Products and Services

EXHAUST SYSTEMS • AFTERMARKET SOLUTIONS • ACCESSORIES

STROBIC AIR TECHNOLOGIES

Tri-Stack Exhaust System

The Tri-Stack® System: Your Solution For Critical Exhaust Fume and Odor Control

Strobic Air Technologies' Tri-Stack exhaust system is a practical, cost-effective and energy-efficient solution for your **critical exhaust needs**, including pollution abatement, re-entrainment or odor control. Its modular construction allows for easy installation and low system pressures to provide a fast payback when compared to traditional centrifugal stack exhaust designs. Operating at thousands of facilities as direct replacements for tall, unsightly conventional centrifugal exhaust fans, the Tri-Stack system is an **industry leader** with many advantages.

Advantages:

Prevent Re-entrainment

The Tri-Stack system **prevents re-entrainment of contaminated air** back into the laboratory building or neighboring buildings fresh air intakes. This makes the environment safer for you and your neighbors.

Safe, Low Maintenance Operation

The unique design of the Tri-Stack system only requires **greasing once every 18 months,** or approximately 7 times in 10 years. This is compared to an industry average of every 3-6 weeks. There is also a L-10 rating of **150,000 hours or greater** on all motor bearings.

Low Vibration, Quieter Operation

The Tri-Stack system combines mixed flow impeller technology and a true direct design to offer industry leading **low vibration levels**. With less vibration comes quieter operation. If attenuation is needed, the Strobic Air Technologies **patented silencer nozzle** allows a fan to be attenuated by 10 db or better without adding height to the fan system.

Attractive, Low-Profile Design

While safety is, and always will be, our highest priority, the Tri-Stack system was designed with **aesthetics and architecture in mind**. In almost every case our application engineering team can help you create a design that is safe, effective and meets local architecture and sound ordinances.

Durability and Low Cost of Ownership

The Tri-stack system was designed with **superior materials and coatings** so that we can offer you a product that can last 18-25 years in most environments with minimal maintenance. Because of this, we offer an industry leading **7-year warranty**. An extended warranty and preventative maintenance package upgrade is also available.

Ability to Retrofit on Almost Any Footprint

When it comes to **replacing older systems**, our application engineering team can help you find a solution to fit just about any footprint.

Applications:

The Tri-Stack system is ideal for use in **hospitals**, **biomedical facilities** and **research laboratories** at universities, as well as private **pharmaceutical**, **chemical** and **petrochemical** organizations. Specialty applications from **diesel generator exhaust** to **emergency ammonia fume extraction** are also common and can be custom designed for your needs.

The Tri-Stack system is an industry leader wherever issues of **exhaust pollution**, **odor control**, **re-entrainment**, **aesthetics** or **energy-savings** are a priority. The Tri-Stack system can be designed for retrofit and new construction. It can be configured to meet your design requirements, as well as optimize efficiency to ensure you have the best possible design. Strobic Air's experienced staff will work with you to determine the best possible Tri-Stack system configuration for your application.

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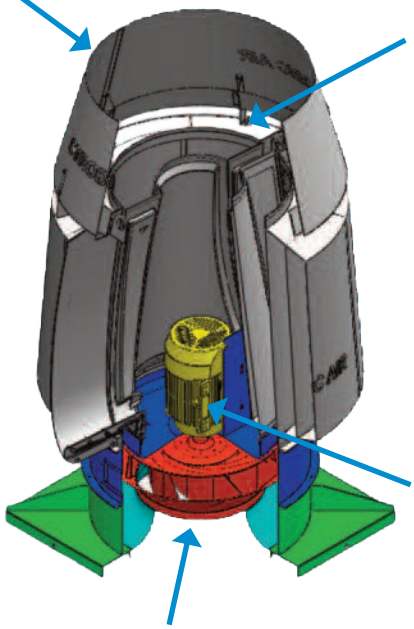
Mixed Flow Impeller Technology:

The Tri-Stack System provides significant performance, reliability and cost advantages over conventional centrifugal exhaust fans. Strobic Air has **refined mixed flow technology fans** for decades, and has pioneered many aerodynamic concepts with the technology. Mixed flow fans provide optimum performance in virtually all configurations of low pressure/high flow and high pressure/low flow. They offer **substantial advantages over centrifugal-type fans** such as higher efficiency performance for lower horsepower requirements for comparable pressures and flows. The constant acceleration ratio of mixed flow fan blades permits **both the leading and trailing edges** to perform equal work, maximizing efficiency and providing a stable performance curve without stall or un-stall sections.

On a direct operating cost basis, use of the Tri-Stack system mixed flow fan technology **reduces energy consumption**. With the combination of both energy recovery and the S.A.F.E. Controller, the Tri-Stack system solution dramatically **lowers overall energy cost**.

Wind band entrains outside air above motor to enhance discharge volume and effective stack height. Up to 170% of free outside air introduced into the airstream prevents odor and re-entrainment.

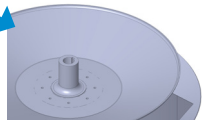


Modular construction speeds and simplifies installation, reduces cost and downtime.

Special materials and coatings are available for severe environment duty.

Direct drive motors are virtually maintenance free, with typical lifetimes of 150,000 hours.

Specially designed, mixed flow impellers provide high pressure and volume at low RPM and mount directly to motor shaft without belts or pulleys.



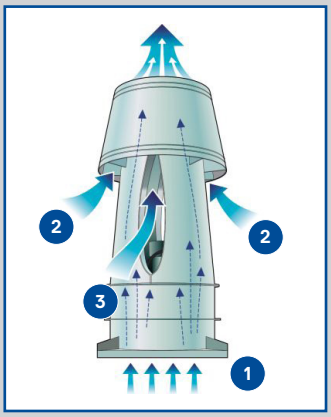
Strobic Air's Tri-Stack System: Three Stacks in One Fan

There exists a common misconception that "TRI" in Tri-Stack equates to three fans. However, in truth, "TRI" refers to the unique ability of each individual fan in the Tri-Stack system to incorporate **three stacks** (or streams) of air into a **single plume**, which is composed of the following:

1. The first stack comes from the building source itself.

2. The second stack is induced through the wind band. This stack allows the nozzle plume to develop fully before exiting the top of the wind band and helps shield it from cross-winds.

3. The third stack is entrained through the teardrop shaped motor cut-outs of the unique nozzle design. The nozzle design allows the motor to remain outside of the hazardous exhaust stream, therefore allowing for easier maintenance and long-life cycle. This stack adds air volume to the center of the stack, as well as allows ambient air for cooling of the motor.



Duo-Stack Exhaust System

The Duo-Stack™ System: Enhanced Efficiency for General Lab Exhaust Solutions

Duo-Stack fans are centrifugal induced dilution, high plume exhaust fans. Duo-Stack fans offer a unique fan style where the motor is located to the side of the fan for **easy roof level access**. The Duo-Stack system is ideal for exhaust in laboratories, hospitals, universities, and schools. It is also a great choice for high static or high temp applications.

Advantages:

- The side-centrifugal backward-curved fan is designed to handle **large air volumes and higher pressures while still maintaining efficiency** in moving air against ductwork resistance.
- Due to their high efficiency and ability to handle higher pressures, backward-curved fans can **contribute to overall energy savings** by requiring less power to achieve the desired airflow and pressure conditions.
- The backward-curved fan design inherently provides **stable performance characteristics**, meaning the fan's performance curve remains relatively consistent even when subjected to varying pressures and airflow conditions.
- A true **direct drive motor** provides the longest L-10 life.
- The Duo-Stack fan offers the **lowest vibration levels available**; BV3 standard, up to BV5 industry leading.
- Industry leading **coating with 7,000 hr. salt spray resistance** is standard while options are available for **spark resistance construction**.
- The Duo-Stack comes with a **standard 3-year warranty**. Extended warranty and preventative maintenance package upgrade available.
- A modular plenum allows for **ease of installation**.
- **Heat recovery options** are available.

Applications:

- Academic (K-12, non-research universities and colleges).
- Hospitals (general exhaust, small pharma, clean rooms).
- Non-research related chemical processing.
- High static application (scrubber or HEPA filtered).
- Higher temp applications 1,200^{o}F inlet temps with a max mixed air temp through to the fan of 450^{o}F.

Mono-Stack Exhaust System

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The Mono-Stack™ System: Designed to Cover All Your Other Exhaust Needs

For **less mission critical applications**, Strobic Air offers a series of centrifugal fans. The Mono-Stack system can be fitted with many of our standard Tri-Stack options, such as S.A.F.E. Controller, energy recovery systems and more. The Mono-Stack comes with a **standard 3-year warranty**. Extended warranty and preventative maintenance package upgrade available.

Advantages:

- Efficient nozzle design with high velocity plume dispersion.
- Wheel sizes ranging from 12" to 36".
- Airflow capacities to 24,000 cfm.
- ESP to 8" w.g.
- Direct drive, low maintenance (no belts or couplings).
- Premium efficient VFD duty motors.
- Modular plenum dispersion.
- Heat recovery option available.

S.A.F.E. Controller

Intelligence and Superior Energy Savings for your Critical Air Exhaust System

As a leader in critical air exhaust systems and controls, Strobic Air Technologies offers an intelligent and energy-efficient multi-functional control system for the critical air exhaust industry. The **Strobic Air Fan Energy (S.A.F.E.) Optimizing Controller** represents a thorough redesign of how critical air controls systems should operate.

Our goal is to **simplify installation and operation** while improving technology, energy efficiency and overall cost. With the right hardware, algorithms and component cost reduction, we expect owners to realize a Return on Investment (ROI) of three years or less.

Advantages:

Carel cPco, Programmable Micro Controller

A **user-friendly and intuitive controller** that offers additional functionality and a platform for future growth.

Modular Design

The S.A.F.E. Controller ships **pre-programmed for optional components** like wind speed and direction monitoring and integration for air quality monitoring and flow measurement. All options can be **easily attached to any system with a S.A.F.E. Controller** either from the beginning of a project or after it is up and running.

Vibration Monitoring

Prevent system downtime by adding the optional vibration monitoring component to the S.A.F.E. Controller. Vibration monitoring helps **predict potential motor failure** allowing for preventative maintenance instead of costly repairs and system downtime.

Advanced Communication

Every S.A.F.E. Controller **ships with the ability to talk BACnet** over MS/TP and IP. Each component connected to the S.A.F.E. Controller is also part of a separate Modbus network which allows for **greater monitoring and diagnostics** of the whole system.

Dynamic Flow Control

The S.A.F.E. Controller can **reduce the sound level of the system** during off-peak hours, either by reducing fan speed or the number of fans running. It will also rotate fans based on operational hour at a time configured by the end user.

Updated Algorithms

The S.A.F.E. Controller **calculates flow and energy usage** based on Strobic Air's official fan curve data; and replaces the traditional lead/lag ideology for a more **dynamic and energy-efficient process**.

LEED™ Credit

Installation of the S.A.F.E. Controller can help your building obtain LEED points for **overall building efficiency**.

Any pre-existing Strobic Air Fan System can be **retro-fitted with a S.A.F.E. Controller**, bringing with it all of the above benefits.

Aftermarket Solutions

Strobic Air Technologies offers the **unique knowledge, experience and resources** necessary to help your exhaust system perform like new. Strobic Air helps you **optimize your operation** and make the best use of your maintenance dollars.

S.A.F.E. Controller

Can be retro-fitted onto existing Strobic Air fan systems to **maximize energy savings**. The S.A.F.E. Controller comes **programmed from the factory** allowing for the safest possible operation while **consuming the least amount of energy**.

Acoustical Silencer Nozzles™

May be **retrofitted onto existing Tri-Stack fans** quickly and conveniently and attenuate **up to 12 dBa for quieter operation** in particularly noise sensitive areas. Low profile design enhances aesthetics without affecting fan performance.

Retrofit Applications

Replacing outmoded centrifugal fans with Tri-Stack fans can increase performance and lower operating costs. One manifolded Tri-Stack fan can **typically replace up to 20 individually dedicated stacks**.

OEM Parts

We are the **only source of OEM parts** specifically designed for Strobic Air Technologies fan systems. From dampers and actuators to motors and fan sections, we have the solutions you need to **extend the life of your fan system**.

Extended Warranties

Strobic Air Technologies exhaust systems carries the **longest warranty in the industry**, with an option to purchase a preventative maintenance plan at installation that would extend that warranty.

Preventative Maintenance Plan

Preventative Maintenance plans include yearly inspections where our **certified factory trained technicians** grease the motors as well perform the original **40-point factory quality control** inspection.

Technical Support

Technical and sales engineers can provide **performance and cost comparisons** of Tri-Stack® systems vs. alternative methods of pollution abatement, as well as **computer-generated sound calculations** to the property line.

Technical Services

Technical services include start-up services for fan systems, VFD's and control packages, part installations, owner training, preventative maintenance baseline inspections and field balancing. We tailor our services to **fit your needs**.

The Tri-Stack System Meets AMCA 210/260/300 and All Applicable Ventilation Standards

The Tri-Stack systems conform to all applicable ventilation standards such as:

- AMCA (Air Movement Control Association) 210/260/300 for the majority of our fans
- ANSI/AIHA (American National Standards Institutes/American Institute of Hygienic Association) Z9.5 for laboratory workstations and their exhaust systems
- ASHRAE (American Society of Heating, Refrigerating and Air-conditioning Engineers) 45
- NFPA (National Fire Prevention Association) 45

These organizations provide guidelines with regard to building air intake and exhaust design, indoor air quality and re-entrainment issues of contaminated exhaust entering doors, windows and outside air intakes.

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SA-GENERAL-25A | ISSUED 07/2025