YORK®

INSTALL CONFIDENCE.

MAXA-MI$ER™

Energy recovery solutions

Johnson Controls

Regardless of building type or rating system, today's building must be as energy efficient as possible.

The design of an HVAC system is critical to the success of the building's energy performance. Proper ventilation for occupant health and productivity must be addressed. The quality of the indoor environment cannot be sacrificed for the sake of energy efficiency.

The YORK® MAXA-MI$ER™ Energy Recovery Ventilator (ERV) is your solution. Increased ventilation rates in combination with energy recovery products not only improve the indoor air quality but also reduce the cost associated with conditioning these larger amounts of outdoor air.

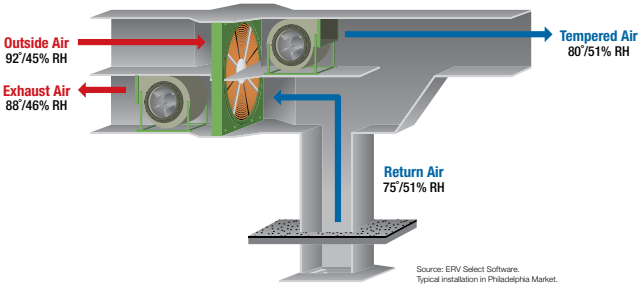
Energy recovery solutions from YORK®

There are many reasons to install an ERV, but the best reasons are to recover energy and lower utility expenses. Workplace and school environments have a high concentration of people and need plenty of fresh air. Adding fresh air lowers the CO_2 levels in a building and helps keep the occupants alert and healthy. ERVs also help control odors as the stale air is exhausted out of the building and fresh air is brought in.

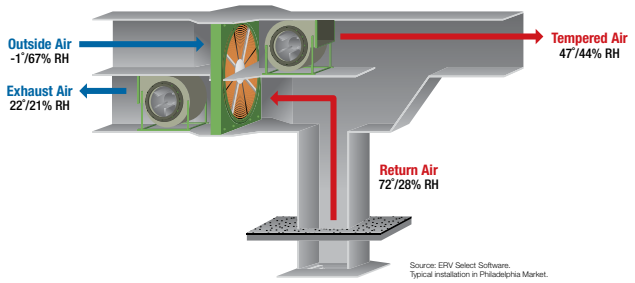
When fresh air is brought into a building, conditioned air is exhausted back outside to equalize the pressure. The air leaving a building has energy in it – Warm energy in the winter and cool energy in the summer. An ERV captures about 70% of that warm or cool energy from the air leaving the building and puts it back into the fresh air entering the building. This recapturing of energy means the rooftop unit does not have to work as hard, which translates into lower monthly utility bills.

Typical applications for energy recovery

- Animal shelters
- Bars and clubs
- Churches
- Dormitories
- Locker rooms
- Nursing homes
- Office buildings
- Printing shops
- Restaurants
- Schools
- Function halls
- Veterinary hospitals



Typical HVAC System Using
Energy Recovery – Summer Operation



Typical HVAC System Using
Energy Recovery – Winter Operation

ASHRAE compliance and IAQ

ERVs are an excellent choice to comply with outdoor ventilation requirements of ASHRAE 62. Introducing fresh, outdoor air to a building is a key component in sustaining excellent IAQ and occupant productivity. ERVs meet the minimum total effectiveness of 50% for energy recovery per ASHRAE 90.1 and is a preferred method for saving energy in ASHRAE/USGBC/IESNA's Standard 189.1 – Standard for the Design of High Performance, Green Buildings Except Low-Rise Residential Buildings.

Less tonnage required!

Systems using Energy Recovery Ventilators re-use (recycle) about 70% of the energy from the exhaust air to heat, cool, dehumidify or humidify the incoming fresh air, which takes that portion of the load off of the rooftop units. In most conditions, the outside air load is significant and results in less tonnage required to meet the design conditions.

Terrific payback!

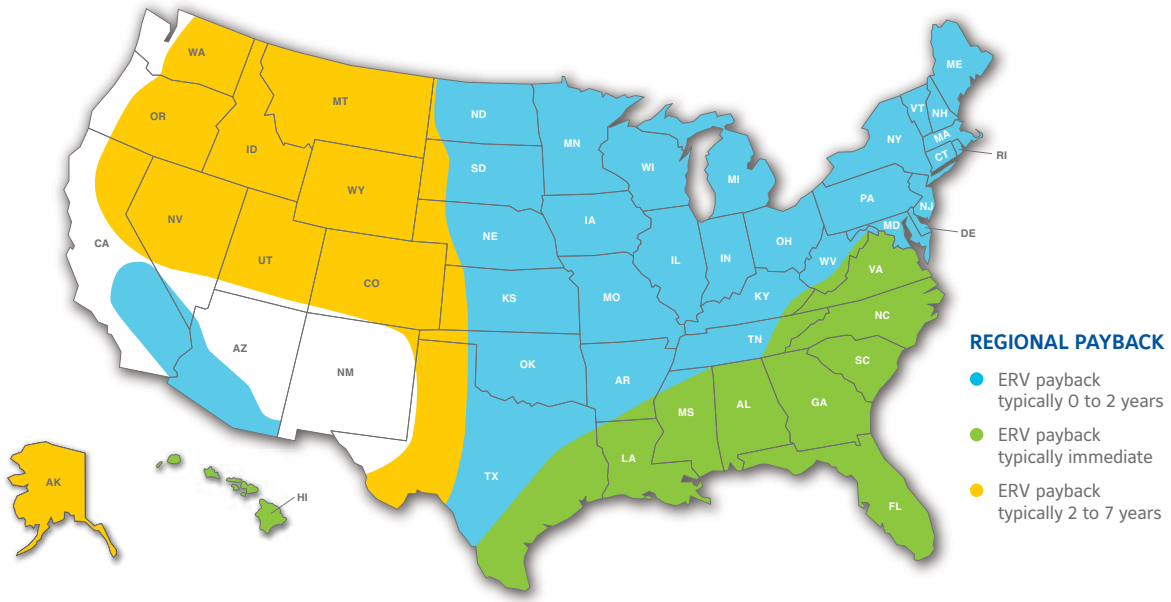
Minimum outside air ventilation requirements are often the largest single load on an air conditioning and heating system – especially at design conditions. The greater the degree days and the greater the outside air amount, the greater the savings. YORK® ERVs provide an easy-to-use payback program to help calculate your savings. This program takes into account your job location and your specific application. Savings are $$$ubstantial.

HVAC utility rebates

ERVs can have an immediate impact on your energy budget, but there may be an additional benefit to help offset the cost of the ERV equipment. Utility rebates may be available in your area! Consult your local electricity provider for additional details.

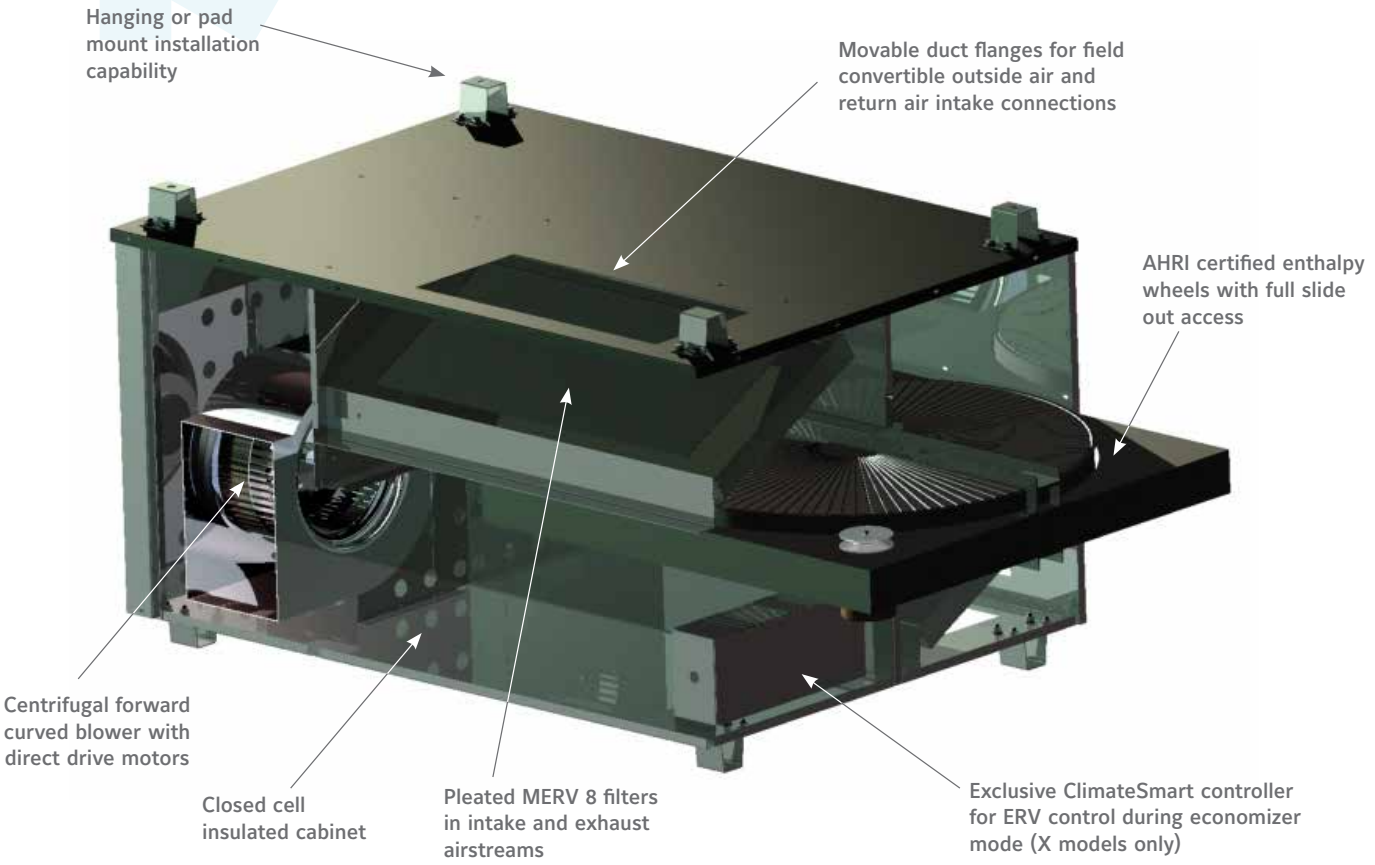
LEED-EB and LEED-NC credits

For Green Building designs, the MAXA-MI$ER™ can assist the designer in acquiring credits for Energy and Atmosphere (EA) by optimizing energy performance and for Indoor Environmental Quality (IEQ) by providing the ability to increase ventilation leading to thermal comfort.



MiniVentilator ERVs

YORK® MiniVentilator ERVs are an outdoor air pre-conditioning system and is perfect for indoor applications. This range of ventilation is typically found in classrooms, meeting rooms, and small retail locations. The MiniVentilator is compact and can be installed in locations that have limited amount of space, comes equipped with duct openings that are interchangeable dependent on your duct configuration.



Standard features

- 250-1500 CFM
- Painted cabinet
- Hang or base mounting
- Access to filters and wheel without tools
- Flanges on all intake/discharge connections

Additional options

- ECM motors available (MV450/750/1250(X) models)
- Dirty filter sensor
- Remote speed controller
- Remote timer option (24/7)
- Low ambient kit for frost control
- Wheel rotation sensor
- Start/stop/jog economizer control

Stand alone ERVs

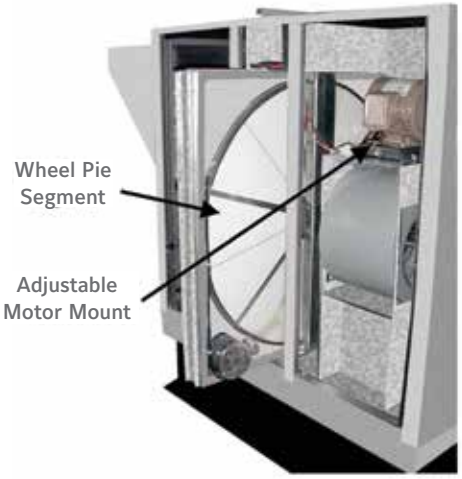
Stand alone ERVs provide more flexibility than packaged MiniVentilators. These ERVs are used to recover exhaust air energy and reintroduce the air in the conditioned space, and can be utilized for indoor or outdoor use. Fresh, outside air enters the ERV and is pretreated before entering the heating and cooling equipment.

Whether ducting directly into air handlers, or directly feeding into a rooftop unit, these pre-conditioners provide the ability to reduce overall HVAC tonnage required to maintain comfort in your occupied space.

VD Series

Stand alone ERVs are designed for ease of maintenance

- All of the enthalpy wheels are designed to "slide" in and out of the ERV. This allows easy access to all parts of the wheel.
- Wheel "Pie" segments can be removed for easy cleaning.
- All wiring is color coded to match the wiring diagram.
- Control boxes are provided with internal fuses.
- Blower motors are mounted on "adjustable" bases that allow easy tensioning of the belts.
- All filters are standard sizes.
- All options are easily installed by simply plugging them into the appropriate plug.
- Roof curbs have duct supports.



Standard features

- 600-6200 CFM
- 208/230-1/3, 460v-3, and 575v-3 available
- Designed for indoor/outdoor use
- Powdered coated finish
- Rotatable clips for easy lifting and mounting
- Exhaust/intake hoods (outdoor)
- Flanges on all intake/discharge connections (Indoor)
- MERV 8 filters

Frost control options

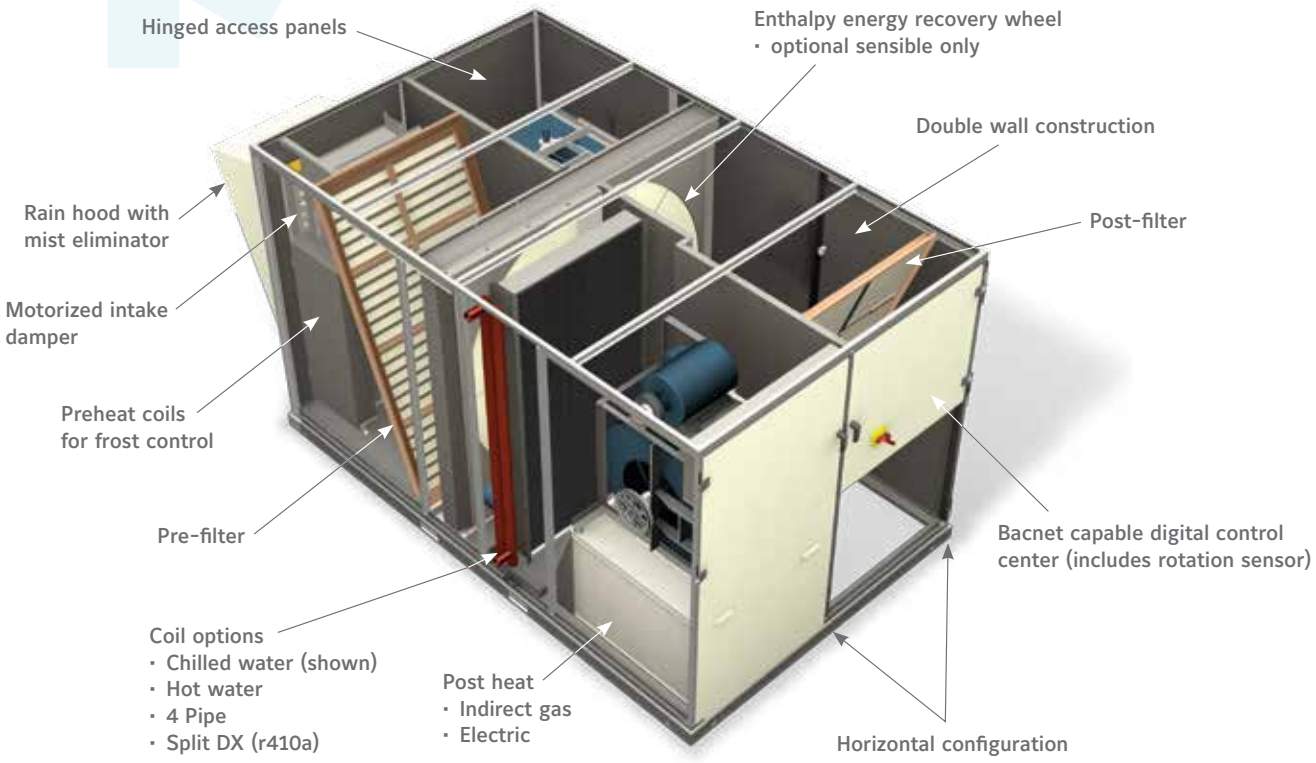
- VFD modulating wheel (28 and larger models)
- Low ambient kit
- Electric preheat

Additional options

- Factory installed *Metasys*® ready controller
- VFD blowers
- Start/stop/jog (economizer mode)
- Total enthalpy wheel or sensible only wheel
- MERV 8/11/13 filter options
- Smoke detectors
- CO_2 sensor
- Dirty filter sensor
- Start/stop/jog (economizer mode)
- Total enthalpy wheel or sensible only wheel
- Smoke detectors
- CO_2 sensor
- Dirty filter sensor

Full featured ERVs

With full energy recovery, high capacity heating and cooling options, and factory installed *Metasys*® ready controls, this unit can effectively maintain the occupied space temperature and humidity, giving you ultimate control of your environment. These units are designed for outdoor use, and when packaged with an RTU, the Full-Featured ERV can provide up to 100% dedicated outside air. The intake and exhaust orientations are selectable to be down flow or horizontal configuration.



Standard features

- 600-12,000 CFM
- Factory installed *Metasys*® ready controls
- Built with heavy gauge galvanized steel cabinet with powder coated finish
- Factory mounted NEMA 3R rated disconnect
- Double wall construction
- Hinged access panels
- Powered by Lau Forward Curved Blowers to reduce noise and vibration
- Adjustable motor sheaves for easy blower adjustments

Additional options

- Start/stop/jog (economizer mode)
- Motorized intake and exhaust air dampers
- Dirty filter sensor
- Low ambient control kit
- VFD blowers
- CO_2 sensor
- Wheel rotation sensor
- Total enthalpy wheel or sensible only available
- Smoke detector
- Pressure gauge
- Indirect gas heat (2-stage, 5:1 or 10:1)
- Split DX coil
- Hot water/chilled water coils
- Electric pre/post heat options

Unitized ERVs

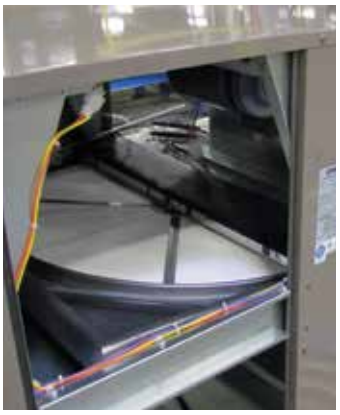
Proper ventilation for occupant health and productivity is critical to the success of the building's performance. Increased ventilation rates in combination with energy recovery products not only improve the indoor air quality but also reduce the cost associated with conditioning these larger amounts of outdoor air. YORK® Unitized ERVs can be applied to nearly all applications, and to any new or existing rooftop unit. These ERVs offer an inexpensive alternative to energy recovery as an add-on to new and existing rooftop units.

No roof penetration

The YORK Unitized ERV matches exactly to any existing rooftop unit, eliminating the need for another rood penetration. This not only saves on installation costs, it also eliminates the risk of a roof leak that may occur with roof penetrations.

ERV and ECONOMIZER

YORK ERVs have a patented wheel design that allows the energy recovery wheel to pivot out of the airstream during 100% economizer mode. This eliminates the pressure drop of the wheel and allows for the best of both worlds – an ERV when needed for normal ventilation operation and an economizer when conditions call for it.



Standard features

- 300-6200 CFM
- Factory installed *Metasys*® controls
- Built with heavy gauge galvanized steel cabinet with powder paint to color-match to any manufacturers rooftop unit
- Includes interface wiring harness that connects the economizer directly to the ERV with a single plug (P models)
- Balancing damper provided for proper air distribution while ERV is in operation (R models)
- Powered by Lau Forward Curved Blowers to reduce noise and vibration
- Adjustable motor sheaves for easy blower adjustments

Additional options

- Pivoting wheel (P models)
- Start/stop/jog (economizer mode)
- Electronic fan inlet air & temperature measuring station (EFAMS)
- Hinged access panels
- Low ambient control kit
- Motorized intake and exhaust dampers
- VFD blowers
- CO_2 sensor
- Wheel rotation sensor
- Total enthalpy wheel or sensible only available
- Smoke detector
- Pressure gauge

Controls

The *Metasys*® Building Automation System is the foundation of modern building energy management efficiency. This intelligent, world-class technology system allows your ERV to communicate on a single platform to deliver the information you need, allowing you to make smarter, savvier decisions while enhancing your occupants' comfort, safety, and productivity.

A full range of FEC/FAC models combined with the Input/ Output Module (IOM) models can be applied to a wide variety of building applications ranging from simple fan coil or heat pump control to advanced central plant management. All FEC Series Controllers configured for BACnet support wireless communications using the ZFR System accessories.

Energy and economic payback

The energy recovery ventilators were calculated to save South Community High School approximately $60,000 annually or $1.2 million in today's dollars over the average life of the new rooftop units. The initial added investment in wheel based rooftop units is expected to be recouped during the first year of operation based on savings from the energy recovery ventilators alone.

Impact of energy recovery wheels	
Heating capacity saved (btu/hr)	4,727,000
Cooling capacity saved (tons)	115
Net capital expenditure (wheel based rooftop units)	$55,000
Annual outdoor air energy saving	$60,000

Based on $1.10/therm gas, $0.115/kwh, 67,449 cfm outdoor air, 12/5 operation, 10 months/yr.

"For roughly the same price as a larger, more energy intensive rooftop unit, we can provide the same amount of work with a smaller, wheel-based unit that performs with up to 40% greater efficiency. This translates to significant energy savings over the life of the equipment."

CRAIG CAMPBELL
TRUMBULL AND CAMPBELL ASSOCIATES

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