



SCHOOL APPLICATIONS



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DESIGNING VENTILATION SYSTEMS IN SCHOOLS



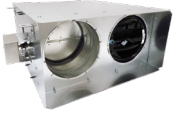


SOLUTION BROCHURE

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We're a proud member of the US Green Building Council, the Home Ventilating Institute and are an ENERGY STAR® partner. We are committed to ensuring all Aldes products are durable and efficient.



ACCESSORY		KEY BENEFITS AND USES
	MR MAX	Use in centralized systems; automatically regulates airflow regardless of other actions occurring in the system, airflow can be reliably maintained over a wide range of pressure, no need for expensive sensors or controls
	Constant Airflow Regulators (CAR3®)	Use in centralized systems; automatically regulates airflow regardless of other actions occurring in the system, airflow can be reliably maintained over a wide range of pressure, no need for expensive sensors or controls
	Parallel Damper In-Line Zone Register Terminals (ZRT-PDIL)	Use in centralized systems; allows on-demand high-flow spot ventilation and low-flow ventilation without the need for expensive control systems
	Light Commercial Heat or Energy Recovery Ventilator	Use in de-centralized systems; provides fresh air, recovers energy that would have otherwise been exhausted, allows each classroom or zone to be managed specifically for its own use
	Commercial Heat or Energy Recovery Ventilator	Use in centralized systems; provides fresh air and recovers energy that would have otherwise been exhausted

RESOURCES AT YOUR FINGERTIPS



Have a question about airflow rates? Energy recovery? Setpoint adjustments in the field? Our experts are on hand to answer your questions and help you select the right products for the job.



We're committed to providing you with the tools and information you need. From brochures, spec sheets and installation manuals to warranties and replacement parts, we stand behind our products from specification to installation and beyond.



All of our product literature and downloads are available on our website at www.aldes-na.com.



Looking for specific examples of similar projects that use Aldes North America products, visit our [Featured Projects Map](#) on our website. It's a clickable map that you can filter by location, product, sales representative, or project type. Simply select "EDUCATIONAL FACILITIES" under the product category filter to see a sampling of recent projects across the nation.

EXPERIENCE YOU CAN TRUST

Aldes North America takes a proactive approach to providing ventilation for schools of all sizes. By working with Aldes, building designers can specify ventilation systems that meet codes and standards, provides school districts with high quality products that align with their budgets, and ensures students breathe healthy indoor air.

Since 1983 Aldes North America has been providing ventilation solutions for residential and commercial buildings, including a variety of educational settings from elementary schools through university campuses. We do more than provide systems for construction; we work with engineers on renovation projects, with the capability of providing custom retrofit solutions tailored to each project's unique situation. We're a member of the US Green Building Council, the Home Ventilating Institute and are an ENERGY STAR® partner.

Aldes understands the challenges engineers and contractors face in providing ventilation that meets code requirements. Our experts are on hand to answer your questions and help you select the right products for your projects..

We're committed to providing you with the tools and information you need. From brochures and spec sheets to installation manuals and warranties, we stand behind our products from specification to installation and beyond.



CHALLENGES AND SOLUTIONS

HEALTHY INDOOR AIR QUALITY

Students spend a minimum of 7 hours each weekday at school, with many spending up to 12 hours on days when extracurricular activities are involved. Teachers and other staff spend even more. Studies show that indoor air in a typical classroom is up to 8 times more polluted than outdoor air. If schools are not adequately ventilated, students suffer from fatigue which impacts learning.

QUIET OPERATION

With an average teacher/student ratio of 1 to 30 keeping students' attention is more difficult than ever. A noisy ventilation system that muffles communication or intrudes distracting sounds can be a barrier to student learning. Aldes products are built for quiet operation with features such as vibration-isolating springs to keep moving parts quiet. Teachers and students benefit from an effective ventilation system that quietly delivers fresh, healthy air.

MINIMIZE THE EFFECTS OF ODOR AND HUMIDITY-CAUSING ACTIVITIES

Activities vary widely throughout the space, creating different levels of humidity and odors. Some students are hard at play in the gym while others study quietly in the library, some are practicing music or conducting scientific experiments. On university campuses, some classrooms may be unoccupied for several hours at a time, then suddenly filled with hundreds of students. Different spaces require different ventilation rates, and those rates can vary from hour to hour and day to day. Demand-controlled ventilation, the ability to boost ventilation when it's needed and minimize or turn it off when not needed, can have a major impact on occupant comfort and energy efficiency.

DURABLE, LOW MAINTENANCE SYSTEMS

Double-wall, heavy-gauge steel cabinets come standard in all Aldes HRVs and ERVs, so every unit is built to withstand the rigors of heavy use. Long warranties on recovery cores/wheels and components provide years of worry-free use. School districts appreciate the low maintenance costs, reliability, and long life expectancy from each unit.

RECOVERING ENERGY COSTS

One of the biggest facilities-related expenses schools face is the cost to heat and cool the building. In warm climates, air conditioning may run most of the year, keeping occupants cool while preventing mildew and mold. In northern parts of the country, cold weather means heating systems are necessary to keep occupants comfortable and keep pipes from freezing. Heating and cooling are not optional, but the cost to run these systems while maintaining fresh indoor air can be minimized with heat or energy recovery ventilators.

CODE COMPLIANCE AND BEST PRACTICES

We work with a variety of schools and districts, each with their own regulations in addition to those at the national, state, and local levels. Understanding the difficulty of complying with many levels of regulations, working with engineers to ensure all requirements are met. Our systems are designed to be flexible and scale-able, we address concerns about energy, maintenance, health, costs, reliability at competitive prices.

Models can be installed indoors or outdoors; can be tailor-made to specifications and are designed to integrate with building equipment for total HVAC synergy.

Rest assured, our products meet ASHRAE 62 standards and are UL, ETL and AHRI certified where applicable. We take safety, performance and certification requirements seriously and stay at the forefront of standards as they evolve to address changing technology.





MR MAX

The model MR MAX Constant Airflow Regulator is a modulating orifice that automatically regulates airflows in duct systems to constant levels regardless of the variations affecting the ductwork, and without the use of electric or pneumatic sensors or controls.

The MR MAX can easily be inserted between two sections of round ductwork to maintain a reliably constant airflow over a wide range of differential pressure. The MR MAX is an ideal solution for meeting rooms, classrooms, and concert halls. The MR MAX will regulate airflow in supply, return, or exhaust duct systems in both low- and high-pressure installations.

MR MAX is available in a variety of sizes with airflow range from 25 to 2355 CFM to meet a wide range of airflow requirements.

KEY DETAILS

- 8 Diameters: 4", 5", 6", 8", 10", 12", 14", and 16"
- Airflow values from 25 to 2355 CFM
(40 to 4000 m³/h)
- Operating Pressure Range: 0.2 to 4.0 in. w.g.
(50 to 1000 Pa)*
- Recommended Air Speed: 885 FPM (4.5 m/s)
- Accuracy within $\pm 10\%$ for nominal airflow > 60 CFM (100 m³/h)

*The MR MAX controls via a minimum differential pressure that depends on the airflow (see diagram) up to a maximum differential pressure of 4.0 in.w.g. (1000 Pa) within the stable control range.

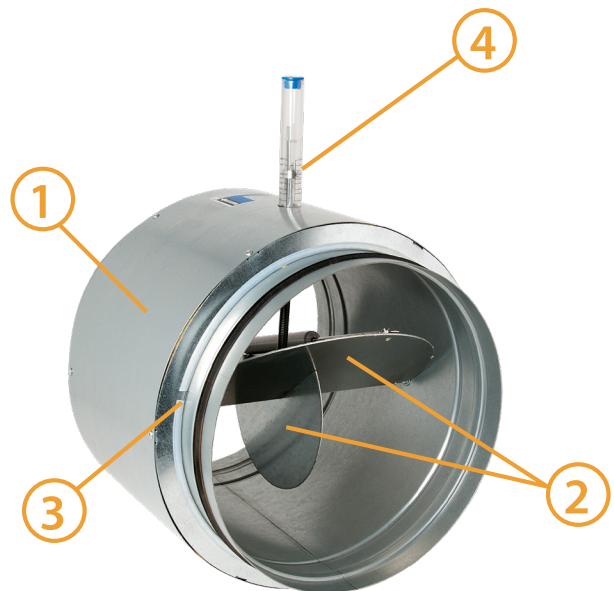
1. Laser-welded galvanized steel body.
2. Control device comprised of an aluminum damper and a stainless steel spring and shaft fitted to PTFE (polytetrafluoroethylene) bearings.
3. Double-lip seal.
4. Translucent plastic control device.

MAINTENANCE

All components are maintenance-free and corrosion-proof under normal conditions. The device and ductwork must be accessible to enable adjustment and maintenance.

WARRANTY

Guaranteed for five (5) years, from date of shipment, against all defects in material or workmanship, provided that the material has been installed and used under normal conditions. This warranty is limited to the repair or replacement of the material.



INSTALLATION

Mounting can be horizontal or vertical. The MR MAX orientation must correspond to the airflow direction indicated on the device, but the position of the damper does not affect performance.

The exact balancing of the control damper is ensured by a counterweight arranged vertically on the control damper, which ensures an accurate control response in all orientations. The flow profile in front of the flow controller should be cross-section-filling, since unfavorable flow conditions (such as asymmetric flow, deflection around sharp edges, etc.) can negatively affect the response and control behavior.

CAR3®

The CAR3® Constant Airflow Regulator is a modulating orifice that automatically regulates airflows in duct systems to constant levels. The passive control element responds to duct pressure and requires no sensors or controls.

The CAR3® compensates for changes in duct pressure caused by: use of demand control solutions, thermal stack effect and dust-clogged filters as an example. The CAR3® provides a low-cost solution to balancing forced-air systems for ventilation, heating, and air conditioning, eliminating the need for on-site balancing. The CAR3® will regulate airflow in supply, return, or exhaust duct systems. The CAR3® is designed to complement ALDES register assemblies or can fit inside standard rigid round ducting, as well as fittings such as take-offs, tees, etc. with a double lip gasket around the circumference ensuring a tight, no-leak fit. Factory calibration of CAR3® is available on request.



Adjustment dial

Dual-side airflow adjustment dial and CFM indicator allows you to set or change the airflow quickly, in supply or exhaust applications, without removing the CAR3 from the duct.

- Easy to handle with or without tool.

Gasket

Double lip gasket around the circumference ensures a tight, no-leak fit.

Airflow

- Infinitely variable between the range.
- Value indicator visible on both sides of the product.



BLUE COLOR = LOW-PRESSURE
LOW: 0.12 to 1.2 in. w.g. (30 to 300 Pa)



GREEN COLOR = HIGH-PRESSURE
HIGH: 0.4 to 2.8 in. w.g. (100 to 650 Pa)

PRODUCT DETAILS

- Dual-side airflow adjustment dial and CFM indicator allows you to set or change the airflow quickly, in supply or exhaust applications, without removing the CAR3 from the duct.
- Modulating rotary damper automatically responds to changes in duct pressure to maintain set flow.
- Resin is enhanced with antimicrobial, anti-static, and flame retardant additives for increased safety and durability.

**Made in
USA**

**WARRANTY
7 YEARS**



**Patent
pending**

PARALLEL DAMPER IN-LINE ZONE REGISTER TERMINALS® (ZRT-PDIL)

ZRT-PDILs are designed to introduce flexibility and dynamic control to central **supply** or **exhaust** ventilation systems. Used in both large and small systems, the ZRT-PDIL regulates ventilation in place of traditional VAV terminal units.

Each ZRT-PDIL is a multi-position, pressure-independent terminals with control dampers to regulate on-demand airflow controls. This unique combination provides flexible control schemes without the need for expensive pneumatic, electronic, or DDC control systems.

The ZRT-PDIL is primarily used for combination low-flow indoor air quality ventilation or make-up air, and on demand high-flow spot ventilation using the same central exhaust or supply fan system. This is achieved by integrating a minimum Constant Airflow Regulator (CAR3®) in the terminal end panel and in-line with the branch duct. The maximum airflow is controlled by a series of 24v, 120v, or 230v powered motorized damper(s) and a secondary CAR3® airflow controller. With the maximum-air motorized control damper completely closed, the continuous CAR3® allows steady, low-volume airflow control.

CONTINUOUS AIRFLOW RANGE

Low-Pressure

4: 15-85 CFM (25-144 m³/h)	(12" x 6" and larger)
5: 35-180 CFM (59-306 m³/h)	(16" x 8" and minimum)
6: 45-260 CFM (76-442 m³/h)	(16" x 8" and minimum)
8: 70-385 CFM (119-655 m³/h)	(20" x 10" and minimum)
10: 110-620 CFM (187-1054 m³/h)	(24" x 12" and minimum)

High-Pressure

4: 30-160 CFM (51-272 m³/h)	(12" x 6" and larger)
5: 55-260 CFM (93-442 m³/h)	(16" x 8" and minimum)
6: 60-370 CFM (102-629 m³/h)	(16" x 8" and minimum)
8: 130-630 CFM (220-1070 m³/h)	(20" x 10" and minimum)
10: 170-900 CFM (289-1529 m³/h)	(24" x 12" and minimum)

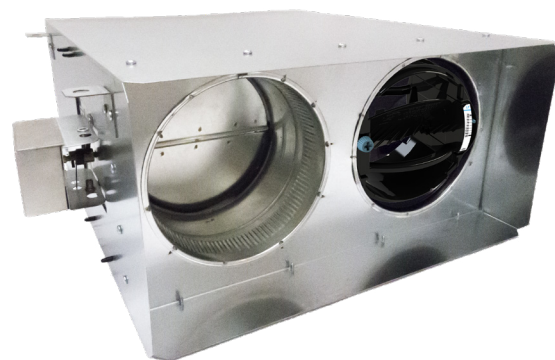
BOOST AIRFLOW RANGE

Low-Pressure

4: 15-85 CFM (25-144 m³/h)	(12" x 6" and larger)
5: 35-180 CFM (59-306 m³/h)	(16" x 8" and minimum)
6: 45-260 CFM (76-442 m³/h)	(16" x 8" and minimum)
8: 70-385 CFM (119-655 m³/h)	(20" x 10" and minimum)
10: 110-620 CFM (187-1054 m³/h)	(24" x 12" and minimum)

High-Pressure

4: 30-160 CFM (51-272 m³/h)	(12" x 6" and larger)
5: 55-260 CFM (93-442 m³/h)	(16" x 8" and minimum)
6: 60-370 CFM (102-629 m³/h)	(16" x 8" and minimum)
8: 130-630 CFM (220-1070 m³/h)	(20" x 10" and minimum)
10: 170-900 CFM (289-1529 m³/h)	(24" x 12" and minimum)



PRODUCT DETAILS

- Allows for selection between a continuous, regulated low airflow rate, and an on-demand, regulated high airflow rate.
- Replaces individual fans or variable air volume (VAV) terminals.
- Two-position pressure-independent terminal with a control damper and integral passive regulators (CAR3).
- Constant Airflow Regulators (CAR3) are used to prevent noise and excessive energy consumption caused by over-ventilation, as well as fluctuations in airflow rates as total system pressure varies.
- Controls ventilation in multi-family dwellings, classrooms, large spaces, and provides make-up air for laboratories.
- In-line mounting configuration allows installation in a duct system.

**Made in
USA**

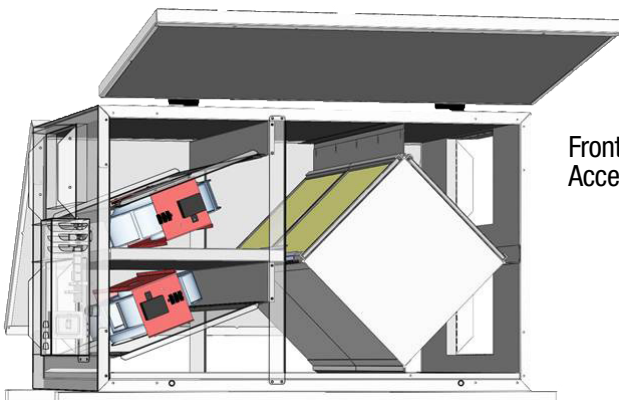
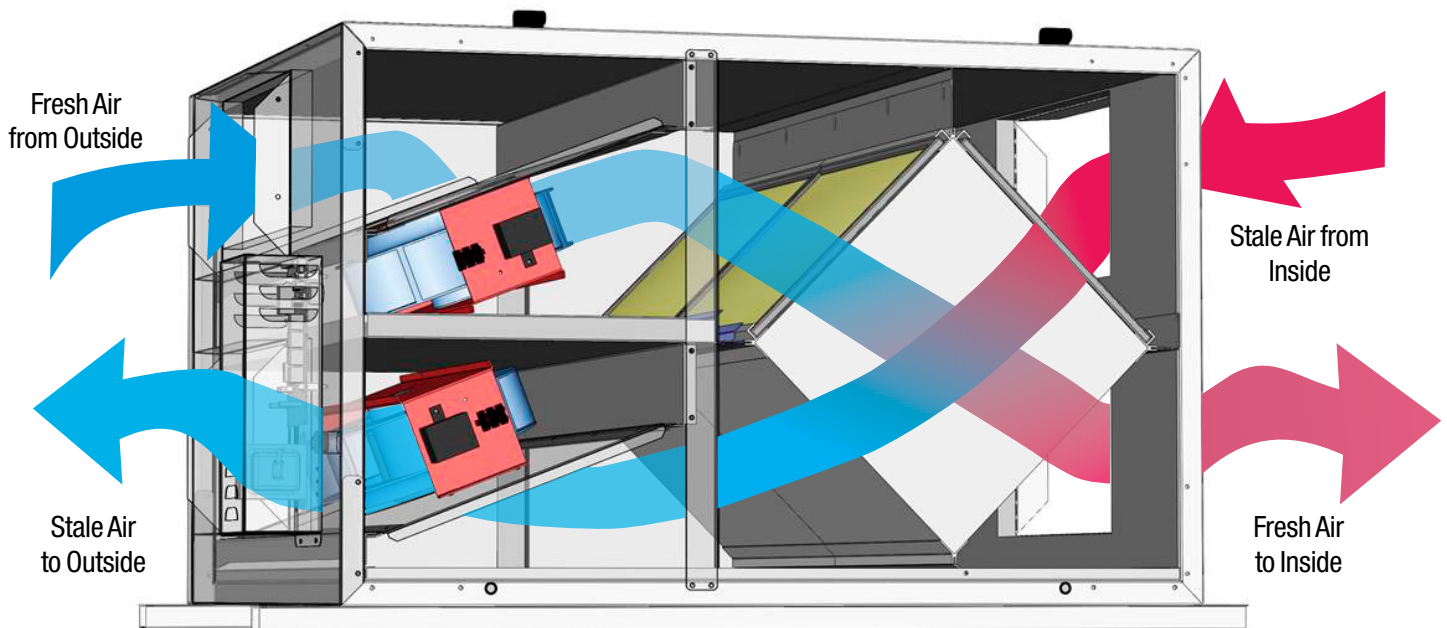
**WARRANTY
3 YEARS**



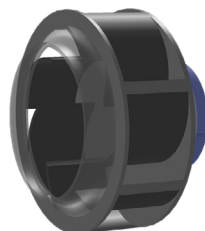
HEAT AND ENERGY RECOVERY VENTILATORS

Bringing in fresh air and then heating or cooling that air to make it comfortable for occupants can be costly. Aldes' line of HRV/ERVs reduce the cost to heat ventilated air in the winter by transferring heat from the warm inside air being exhausted to the fresh (but cold) supply air, and by controlling the relative humidity. In the summer, the inside air cools the warmer supply air to reduce ventilation cooling costs and lower the moisture content of the incoming air. Aldes wide range of HRV/ERV solutions makes it easy to align the scope of your project with the perfect unit.

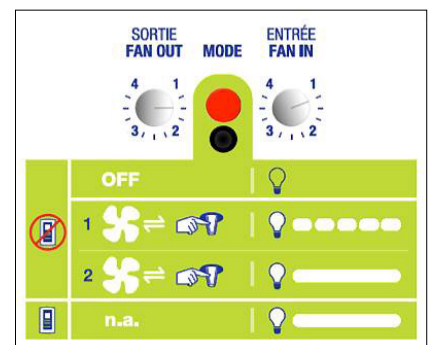
In the heating season, Heat Recovery Ventilators (HRV) and Energy Recovery Ventilators (ERV) draw in fresh air from outside while stale, humid air is exhausted. As the fresh and stale airstreams pass through the unit's core, the fresh air is tempered with heat recovered from the exhaust air. In the cooling season, fresh outdoor air is cooled by the air-conditioned exhaust air. An ERV will also transfer moisture to improve comfort in homes.



Front and Back Access Doors



Control Board



Backward-Inclined Impeller

LIGHT COMMERCIAL

To ventilate individual classrooms separately, choose an Aldes light commercial HRV or ERV. Compact and durable, these units add zoning capabilities. When each classroom or zone has its own unit, the building becomes available to more versatile uses since some units can be completely shut down when not in use, while others are running at maximum airflow. The 650 and 1100 series are just 24" high and, in many applications, can easily fit in the ceiling above each classroom. Additionally, if maintenance or repair is ever required, ventilation is only impacted in one room rather than the entire building.



H/E650 models

36 1/4 in (L) x 32 1/8 (W) in x 23 7/8 in (H)
(921 mm x 816 mm x 606 mm)

H/E1100 models

36 1/4 in (L) x 47 1/4 in (W) x 23 7/8 in (H)
(921 mm x 1200 mm x 606 mm)

H/E1800 models

45 5/8 in (L) x 48 7/8 in (W) x 29 5/8 in (H)
(1158 mm x 1242 mm x 753 mm)



FEATURES

BALANCED:

- Built-In Defrost: Fan exhaust or recirculation modes protect the core from freezing in cold climates.
- Complete Climate Control: Compatible controllers are available to automate the unit's response to changes in the indoor environment.
- Speed Options: Continuous variable speed with 0-10V inputs, or configurable normal and boost speeds.

SMART:

- Quick Calibration with FLEXControl: Airflow circuits can be electronically calibrated without the need for resistance-inducing balancing dampers.
- Continuous Duty: Backward-inclined impellers and high-efficiency totally enclosed motors are not susceptible to dust loading and do not need cleaning or maintenance.
- Superior Insulation: Rigid insulation with FSK non-porous coating is lightweight and keeps moisture out so it does not get trapped in the unit and cause mold to grow.
- Advanced Electronics: The circuit board is conveniently accessible, and the terminal block can be removed for easy wiring to controllers.

EFFECTIVE:

- Efficient Performance: Units recover energy that would otherwise be exhausted, shrinking heating and cooling bills.
- Silently Powerful: High-efficiency motors are quiet and designed to consume very little power.
- Verified Technology: All cores are AHRI Certified to Standard 1060.

ADVANCED COMMERCIAL

To ventilate an entire building or a large zone within a building, choose Aldes commercial HRV/ERV units. Each unit is built from the inside out with standard double-wall heavy-gauge steel cabinets and engineered to endure the rigors of day-to-day use for years without fail. They are designed to integrate with building equipment for total HVAC synergy. Models can be installed indoors or outdoors and everything is wired for simple, safe electrical connections. Long warranties on recovery cores and components provide years of worry-free use.

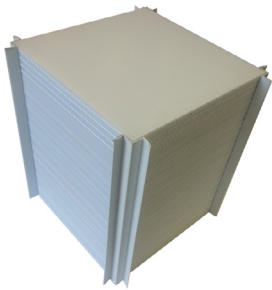


Indoor Model



Outdoor Model

CORES



Polypropylene



Aluminum



Enthalpy Wheel



Enthalpy Polymeric Membrane Core

FEATURES

MODELS:

- 2000: 1000-2500 CFM
- 3000: 2000-3500 CFM
- 5000: 3500-5500 CFM
- 6500: 5500-7000 CFM
- 8000: 7000-8500 CFM
- 10000: 8500-10500 CFM

DEFROST:

- Fan Exhaust Defrost
- Recirculation Defrost
- Bypass Damper
- VFD on wheel
- Pre-heating

HEATING COILS:

- Electric Post-Heating Coils
- Hot Water Post-Heating Coils

COOLING COILS:

- Cold Water Cooling Coils
- DX Cooling Coils

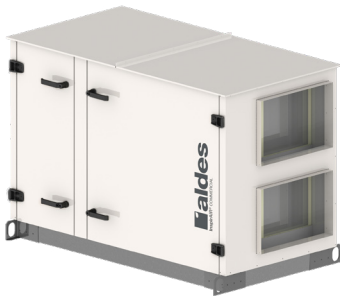
MOTORS:

- Inverter duty 10:1, ODP or TEFC, EPAct or Premium Maximum Power: 20 hp
- On vibration-isolating springs drive assembly/blower

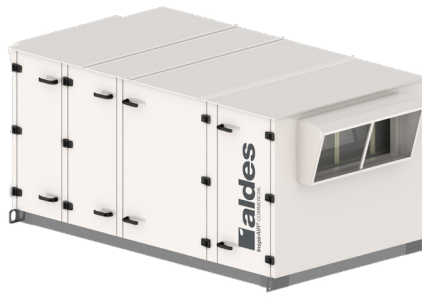


INSPIRAIR® COMMERCIAL

To ventilate an entire building or a large zone within a building, choose Aldes commercial HRV/ERV units. Each unit is built from the inside out with standard double-wall heavy-gauge steel cabinets and engineered to endure the rigors of day-to-day use for years without fail. They are designed to integrate with building equipment for total HVAC synergy. Models can be installed indoors or outdoors and everything is wired for simple, safe electrical connections. Long warranties on recovery cores and components provide years of worry-free use.

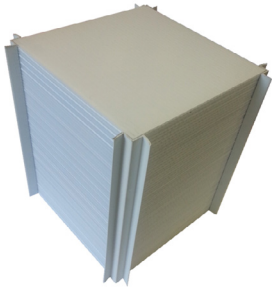


Indoor Model



Outdoor Model

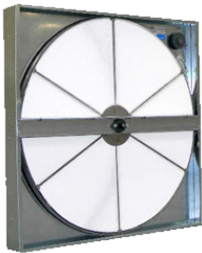
CORES



Polypropylene



Aluminum



Enthalpy Wheel



High Latent Transfer Enthalpy Core

FEATURES

MODELS:

- PA/PE/PH/PW 15: 500-1500 CFM
- PA/PE/PH/PW 20: 800-2000 CFM
- PA/PE/PH/PW 30: 1000-3000 CFM
- PA/PE/PH/PW 40: 2000-4000 CFM

DEFROST:

- Fan Exhaust Defrost
- Recirculation Defrost
- Bypass Damper
- VFD on wheel
- Pre-heating

HEATING COILS:

- Electric Post-Heating Coils
- Hot Water Post-Heating Coils

MOTORS:

- Inverter duty 10:1, ODP or TEFC, EPCo or Premium Maximum Power: 20 hp
- EC Direct Drive Motor



SOME SCHOOL PROJECTS

Aldes North America products are in use in hundreds of school districts, universities and colleges across the country. Our products are saving districts money on energy and maintenance costs while providing healthy indoor air for students, but don't just take our word for it. Our growing list of satisfied customers is a testament not only to the products themselves but also to our dedication, high quality customer service and follow through.

Take a look the list below or visit our website to see a sampling of the schools that have installed Aldes products recently.

Looking for specific examples of similar projects that use Aldes North America products, visit our [Featured Projects Map](#) on our website. It's a clickable map that you can filter by location, product, sales representative, or project type. Simply select "EDUCATIONAL FACILITIES" under the product category filter to see a sampling of recent projects across the nation.

- CREC Magnet Schools - Connecticut
- Waunakee Community School District - Wisconsin
- District of Columbia Public Schools - Washington, DC
- Orange County Public Schools - Florida
- Community Consolidated School District #46 - Illinois
- Van Meter Community School District - Iowa
- McCreary County School District - Kentucky
- Lame Deer School District - Montana
- Bozeman School District - Montana
- Monforton School District - Montana
- Valley Christian School - Montana
- Ocean City School District – New Jersey
- Lordsbury Municipal School District – New Mexico
- Ossining Union Free School District – New York
- Bronxville Union Free School District – New York
- St. Mary's School – New YorkPawling Central School District – New York
- Lehigh Valley Charter High School for the Arts- Pennsylvania
- Granite School District - Utah
- Prince William County Public Schools - Virginia
- Tumwater School District - Washington
- Pittsville School District - Wisconsin
- Lake and Peninsula School District - Alaska
- North Slope Borough School District - Alaska
- Ringling College of Art & Design - Florida
- Western Dakota Tech – South Dakota
- Princeton University – New Jersey
- Drexel University - Pennsylvania
- Prairie View A&M University - Texas
- Marlboro College - Vermont
- Frisco Intermediate School District – Texas
- Hampton Bays Public Schools – New York

PROJECT REFERENCE

Prestigious Texas School District Selects Aldes to Provide 173 Commercial ERVs

Aldes secured sales of 173 Energy Recovery Ventilators serving four schools in the Frisco Intermediate School District. Frisco, Texas is located just north of Dallas, and is one of the nation's fastest growing cities in the United States, coming in fourth with a population growth of 6.3% between 2014 and 2015 according to the U.S. Census Bureau.



The Frisco Intermediate School District is also undergoing tremendous growth with thousands of new students coming into the school district every year. Business expansion and corporate relocations to the area, resulting in new jobs in several sectors and a boom in residential housing have contributed to population growth and the need for more schools.

To accommodate the growing student population, the district is adding several new schools across four campuses. The E650 and E1100 series light commercial energy recovery ventilators are being installed in the new Memorial High School (85 ERVs); Lawler Middle School (36 ERVs); Tally Elementary School (26 ERVs); and Liscano Elementary School (26 ERVs).

Part of the challenge was customizing the standard light commercial ERVs to meet the unique design criteria found in each school. Aldes' in-house team of engineers ensured all the requirements were met to exact specifications.





For more information, contact your
Aldes sales advisor, visit aldes-na.com,
or find us on



Aldes North America
USA 800.255.7749 CAN 800.262.0916

