

Kawasaki MAG Turbo

Single-Stage Sewage Aeration Blower with High-Speed Motor & Magnetic Bearing



Commentary
Takahiro Aota Senior Staff Officer (left)
Yuji Kinoshita Assistant Manager (right)
 Blower Engineering Section, Aero-Dynamic Machinery Department
 Machinery Division, Kawasaki Heavy Industries, Ltd.

Numerous Outstanding Features Achieved Through Technological Innovation

Aeration blowers are installed at sewage treatment plants to supply air to biological reaction tanks, where organic matter contained in wastewater is decomposed. Aeration blowers are one of the key facilities in sewage treatment, and they come in various types, including turbo blowers and positive displacement blowers. The existing types of blowers are all mature machinery: no major changes to their basic structure had been made until the Kawasaki MAG Turbo introduced a technological innovation.

After the first MAG Turbo was delivered to a sewage treatment plant in Gifu City, Japan, in 2006, the number of units installed at sewage treatment plants around the country grew steadily and soon reached 130. The MAG Turbo now commands an overwhelming share of single-stage blowers (one impeller). Aota, a senior staff officer at Kawasaki, says, "When customers see the MAG Turbo for the first time, they are truly amazed."

The reasons for the high evaluation include its compact size, energy efficiency, and excellent maintainability requiring almost no maintenance. The high-speed motor featuring magnetic bearings is fitted with an impeller and driven by an inverter. Unlike conventional-type blowers, the MAG Turbo does not require a lubricant and other auxiliary facilities due to the lack of mechanical contact. It is a compact package, including even the overall control system, and it is optimized as a total system.

One sewage treatment plant has estimated that the MAG Turbo reduced its annual power consumption by approximately 12% compared to its previous blower, which had the same capacity. With the MAG Turbo, it is also possible to install the blower and control equipment separately, offering greater flexibility in installation.

The air volume that a blower is required to provide varies with the season, weather, day of the week, and time of day. To allow for this variation, sewage treatment plants have a number of blowers, including spare units, and they operate different numbers of blowers and adjust the airflow according to the required air volume. The MAG Turbo, which is compact, energy efficient, and easy to maintain, is attracting increasing attention and reputation precisely for this reason.

Although blowers are not high-profile equipment, they bring major benefits by being environmentally friendly and helping make our lives safer and more comfortable.

