

It's All About
Performance.
And Growth.



Turbo Blower
High-Speed Magnetic Bearing Drive Solutions

KEBA[®]
Automation by innovation.

KEBA – your strong partner

Our mission is to solve your drive system challenges of tomorrow.

Thanks to our know-how about the current challenges in waste water aeration and our outstanding team performance, our magnetic bearing drive solutions always remain one step ahead.

Experience and competence in technology

KEBA has been marketing magnetic bearing drive systems for high-speed blowers for 15 years, and almost 800 units in the waste water sector represent a wealth of experience.

Based on its uniquely broad technology portfolio, KEBA offers all components from mains connection to motor shaft. This provides benefits all around: fast time to market as well as targeted support based on clear responsibilities. Currently, KEBA manufactures about 3,000 magnetic bearing systems per year.



We are driven by innovation

- // 50 years of high-frequency inverters
- // 40 years of high-speed motors
- // 25 years of magnetic bearing systems
- // 15 years of waste water aeration

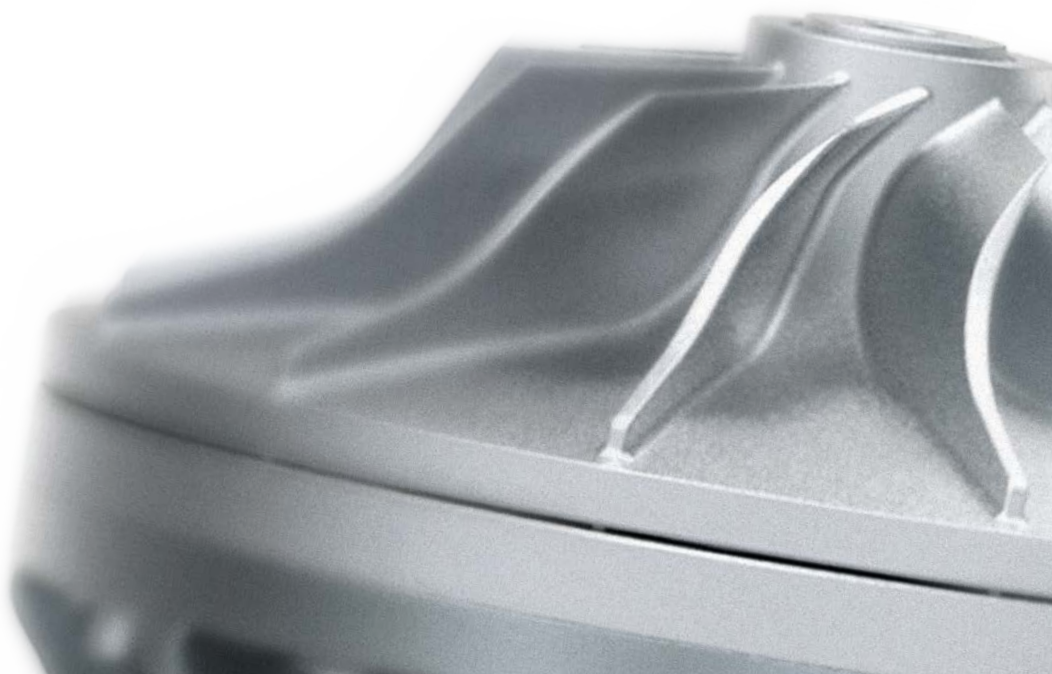
Partner for system solutions

- // We work together to plan your entire solution for the high-speed turbo blower.
- // You are the expert in fluid engineering – we are the expert in magnetic bearing high-speed drive systems.
- // The entire drive train comes from a single source – you focus on your core competency.
- // If you need technical support, you talk to one dedicated point of contact.
- // We provide all necessary training for your staff.



» Our customers appreciate the partnership and cooperation with KEBA. Together, we create state-of-the-art solutions for high-efficiency turbo blowers in waste water aeration. «

Thomas Stach / Industry Manager Turbo Systems



One single source

The KEBA technology portfolio



Magnetic bearing motors

- High-speed synchronous motors up to 300 kW
- Five-axes active magnetic bearing with permanent-magnetic bias
- Liquid cooling
- Direct installation of customer turbo rotor
- 1 mm air gap



High-frequency inverters

- HF inverters for frequencies up to 2,000 Hz
- Magnetic bearing power supply from DC link
- Controlled mains support: Set-down speeds onto touchdown bearing close to zero, no batteries or UPS



Magnetic bearing controller

- Compact electronic unit for controlling the five-axes active magnetic bearing
- 10,000 samples/second for shaft position and bearing currents
- Position control with μm precision
- Active orbit monitoring



Accessories

- Matching EMC filters and chokes
- Power supply units for supplying the magnetic bearing with power from the drive DC link
- Pre-assembled low-sensitivity magnetic bearing cables for quick installation
- User software for drive and magnetic bearing

Did you know?

KEBA magnetic bearing systems ...

- run contactless until standstill (cyclic operation supported)
- do not require any battery or UPS during a mains failure
- need less than 100 W during operation, mains power of 300 kW
- offer higher and more controlled axial forces than air bearings
- provide process-oriented data for optimized plant management

Demands in waste water aeration

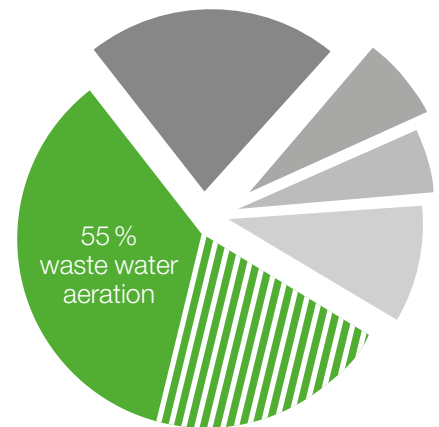
Reduction of operating costs

Efficiency – the ultimate benchmark

Waste water treatment plants (WWTP) use approx. 50 – 60 % of their entire energy for aeration. This is where a direct-drive turbo blower can provide substantial savings compared to the roots blowers that are still frequently used today.

Application-optimized permanent-magnet synchronous motors and non-wearing bearing designs make it possible to achieve efficiencies > 80 % for the entire blower unit. As a result, the total cost of ownership is minimal. This allows even old plants to achieve annual cost savings in the five-figure range.

Breakdown of energy costs in waste water treatment plant



⌆
Your savings potential with KEBA



» The added value of a KEBA solution convinces plant operators and offers annual energy savings in the five-figure range. Additional saving potentials can be realized during the planning, installation and service operation of the plant. For example, expensive air filter maintenance is avoided and the end products can be used more universally (e.g. installation height, grid types, higher ambient temperatures). «

Jörg Möglich-Hellhund / Industry Manager Turbo Systems

Your Benefits



Maximum availability

- Uninterrupted operation thanks to built-in mains support functionality without batteries or UPS
- Maintenance-free thanks to touchless magnetic bearing



Oil-free air

- Contactless magnetic bearings do not require any lubricants
- No media contamination



Fast installation and commissioning

- Pre-configured and system-tested components (plug & play)
- Only one communication interface between PLC/PC and drive train



Single point of contact

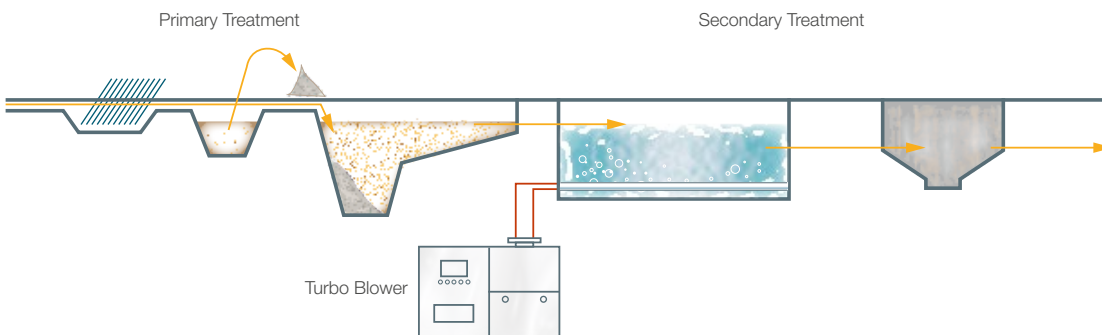
- Fast project planning and introduction to the market
- Single responsibility for motor and magnetic bearing

Around-the-clock operation

Plant availability – a matter of concept

Waste water treatment plants are part of the critical infrastructure. An outage has huge consequences. Typically, systems include redundancies that cover the event of a failure as well as planned necessary maintenance. In order to keep the costs for the required redundancies as low as possible, unplanned system outages or maintenance intervals must be reduced to a minimum.

This is where the non-wearing, maintenance-free magnetic bearing design in turbo blowers with built-in solutions for condition monitoring and predictive maintenance comes in.



All information at a glance

- Condition monitoring and predictive maintenance
- Built-in sensor system in motor and magnetic bearing



Low total cost of ownership (TCO)

- Energy efficiency thanks to optimized system efficiency
- No bearing maintenance required
- Smaller system footprint



Robustness against process and environmental effects

- Resistant to pressure fluctuations and impurities in the air
- Adjustable system damping and stiffness
- Can operate even at high ambient temperatures and high air humidity



Quiet operation

- Contactless, no mechanical rolling of ball bearings
- Imbalance compensation through magnetic bearing

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