

Single-stage turbo aeration blower “MAG-Turbo M55”

Features

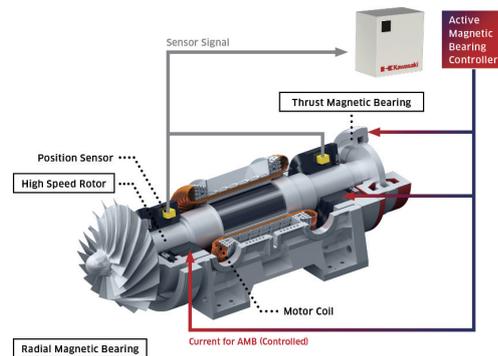
◆ Highly efficient aeration blower for sewage treatment plants

Ultra-high efficiency is achieved by utilizing magnetic bearings and dual airflow control (variable inlet vane and rotational speed control). Air volume: Up to approximately 900 m³/min; Motor maximum output: Supports up to approximately 1,300 kW; Japan's first large-scale magnetic levitation blower.



◆ Compactness achieved through the magnetic levitation technology

Magnetic bearings are contactless bearings that levitate the rotor using the magnetic force of electromagnets, eliminating the need for lubricating oil or grease, since there is no mechanical contact. This results in a significant reduction in maintenance work.



◆ Optimized design and dual control, deliver energy saving effects

Rotational speed control by the inverter and inlet vane control, creates rotational air flow by opening and closing guide vane at the air inlet in front of the impeller, to form the dual control for achieving both the wide range of air flow control and high partial load efficiency. The flow path geometry is optimally designed to suit the specifications (air flow volume and pressure) for each project, to facilitate a highly efficient operation for a variety of specifications, reducing significant amount of life cycle costs.

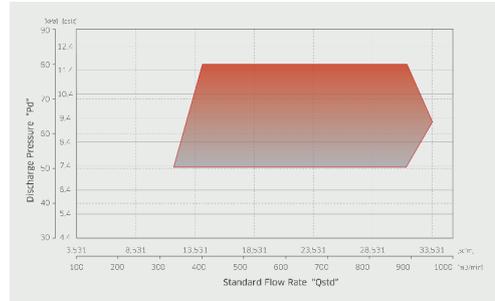


◆ Contribution to decarbonization

Previous cases have achieved up to a 30% reduction in power consumption at sewage treatment plants, through the implementation of the MAG-Turbo, making this an aeration blower that contributes to reducing CO₂ from sewage treatment plants across Japan.

The “MAG-Turbo” is an aeration blower that features a structure with an impeller mounted directly on the end of the rotor on the inverter controlled high-speed motor and magnetic bearings, which levitates the rotor with an electromagnetic force. The rotor rotates at a high speed without mechanically contacting the bearings, to achieve significant improvement in energy efficiency and reduction of CO₂ emissions. Furthermore, rotational speed control by inverter and inlet vane control, which creates rotational air flow by opening and closing guide vane at the air inlet in front of the impeller combined, form the dual control for achieving both a wide range of air flow control and high partial load efficiency. The compact design supports various layouts and operates without lubricants. It includes new functions not found in conventional sewage aeration blowers and features low vibration and low noise for reliable, economical performance. Environmental impact is minimized, and over 240 units have been delivered since 2004. The development of the MAG-Turbo M55 expanded the applicable range of the MAG-Turbo to the air volume up to maximum 900 m³/min., a motor maximum output up to approximately 1,300 kW and expands the applicable range significantly over the existing units.

Since the first unit was delivered in 2021, the MAG-Turbo M55 has a track record, with the delivery of a total of 10 units for three projects, contributing to CO₂ emission reduction at both Japanese and overseas sewage treatment plants.



Energy-Saving Effects & Special Remarks

- ◆ **Significantly reduced energy consumption effects**
A 15.6% reduction in power consumption, compared to a conventional model (mechanical blower), was confirmed with the MAG-Turbo M55, which was delivered to a customer in Saitama Prefecture.
- ◆ Awarded the “Director-General of the Ministry of Economy, Trade and Industry Award for Promoting the Transition to a Decarbonized Economic Structure for Growth” at the “50th Excellence in Environmental Equipment Awards”, hosted by the Japan Society of Industrial Machinery Manufacturers.



Award ceremony (group photo)



Award ceremony (award presentation)

Track Record or Implementation Plans

Domestic



One unit for a client in Saitama Prefecture (first unit for domestic commercial implementation)



One unit for a client in Kobe City

* In addition, more than 240 small to medium size MAG-Turbo units, have been delivered to sewage treatment plants domestically.

Overseas



Eight units to a client in Moscow, Russia

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