

# High-speed compressors for industrial applications – HST™ and HSR

Sulzer, well known for pumping and mixings solutions for several industrial applications, has made great strides to supply air compression equipment to the industries that the company serves. It started with the addition of the renowned HST™ line of low-pressure compressors (blowers) 20 years ago. With the addition of the HSR compressor for oil-free compressed air, the range is now quite complete when it comes to pressures normally required in industrial processes.

The HST product was actually the first of its kind when it arrived in the market. Today, it is the market leader in the relevant range of input powers. The HSR line was added to the Sulzer portfolio in 2018 and it represents a new, revolutionary approach. HSR is, however, based on many of the same core technologies as the HST.

These two compressors have a lot of features and benefits in common. The compression is based on the centrifugal principle, because for these flows and pressures the turbo-compressor is the most efficient one available. For matching the required high speed of rotation required when compressing air, a big step-up gearbox would typically be needed. In the HST and the HSR, however, a high-speed motor fed by a variable frequency drive is used instead. The use of a VFD gives the added benefit of having control over the speed, and this is overall the most efficient way of controlling the flow in turbo machines.

A key part of the high-speed technology package are the active magnetic bearings – with these the shaft is continuously levitated by controlled magnetic fields. There is no mechanical friction and no mechanical wear. In fact, the first HSTs installed over 20 years ago are still running with their first set of bearings. Magnetic bearings are unique in offering 100% real-time condition monitoring as a built-in feature and therefore, any snag in the operation will be caught before larger-scale failures can occur.

For the customer, the high-speed technology and the active magnetic bearing system bring benefits that are not available in competing technologies. The high efficiency will not decrease due to wear. The lifetime of the equipment is without match, and the bills for service and maintenance will be slashed. Depending on the application, the payback on the investment in HST or HSR technology will come from savings in energy consumption, maintenance and service.

The HST, supplying air at a typical maximum pressure of 1.25 bar (gauge), has its most comprehensive application in the supply of air to wastewater treatment processes, both on the municipal and industrial side. It is also suitable for many other applications, such as process air for aerobic processes, air knife and loop seals in power plants.

Find out more about the HST on [sulzer.com](https://www.sulzer.com).

The HSR, designed for the compressed air range of 2-9 bar (gauge), is expected to find good acceptance in the pulp and paper, food and beverage, electronics and textile industries. Common for these applications is that both the air for the process and the air coming out of the compressed air network need to be 100% clean.

Find out more about the HSR on [sulzer.com](https://www.sulzer.com).



**HST turbocompressors  
installed in a Danish  
wastewater treatment plant**

Sulzer is eminently placed to bring the benefits of magnetic bearings and high-speed centrifugal compression to the target industries of the HSR. This comes from having two decades of experience from the design, manufacturing and sales of the HST product. On the payroll of Sulzer, there are experts available to guide you to the best possible air compression solution for your plant.



**You may also be interested in:**

White paper:

[“Centrifugal compressor efficiency improvement and its environmental impact”](#) by Edward Paro, Business Development Manager Aeration, Sulzer Pumps Finland Oy, Kotka, Finland

Case studies:

[Sustainable food production with oil-free turbocompressors](#)

[Sulzer turbocompressors boost overall efficiency of wastewater treatment in a paper mill](#)

**The brand new HSR is designed to deliver oil-free compressed air in industrial facilities**

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