High speed turbo blowers are an investment in efficient aeration

Spencer’s AyrJet® Series 175 features high speed, high efficiency single-stage turbo blowers with magnetic bearing protection and control technology. The AyrJet Series 175 blowers are compact units that include a direct drive oil-free permanent magnet motor and an integrated variable frequency drive (VFD) with PLC controls. The AyrJet Series 175 has flows to 6000 icfm (10,200 m³/hr) and pressures to 19 psig (131 kPa) and handles applications ranging to 200 hp (150 kW), and features best-in-industry wire to air efficiencies.

With the AyrJet’s highly engineered, proven magnetic bearing technology, the blower shaft is levitated and centered at both ends in their respective magnetic fields. From the moment power is applied the magnetic bearing controller monitors and adjusts the magnetic fields to maintain the shaft-centered position virtually eliminating contact, friction and the need for oil or grease lubrication. The continuous monitoring and adjustment of the magnetic fields to maintain the shaft’s centered position ensures protection from catastrophic failure.

Designed especially to meet continuous-duty aeration requirements with peak energy efficiency over the full range of variable diurnal and seasonal flow requirements, the AyrJet Series 175 is an investment in optimum performance for water and wastewater treatment aeration.

### Materials of Construction

- Blower casing: Aluminum 356-T6
- Impeller: Machined high strength forged aluminum - 7075-T6 alloy
- Enclosure: Carbon steel
- Enclosure finish: Epoxy primer with urethane topcoat

### Technical Data

- Number of stages: 1
- Operating speed: Up to 35,000 RPM
- Casing design pressure: 50 psig (3.4 bar)
- Inlet connection: 10” / 10” / 12” flange;
  Optional - mounted filter
- Discharge connection: 8” / 8” / 10” flange
- Seals: Teflon labyrinth impeller seal
- Bearings:
  - Magnetic
  - Self-monitoring
  - Non-contact
  - Built-in power failure back-up protection
  - Two modes of fail safe (back-up roller bearing and auto shutdown on fault)
- Lubrication: None
- Cooling system: Integrated air cooling; above 104 °F (40 °C) ambient, AC required
- Blow-off system: Valve, actuator and silencer
- First critical speed: 20% over maximum operating
- Vibration free operation

### Control System – UL Listed

PLC based with touch-screen and interface to the plant SCADA system
- Blower system start/stop selection and status indicator
- Blower control selection: Local or remote
- Blower set-point entry: RPM / SCFM / PSI / DO (single blower)
- Remote signal set point: RPM / SCFM / PSI / DO (single blower)
- Display status:
  - Actual blower speed (RPM) and set point
  - Actual blower flow (SCFM) and set point
  - Actual blower pressure (PSI) and set point
  - Actual system dissolved oxygen (DO) and set point - (single blower)
  - Blow-off valve
  - Blower discharge pressure
  - Magnetic bearing
  - Shaft position
  - Motor winding temperature
  - VFD status
  - System alarms

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Performance Range

Standard Conditions (Air at 68 °F, Relative Humidity of 36%, Inlet Pressure 14.7 psia)

Spencer may make improvements to equipment designs based on market trends and requirements.

For product selection assistance, please email marketing@spencer-air.com or visit our website at www.spencerturbine.com to locate the Spencer representative in your area.

AyrJet® is a registered trademark of The Spencer Turbine Company.