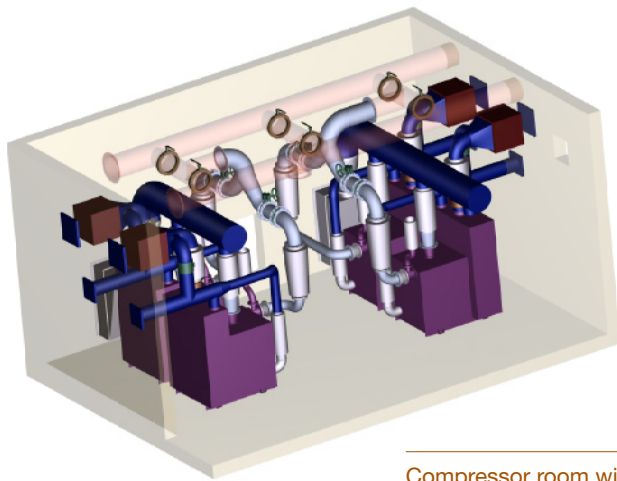
The HST turbocompressors are air-cooled and utilize non-contact electromagnetic bearings. This means that regular maintenance will be reduced to changing the air filters only.



Sulzer HST 6000 turbocompressors

The Sulzer difference

- The HST turbocompressors offer high efficiency and reliable operation for optimal overall life-cycle cost.
- With the HSTs, the customer achieved energy savings of up to 10% and a noise reduction to less than 85 dBA.
- In the high-speed turbocompressor market, Sulzer is the leader in magnetic bearing technology with more than 20 years of successful operation experience.
- The HST turbocompressors are compact and easy to install, which make them ideal for upgrading blower stations.



Compressor room with four HST 6000 turbocompressors

Product data

- 4 HST 6000 turbocompressors
- 1 MCU (Master Control Unit)
- Ducted process air inlet
- Ducted motor and cabinet cooling air inlet
- Ducted motor and cabinet cooling air outlet

4 units HST6000-2-H-6 turbocompressors

Quantity	3 duty, 1 standby
Airflow range	4 048 to 5 886 Nm ³ /h
Pressure rise	120 kPa
Input power	240 kW
Max. current (400 V)	390 A
Power supply	380 – 690 V
Input frequency	50 – 60 Hz
Thermal protection	2 x PT100

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