



# High-speed permanent magnet motor solutions for aeration blowers

## Benefits

- Reduce total cost of ownership (TCO)
- Cut energy use by 10 to 40%
- Improve service life and reliability
- Reduce component wear
- Eliminate oil contamination risks
- Cut noise levels by up to 30%
- Downsize designs

## Typical applications

- Aeration blower systems in wastewater treatment plants
- 75 to 350 kW low pressure air compressors

## Optimize blower energy efficiency and reliability with SKF

In traditional biological wastewater treatment plants, the aeration blower system represents 40 to 80% of the facility's total energy use. Using an SKF high-speed permanent magnet motor system to drive such blowers can cut their energy use by as much as 40%.

## A complete system from a single source

High-speed permanent magnet motor solutions from SKF combine the cutting-edge technology of a high-speed permanent magnet motor (PMM), magnetic bearings (AMB) with an integrated control system, and a variable speed drive (VSD – available from a range of industrial drive manufacturers). Each of these components contributes to greater energy efficiency and reliability.

PMMs, for example, are 10%+ more energy efficient than conventional motors at full and partial loads. Featuring a direct drive configuration that eliminates the need for a gearbox and oil, units can exceed mean time between failure (MTBF) rates of 100 000 hours.



AMBs levitate rotating components for contact-, friction- and lubricant-free performance. Capable of speeds in excess of 40 000 RPM, SKF active magnetic bearings operate with a control system that tracks and controls rotor position up to 15 000 times per second to eliminate vibration.

VSDs enable greater energy efficiency by continuously adjusting to process changes. To ensure perfect alignment with the permanent magnet motor and the active magnetic bearings, SKF fully validates each VSD.

By bringing these advanced technologies together in a complete standardized package solution, SKF is helping manufacturers streamline product design, development and assembly as they produce the next generation of highly energy-efficient centrifugal air blower units.



This offer is part of the SKF BeyondZero portfolio of products, services and solutions designed to help our customers reduce environmental impact. To learn more, visit [www.beyondzero.com](http://www.beyondzero.com)

For more information about high-speed permanent magnet motor solutions from SKF, contact your SKF representative.



## SKF helps leading manufacturer deliver next-generation blower

Powered by a high-speed permanent magnet motor system from SKF, a new centrifugal air compressor is helping a French wastewater treatment plant cut its energy costs and CO<sub>2</sub> emissions significantly.

### The challenge

A wastewater treatment facility in Northern France had been experiencing recurring problems with four 80 kW lobe-type aeration blowers. Faced with frequent breakdowns, high energy use, excessive noise levels and treatment process problems, the plant needed a cost-effective solution. Fortunately, SKF was developing such a solution with one of the world's leading air compressor manufacturers.

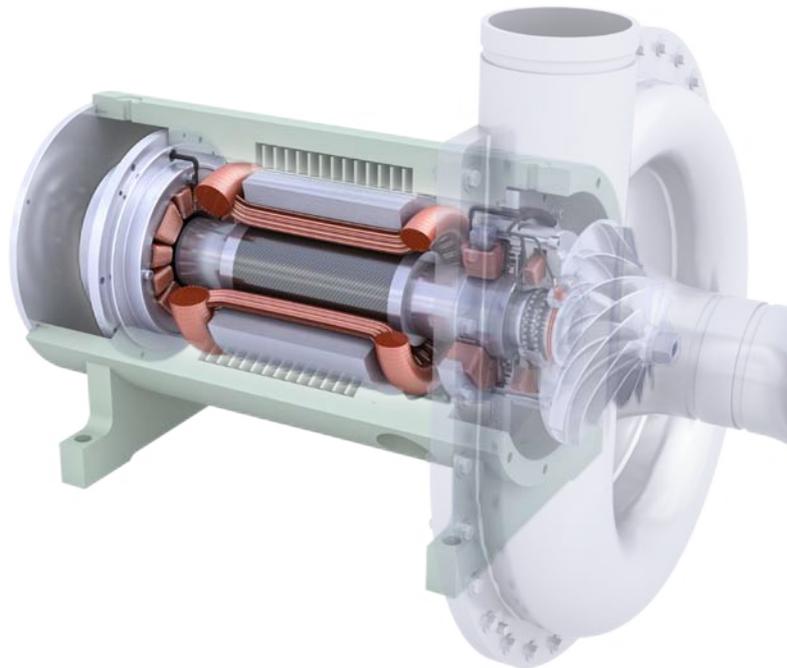
### The solution

The manufacturer convinced the French treatment plant to replace the four troublesome 80 kW lobe blowers with two 160 kW aeration blowers featuring the SKF solution. Once installed, the new blowers had an immediate and dramatic impact.

### The results

The variable speed blowers incorporating the SKF solution simplified regulation of the flow rate, thereby improving the treatment process significantly. Noise levels fell from 110 to 70 dBA, and maintenance demands dropped considerably.

The bottom-line reductions in energy use were even more impressive. After only a year in operation, the blowers equipped with the SKF solution cut plant CO<sub>2</sub> emissions by 375 tonnes and operating costs by €54 000.



Download the *PM Motors App* from SKF from the Apple® App Store, scan the "trigger" image at left, and explore the complete SKF portfolio of high-speed permanent magnet motor solutions!

Get more details at [skf.com/PMmotors](http://skf.com/PMmotors)

### One-year savings with the SKF solution:

- €54 000 in energy costs
- 500,000 kWh
- 375 tonnes of CO<sub>2</sub>

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