

HST™ turbocompressor for sky-high savings in wastewater treatment

The town of Fraser, Colorado, USA, with an annual mean temperature of 32.5°F is the coldest town in the lower 48 states and gets frost year-round. At an elevation of 8'574 feet, it is also the highest location for Sulzer's HST 20 turbocompressor in the world. The Fraser WWTP high-speed blower upgrade was completed in early 2019, replacing older centrifugal blowers, which were loud and costly to operate.

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The previous positive displacement blowers were so loud that the plant could operate them only at night when no personnel were on site. The HSTs are very silent and from September 2018 to September 2019, they have saved us over 10'752 kW of power.

Joe Fugua, Plant Manager, Fraser WWTP

The challenge

The wastewater treatment plant used to host one 150 hp centrifugal blower and two 125 hp positive displacement blowers that were costly to operate from both a maintenance and an electrical usage standpoint. Also, the demand at the plant fluctuates due to the seasons of the neighboring ski town of Winter Park and the surrounding resort community. During the summer, the wastewater quantities are small and during the winter they double if not triple. A reliable and dependable solution was needed.

The solution

Following the recommendations of the consulting engineer and having visited Upper Thompson Sanitation District in Estes Park, CO, that has HST 20 units installed at 7'500 feet elevation, Joe Fugua, plant manager at the Fraser WWTP, decided to pursue the Sulzer HST turbocompressor technology. Two identical HST 20 units now allow the plant to run with one spare blower throughout the year.

The use of magnetic bearings instead of air bearings was determinant for the decision. The plant often experiences power outages and the magnetic bearing technology of the HST is not affected by the loss of power.

The turbocompressor not only reduces the operating costs in the Fraser WWTP but also helps the plant manage the load fluctuations from the Winter Park Ski area and the surrounding resort community.



Logan Wray and Joe Fuqua (City of Fraser)

Customer benefit

- The compact HSTs were installed by only three plant operators with guidance from their engineer and the Sulzer team.
- The combined team from the city of Fraser and Sulzer proved that a state-of-the-art high-speed blower can be installed and operated successfully even at the highest HST location in the world.
- The HST lowers the plant's energy costs by approximately 10%.
- Substantially lower noise level in the building and outside of it.
- No vibration of the HST units.
- Almost maintenance-free operation except for replacing filters.
- Large installed base of approximately 4'000 HSTs ensures availability of long-term operational support.

Product data

HST turbocompressor 20-6000-1-U200-48		
Max. flow	2'100 SCFM	2'550 SCFM
Max. pressure	10.70 psi	7.2 psi
Elevation	8500 ft.	
Max. temperature	80°F	
Max. RH	36%	
Power supply	480/3/60	



Two Sulzer HST 20 running

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