



AERZEN

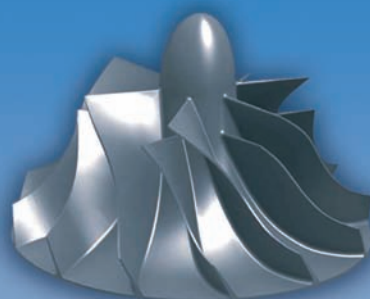
**One
step
ahead.**



*Up to 600 HP
11,000 cfm, 22 PSIG*

Aerzen TURBO Packages

**Energy-efficient
Compact
Quiet**



Aerzen TB Turbo Blowers



Originally designed in Korea by KTurbo, the Aerzen Turbo Blower is now marketed under the Aerzen name featuring this proven design for energy efficiency.

Aerzen TB Turbo Blowers are single-stage high-speed radial turbo blowers designed to meet varying flow and pressure requirements in many different processes. This modern frequency-controlled, gearless driven machine along with lubricant-free aerodynamic bearings, guarantees an economical, reliable and maintenance-free compressor operation.

Easy Installation at Minimal Cost

The Aerzen TB Turbo Blower is a compact, factory tested, ready-to-install unit. It is designed to be easily moved to its final location by forklift truck. There is no need for any special foundations.

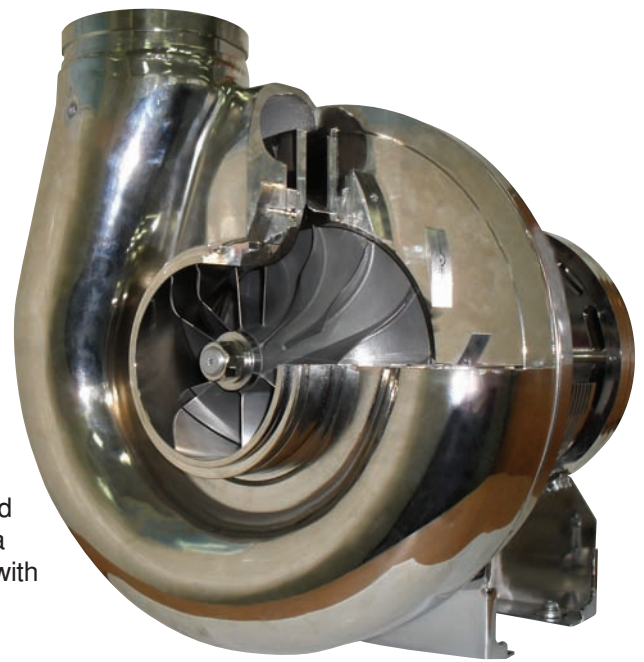
Absolutely Oil-free Operation

The Aerzen TB Turbo Blower shaft rests on air foil bearings and the high frequency drive concept does not make use of any speed increasing gears. There is no need for oil lubrication, therefore no risk of leakage or disposal problems.

High Frequency Permanent Magnet Motor

The motor is specifically designed for high frequency applications; it steadily maintains its high efficiency

over a wide range of operating speeds and loads. The motor is entirely air-cooled and capable of a wide range of operating speeds. The motor is maintenance free. Its integration with the KTurbo proprietary high frequency inverter helps reduce heat generation and the system's high speed response provides for a wider operating range with a high rise to surge.



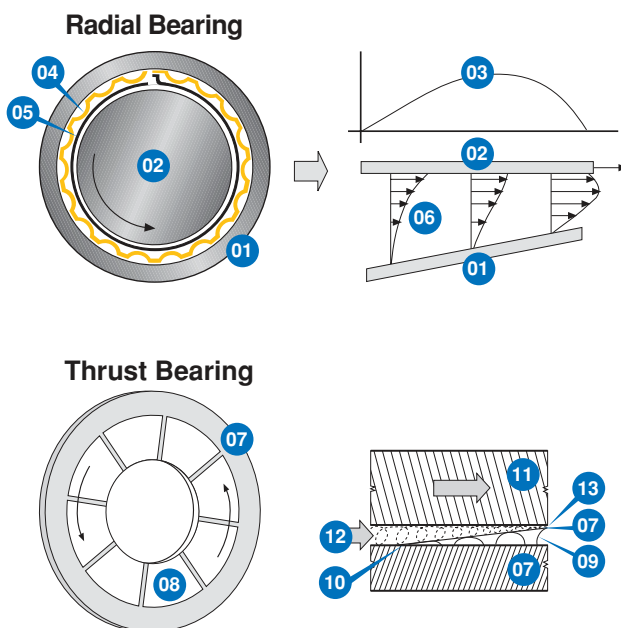
Frequency Inverter

Frequency inverter, DC choke and RFI filter are standard and integrated in the blower package. Other types of harmonic filters can be supplied instead for separate installation.

Aerodynamic Bearings/ Air Foil Bearings

- Air Foil Bearings are aerodynamic bearings. At standstill, the shaft sits on a foil tightened by springs.

- With the shaft rotation, an air wedge forms in the bearing between foil and shaft. This air wedge is the cushion that maintains the shaft in suspension without any need for an external source of compressed air.
- The bearings are not lubricated and the system is absolutely oil-free.



Radial Bearing

- 01 Bearing bushing
- 02 Shaft
- 03 Pressure development in the gap
- 04 Hastelloy spring element
- 05 Bearing foil
- 06 Air pressure development

Thrust Bearing

- 07 Bearing housing (stationary bearing)
- 08 Bearing foil (segments)
- 09 Spring element (segments of Hastelloy)
- 10 Fixation point for items 8 and 9
- 11 Shaft with disk
- 12 Air in the axial gap
- 13 Pressure build-up in the gap

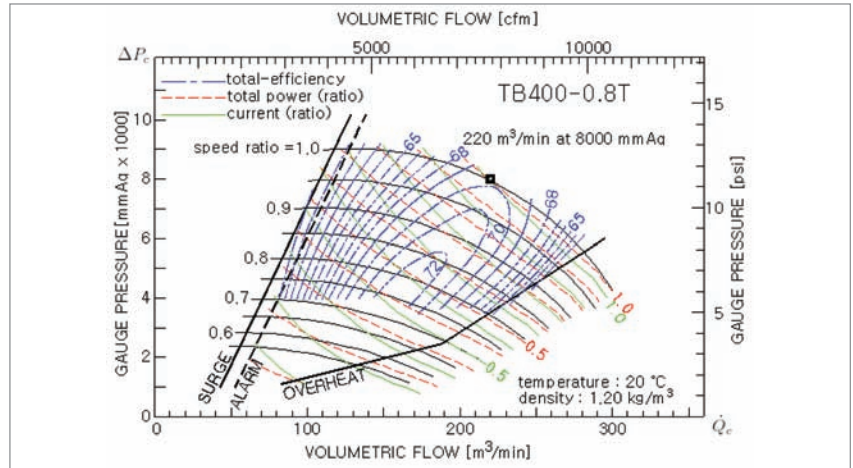
Volume Flow Control

Blower operation is only permitted within safe limits (see diagram). The volume flow is infinitely adjustable within these limits. Flow and pressure capability increase and decrease with speed. Despite fluctuating absolute pressure ratios (p_2/p_1), the operating point can be maintained within defined limits at all times by continuously monitoring intake and discharge pressures. The blower control system monitors all operating parameters which are displayed on the HMI. The volume flow monitoring is based on a direct flow measurement at the inlet bellmouth nozzle.

Application: Waste Water Treatment

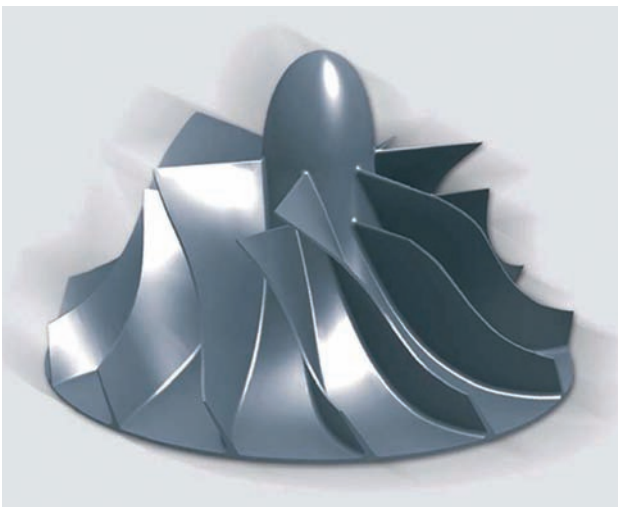
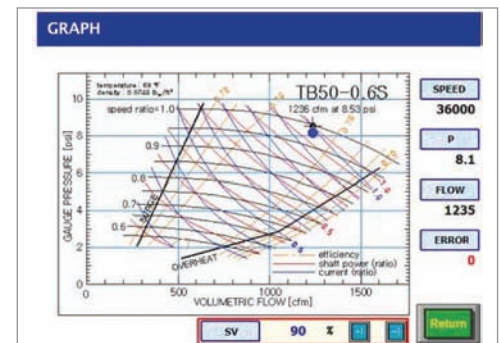
Volume Flow Control in Conjunction with a Dissolved Oxygen (DO) Probe

Where the oxygen content in a wastewater aeration basin is continuously measured by a DO probe (4–20 mA), the controls of the Aerzen TB Turbo Blower compare the DO probe signal with a given set point and adjust the speed to provide the required air flow to meet the oxygen demand.



Functions

The control panel is mounted in the door of the blower enclosure. It features a display with a water and dustproof touch-screen pad interface as well as push-buttons for start, stop and emergency shutdown.



Impeller

The impeller is made of 17-4PH stainless steel (X5CrNiCuNb174, M.No. 1.4542) widely used in the aviation industry for very high speed compressors. The high yield strength gives the design engineer the flexibility needed for optimizing the impeller for efficiency.

Minimum Maintenance

The entire adjustment and operating system is electronically controlled. Only the air filters need to be exchanged regularly.

Options:

Master Control Unit/MCU

The MCU will:

- carry out the infinitely adjustable control of multiple blowers
- monitor the operating times
- ensure even loading of the blowers
- optimize the operating points for highest plant efficiency
- execute data exchange to the main control system and to the process control system (PCS) in connection with various bus systems (e.g. Profibus, SCADA, Modbus, etc.) and any protocols.

Accessories

1. 90° pipe elbow required for horizontal routing of discharge piping.
2. Bellow-type expansion joint with tie rods and internal liner.
3. Check valve, optimized for low pressure loss, smooth-operating, designed for variable flow operation.
4. Absorption discharge silencer to reduce the sound emissions from the discharge piping.

Aerzen means optimal, reliable, trouble-free compression.

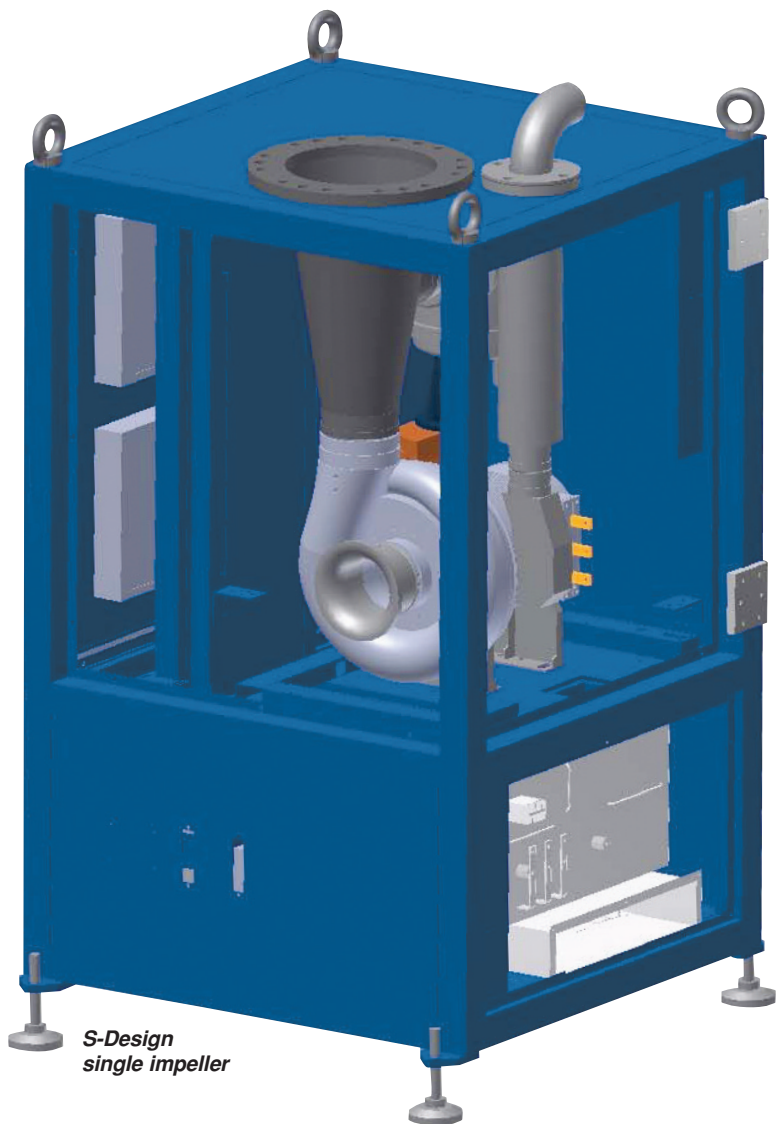
Since 1983, Aerzen USA has been supplying and supporting Aerzen equipment in the USA, and with sister companies in Mexico and Canada expanded throughout North America. Their positive displacement machines are known for high reliability and efficiency and are chosen for harsh environments, difficult applications and where high turndown capability is required.

Aerzen provides various types of dry single stage, air-cooled positive displacement blowers and compressors for pressures to 50 psig and vacuum to 25.5" Hg.

With its TB Turbo Blower series, Aerzen expands its portfolio of energy-efficient technologies for low pressure, oil free applications.



Aerzen USA is a certified LEED Gold, Green facility.



*S-Design
single impeller*

Cover photo: Aerzen Turbo with sound enclosure.
Similar design available for gases other than air.



AERZEN
One step ahead.

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