

Intelligent Air.

TURBLEX INC.
A Siemens Company



EFFICIENT SINGLE-STAGE AERATION BLOWERS AND SYSTEMS

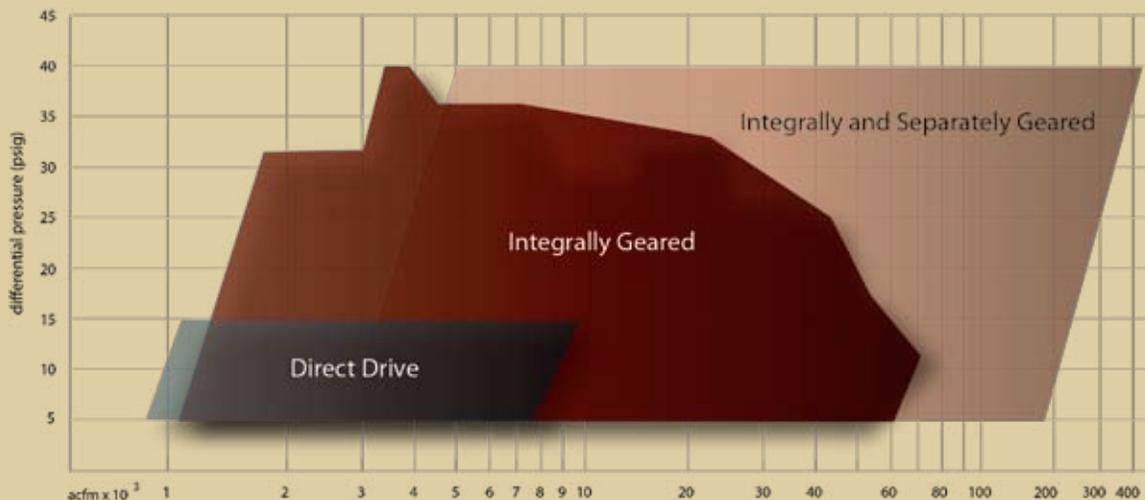
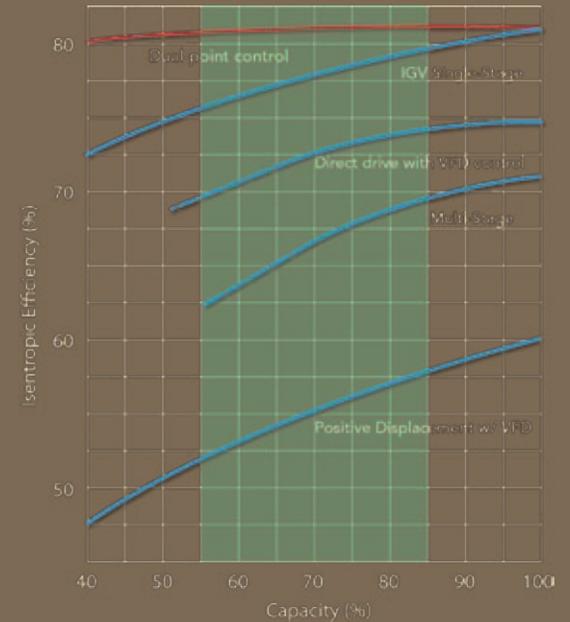
THE CHOICE IS YOURS

Wastewater treatment plants face unique challenges. For starters, they must balance equipment cost and operating costs with minimal operating personnel, yet produce high quality wastewater treatment 365 days per year. Balance this with operating costs consuming eight to ten times the first cost of aeration blowers (over 20 years) and the rapidly rising cost of power. "High efficiency" blowers top the list of equipment requirements, along with reliability and initial cost.

That is where "The Choice" in high efficiency blowers comes in. Turblex offers three single-stage blower options that possess proven dual point control to maximize efficiency, with 30 percent or greater power savings over conventional positive displacement or multistage options. These three choices are backed with two decades of the highest quality aeration system supply to the North American market. Combined with our downstream aeration systems expertise, Turblex offers not only your choice in efficient blower selection, but an additional 10-30 percent energy savings in downstream air flow control automation for truly efficient, operator-free aeration systems.

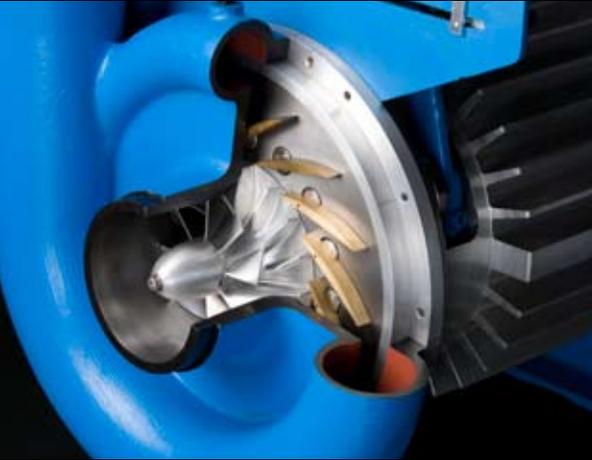
DUAL POINT CONTROL

Dual point control was pioneered in 1980 by Turblex's parent company, the former HV-Turbo, now Siemens Turbomachinery Equipment A/S. The combination of two control mechanisms – variable inlet guide vanes and variable diffuser vanes – and intellectual PLC software, demonstrated significant efficiency gains, and considerably lower power consumption. Likewise, control of impeller speed in lieu of the inlet guide vanes was similarly effective at maintaining the highest efficiency. The result was especially evident over a broad range of temperature, machine volume flow, and pressure. Dual point control quickly became the gold standard for single-stage design specifications and remains so today.



DIRECT DRIVE SINGLE-STAGE BLOWERS

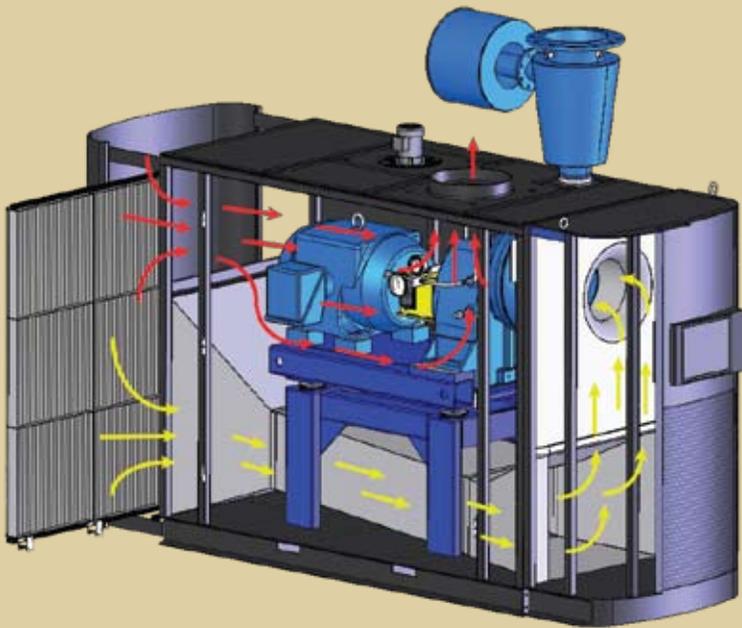
The Turblex Direct Drive unit is the highest efficiency blower of this type available today. The variable discharge diffuser vanes, combined with variable speed control and an aerodynamically designed impeller, provide this maximized efficiency. Dual point control also allows a turndown range from 100 to 45 percent or more.



- **Integrated Package** – All components are integrated into a standardized, easily accessible cabinet, including the inlet filter, blower/motor unit, VFD, discharge, cone/silencer, blow-off valve, check valve and controls.
- **Easy to Install** – The cabinet can be fork truck lifted and set in place. No anchoring, no special hook-up, simply connect power and discharge piping, then push the start button.
- **Easy to Operate** – The large staff of Turblex’s electrical, instrument and software engineers have designed state-of-the-art color operator interface controls that are easy and intuitive to operate. The air filters are, likewise, unusually easy to change.
- **Quiet** – Years of acoustical engineering knowledge and extensive testing have resulted in the most advanced sound attenuation techniques, creating the installed package available today.



- **Clean Running** – Air flow is directed through the unique two-stage air filters and directly into the blower inlet, keeping mechanical components of the motor and blower away from the blower inlet air flow. Likewise, cooling air for the cabinet passes through the inlet filter thus keeping all internals clean and dust free.
- **Minimal Maintenance** – Air foil bearing technology eliminates an oil lubrication system.



INTEGRALLY GEARED SINGLE-STAGE BLOWERS

With thousands of units installed and operating, this option offers long-term, reliable and proven operation. The unit features economical ceramic, silicon nitride rolling element ball bearing construction with significant extended operating life when compared to conventional steel roller bearings. Gear mesh is lubricated from a simplified oil circulation system.

Variable inlet guide vanes and variable diffuser vanes optimize aerodynamics of air flow through the blower. The impeller geometry and impeller speed are custom designed to each project. This dual point control philosophy and customized aerodynamics maximizes efficiency thus offering the lowest operating cost.

- **Drive Motor** – A conventional fixed speed, 3,600 rpm drive motor provides long life and trouble-free service, with cost effective motor starters.

- **Standardized Components** – Offered as an integrated package, the use of standardized construction facilitates installation and shortens delivery time.

- **Easy to Operate** – The color operator interface uses the same easy-to-operate screens as the direct drive blower.

- **Quiet** – Acoustical cabinet design breakthroughs, as with the direct drive unit, provides the quietest operation.

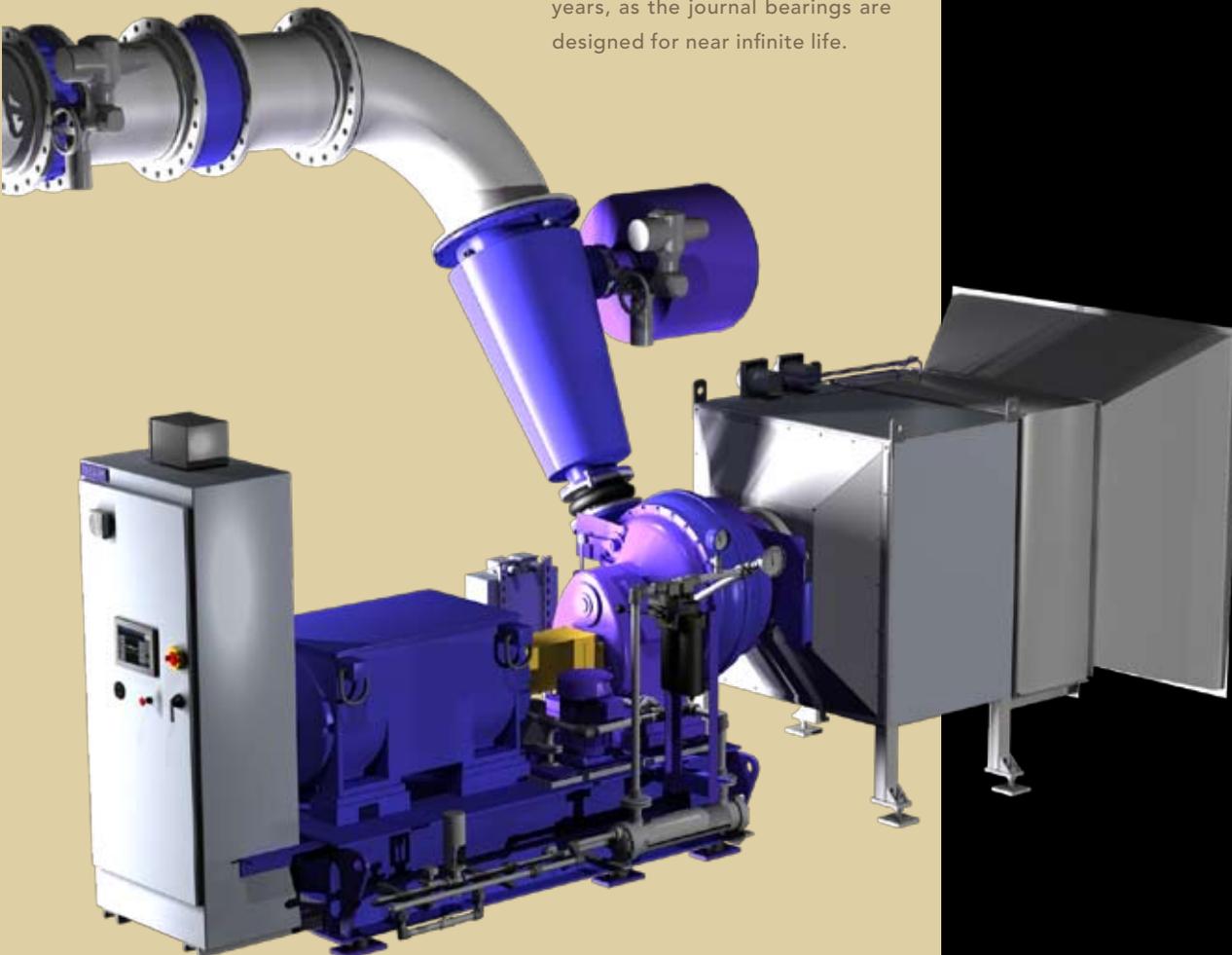
- **Low Maintenance** – Advanced ceramic bearing construction offers extended bearing life, and bearing change out takes less than a day.

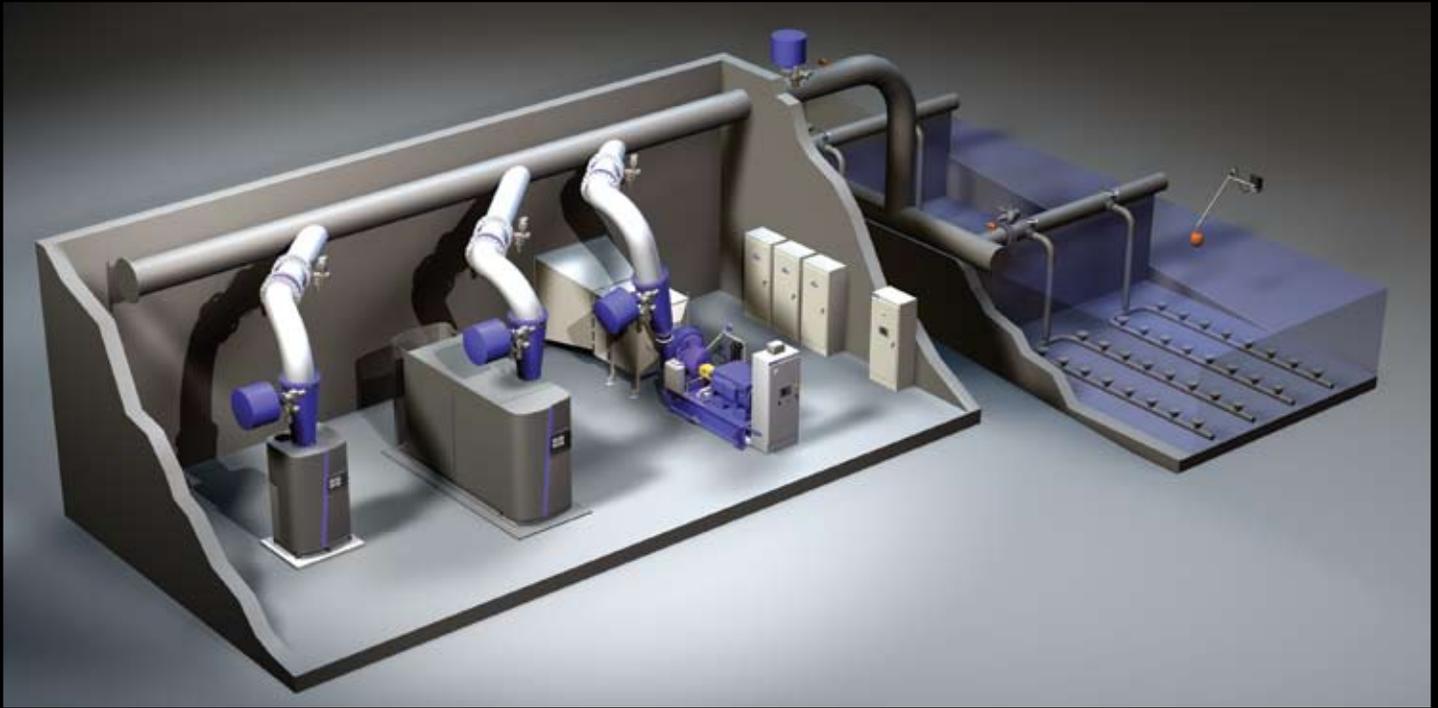


CUSTOM INTEGRALLY AND SEPARATELY GEARED SINGLE-STAGE BLOWERS

The Turblex custom engineered, single-stage turbo blower is the standard of the industry. Journal bearing construction offers virtually infinite bearing life with its pressurized, force-feed oil lubrication system. Each unit is designed for varying ambient temperature, discharge pressure and machine capacity. The combination of dual vane control, the custom milled impeller, and impeller speed are thus optimized for each project. No other blower manufacturer provides the continuous efficiency optimization offered by the Turblex dual point control system.

- **Custom Design** – Custom engineered for each project and easily configured to match existing piping. Instrumentation and controls, including vibration and thermal sensors in the motor and bearings, are often provided for maximum protection of the blower.
- **Easy to Use** – Computer operator interface color graphics are custom designed to each job.
- **Sound Attenuation** – Typical sound level is about 91-93 dBA. Several options are available for acoustical attenuation into the low 80s.
- **Clean Running** – The dual stage air filters on the Turblex inlet filter/silencer are locally accessible and easy to change.
- **Low Maintenance** – Typically requires an oil change every three to five years, and a new oil filter every two years, as the journal bearings are designed for near infinite life.





AIR SYSTEMS

Choosing the proper blower for the installation is only half the design challenge. Equally important is the downstream air piping and valving. Whether a basic "air header pressure" control, or advanced "most open valve" control, all new or updated aeration systems should incorporate automated controls to some extent. This reduces operator attention, and with most open valve control, can increase efficiency and reduce system power consumption by 10-30 percent, in addition to the air blower efficiency savings of Turblex. Most updated plants have seen their total power bill reduced at least 50 percent with a Turblex air system.

TURBLEX INC.
A Siemens Company

1635 West Walnut
Springfield, MO 65806
417.864.5599
800.299.1035
417.866.0235 fax
www.turblex.com

No automated aeration system is complete without a comprehensive controls strategy implemented and overseen by plant operations staff. Turblex ensures the critical aeration process data is available to plant personnel no matter the time of day, or location of the operator. With the new Siemens Link2Site™ remote monitoring package, individual aeration blowers and downstream aeration system information is available to approved users at anytime from anywhere.