



RX (ERV) SERIES

THE Rx (ERV) UNIT



Stand alone ERV unit



Add on module for
TRE unit

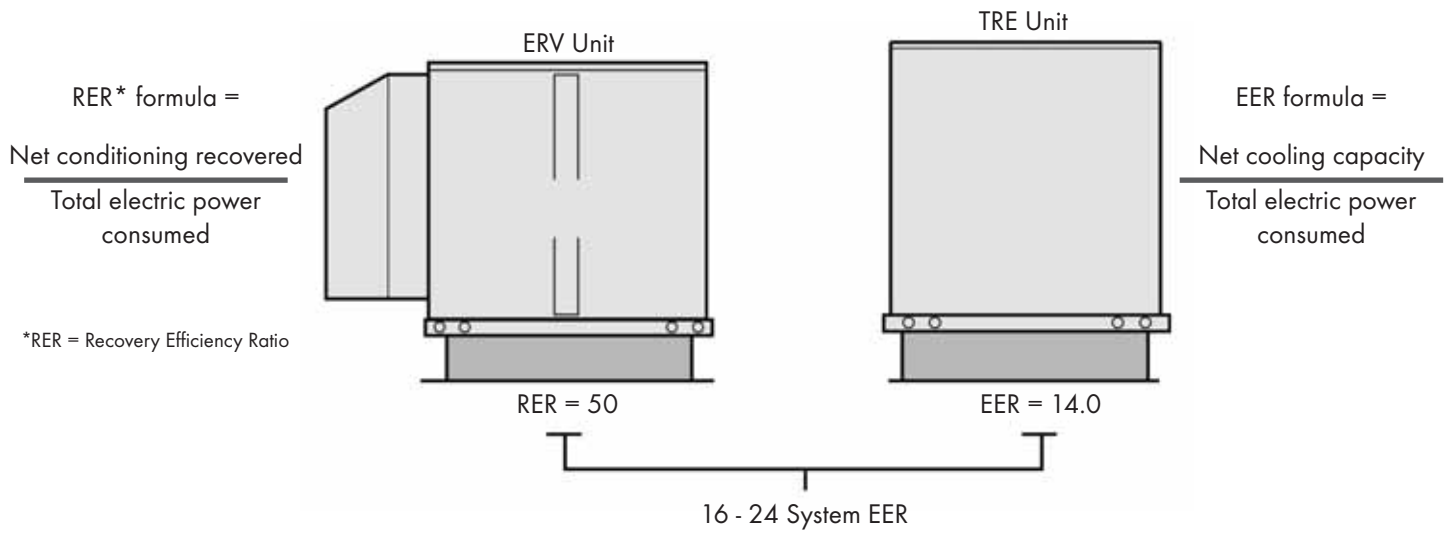
The energy recovery wheel inside the ERV unit transfers energy from the warmer to the cooler air stream through counter-flowing supply and exhaust air streams through the slowly rotating wheel (less than 60 revolutions per minute). The large energy transfer surface arranged to provide laminar air flow through the wheel causes the constant flow of recovered energy to represent up to 80% of the difference in total energy contained within the two air streams. The Rx (ERV) Series is designed to be mated to the TRE Series rooftop unit for maximum energy efficiency in a make-up air unit, up to 100% outside air.

UNIT FEATURES

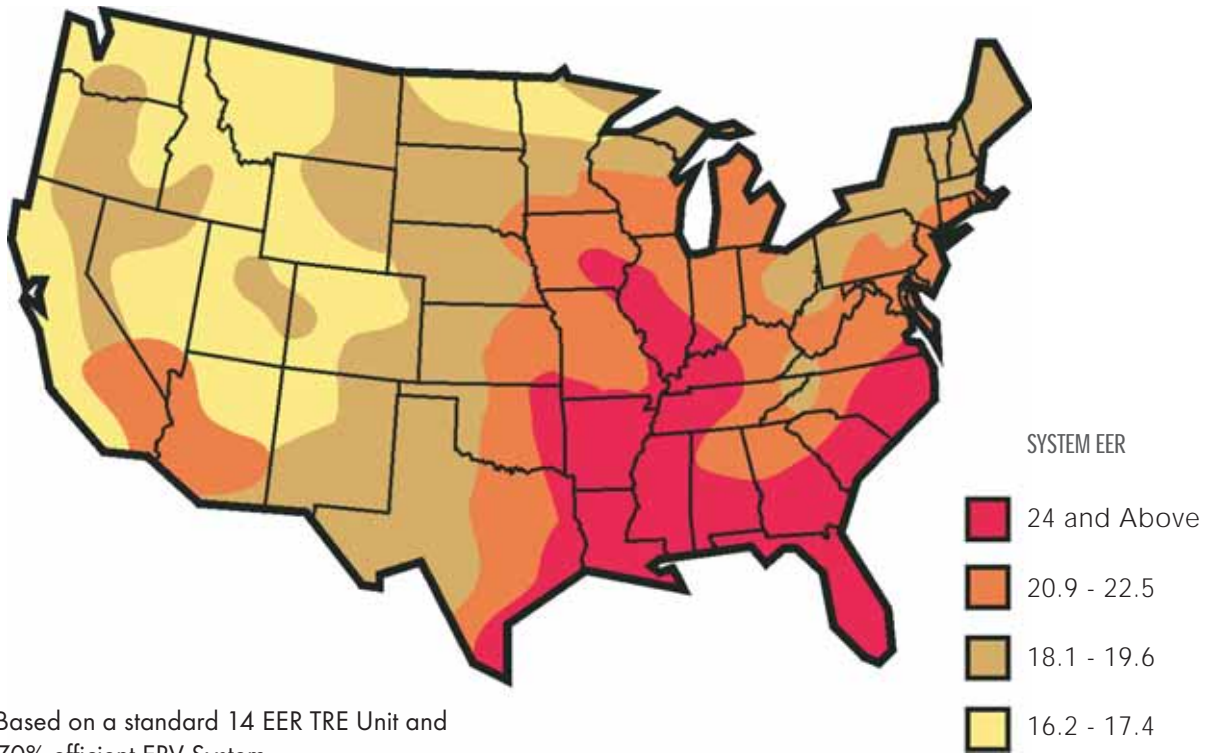
- Sizes 1000 through 10,000 CFM of outdoor air mixed with return air or up to 100% outside air
- All of the features of the TRE Series PLUS energy recovery
- 20+ (Combined) EER substantially reduces the cost of preconditioning outside air
- Avoids using large gas makeup air units and complicated refrigeration controls to handle outside air
- Simple operation facilitates ease of maintenance and troubleshooting
- Allows the designer to provide water-source equipment for all HVAC needs
- Decreases building equipment tonnage required, which reduces installation costs
- Can cut loop costs up to 50% for ground loop (geothermal) applications by reducing equipment tonnage required
- Uses AHRI-1060 rated wheel technology
- Available with silica gel or molecular sieve wheel
- Available in stand alone, curb mounted & integrated, or mounted to rooftop unit (TRE Accessory Module)
- Finish matches TRE Series rooftop
- Optional factory-installed pre-heater available
- Hinged panels at all service entries
- Centrifugal belt-driven forward-curved blowers with adjustable pulleys and isolation pads. High efficiency motors are thermally protected
- Easy access controls with optional ERV fault indicators. A simple, quick connecting Molex connector ties ERV controls to TRE Series rooftop unit controls
- 2" pleated pre-filters for outside air with 2" pleated filters on exhaust air help keep the wheel clean. Up to Merv 13 filter compatible
- Heavy duty base rails for easy lifting and rigging
- Hinged access doors with 1/4 turn g-loaded latches
- Exhaust and supply air streams have back-draft dampers to prevent air penetration during off cycles
- The energy recovery wheel transfers energy from the warmer to cooler air streams at a nominal up to 80% efficiency and is AHRI-1060 certified
- Slide out wheel assembly makes cleaning and maintenance easy

THE Rx (ERV) UNIT

By mating the TRE unit to an ERV unit, you can increase your system EER (SysEER) significantly



INCREASED ENERGY EFFICIENCY



Based on a standard 14 EER TRE Unit and 70% efficient ERV System.

Refer to the ClimateMaster ERV software to calculate Sys EER for your specific job.

THE RX (ERV) UNIT

THE RX EFFICIENCY STORY

As an example, when outdoor air is 95°F (35°C) DB and 75°F (24°C) WB (40% RH), and indoor air is 75°F (24°C) DB and 50% RH, the ventilation air is conditioned by the ERV System to enter the building not at 95°F (35°C) DB and 75°F (24°C) WB but on the order of 79°F (26°C) DB and 51 % RH. This example of reduced load on an air conditioning system at summer temperature extremes illustrates the basis for down sizing of cooling equipment. At design conditions of 95°F (35°C) DB and 75°F (24°C) WB, cooling equipment capacity can be reduced by 3.1 tons per 1,000 CFM (2.31 Watts per 100 l/s) at the time of design or when replacing existing equipment.

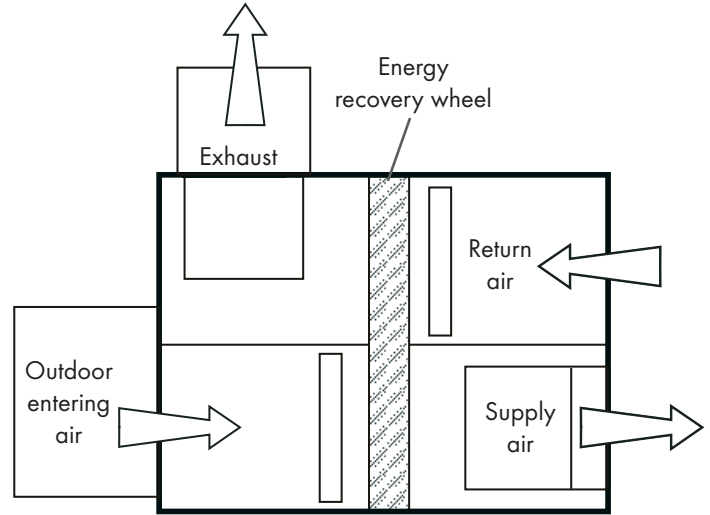
ClimateMaster's ERV design software calculates leaving air conditions and combined efficiencies from the ERV. In most cases the combined EER (at ARI 13256-1 WLHP conditions) is nearly 20 Btuh/Watt (5.86 Watts/Watt)! The U.S. Environmental Protection Agency (EPA) projects that most parts of the country have an immediate to two year payback.

When the Rx system is applied to geothermal (ground loop) applications, installation costs are greatly impacted. HVAC equipment downsizing is important, but ground loop downsizing can easily allow a geothermal system to become the lowest initial installation cost system AND the lowest operating cost system. With savings of 3.1 tons per 1,000 CFM (2.31 Watts per 100 l/s), total installation costs could decrease by \$800 to \$1,500 per ton (\$227 to \$427 per kW) for the loop piping system alone.

For example, a classroom with a 3 ton (10.6 kW) cooling load requires 400 CFM (189 l/s) of outside air to meet IAQ requirements. At design conditions of 91°F (32.8°C) DB and 77°F (25°C) WB (53% RH), the required amount of outside air adds 26,946 Btuh (7.9 kW) to the cooling load. The consulting engineer would need to increase the size of the heat pump to 5 tons (17.6 kW) to meet the new peak load. When outdoor temperature/humidity is not at design conditions (97.5% of the time), the heat pump is significantly oversized, causing short run cycles. When the unit is not running, it is not dehumidifying, leading to potentially high humidity conditions in the classroom and possibly IAQ concerns due to humidity levels.



In the heating mode, outside air causes similar design problems. For example, at -1°F (-18.3°C) DB and -2°F (-18.9°C) WB (56% RH) design conditions, 400 CFM (189 l/s) of outside air increases the heat loss by 31,240 Btuh (9.16 kW). The mixed air temperature falls to 56°F (13.3°C), creating a "cool" supply temperature of 76 to 81 °F (24.4 to 27.2 °C). Plus, relative humidity levels drop to 15% to 20%, potentially causing IAQ concerns due to low RH.



Typical operation

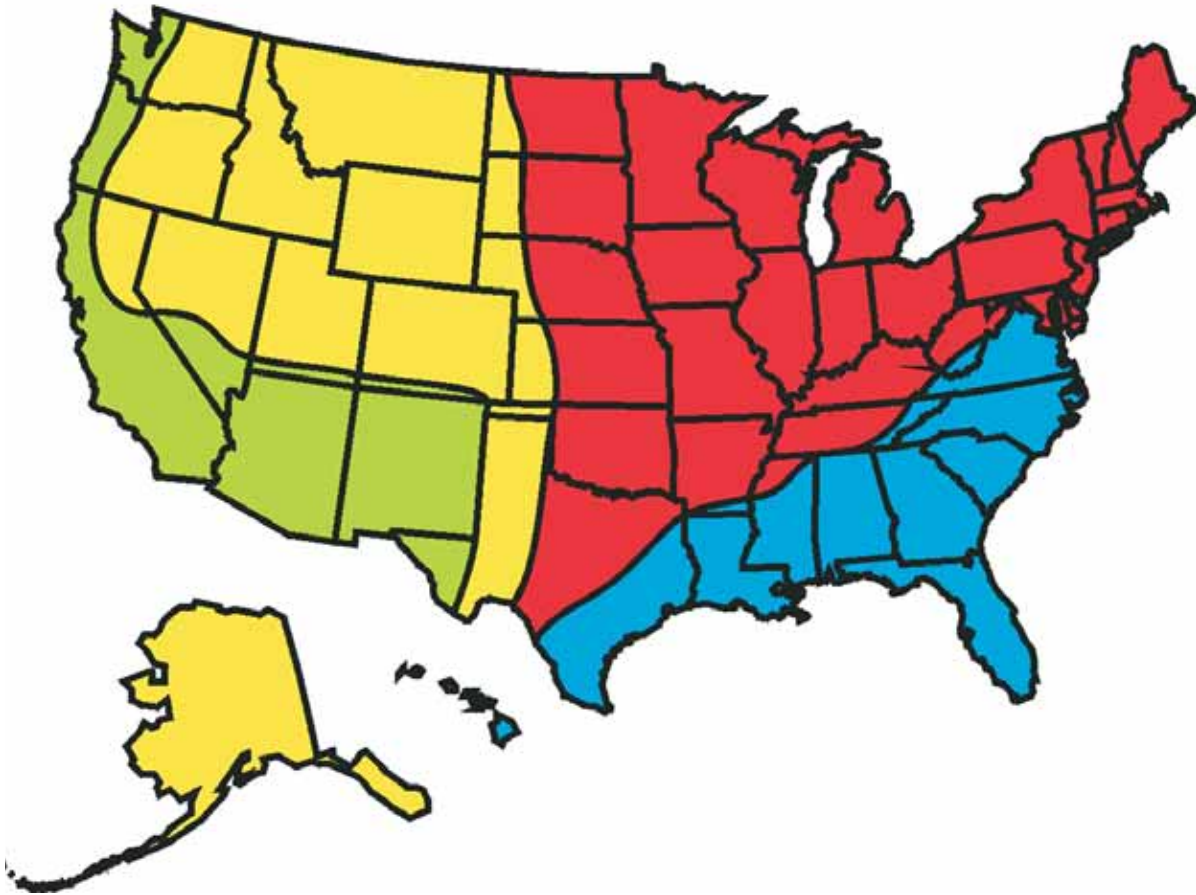
The solution to the above example problem is a separate ventilation system (the Rx system), which supplies preconditioned air to the classrooms. The savings in equipment capacity (and ground loop if applicable), as well as increased comfort and decreased operating costs make this system a consulting engineer's "secret weapon" in the IAQ battle.



Energy recovery component certified to the AHRI Air-to-Air Energy Recovery Ventilation Equipment Certification Program in accordance with ARI Standard 1060. Actual performance in packaged equipment may vary.

THE RX (ERV) UNIT

PAYBACK MAP PROVIDED BY THE ENVIRONMENTAL PROTECTION AGENCY (EPA)



Zone 1

Total-Recovery or Sensible-Only-Recovery ERV Systems Recommended
- Total-Recovery Payback Typically 0-2 years
- Sensible-only-Recovery Payback Typically 2 to 7 years

Zone 2

Total-Recovery ERV Systems Recommended
- Total Recovery Payback Typically Immediate

Zone 3

Total-Recovery or Sensible-Only-Recovery ERV Systems Recommended
- Payback for Both Configurations Typically 2 to 7 years

Zone 4

Conventional Ventilation Recommended. ERV Payback Typically Exceeds 7 years

THE RX (ERV) UNIT

PERFORMANCE AND SPECIFICATIONS

Air Flow Range, Voltages, and Pre-Heaters (English (I-P) Units & Metric (S-I) Units)

Model	Voltage	CFM
ERV "A" Cabinet	208/230/460 60 Hz	1000 - 2000
ERV "B" Cabinet		3000 - 4000
ERV "C" Cabinet		5000 - 7000
ERV "D" Cabinet		8000 - 10000

Energy recovery component certified to AHRI standard 1060-2000.

Energy recovery unit ETL listed.

Contact factory for performance at given conditions.

Dimensional Data, Stand Alone ERV Unit

ERV Cabinet	Overall Cabinet			
	Height in. [CM]	Width in. [CM]	Length in. [CM]	Weight lb. [CM]
ERV "A" Cabinet	50 [127]	46 [116.8]	66 [167.64]	1472 [667.7]
ERV "B" Cabinet	65 [165.1]	68 [172.7]	78 [198.1]	2409 [1092.7]
ERV "C" Cabinet	77 [195.5]	94 [238.8]	94 [238.8]	3452 [1565.8]
ERV "D" Cabinet	89 [226.0]	108 [274.3]	106 [269.2]	4924 [2233.5]

STAND ALONE ERV UNIT

- Can operate as stand alone or "mated" to TRE Rooftop Heat Pump
- Can be operated to TRE via low voltage harness with quick connector
- Combo curb for "mating" to TRE eliminates field ducting
- Belt drive blowers with adjustable motor sheave
- Paint color matches TRE
- Segmented wheel for easy service



TRE ACCESSORY MODULE

- Attaches directly to TRE Rooftop Heat Pump
- Single-point power connection
- Up To 2000 CFM
- Reorder segmented wheel for easy service
- Uses Rooftop Unit blower motor
- Can be shut off for unoccupied mode and heat pump still works
- Paint color matches TRE



THE RIGHT CHOICE

ClimateMaster is the world's largest and most progressive manufacturer of geothermal heat pumps. We are committed to innovation and dedicated to environmentally clean, economically sound and superbly comfortable home and business environments. Each ClimateMaster product is produced in our state-of-the-art facility utilizing quality management systems that are ISO 9001:2000 certified. We strive for the highest product quality and service after the sale to give you peace of mind.

An LSB Industries, Inc. company (NYSE: LXU), ClimateMaster has been designing and building equipment that enhances environments we live and work in every day for more than 50 years. In addition to geothermal heat pumps, ClimateMaster offers the most extensive product line of water-source heat pumps for use in a wide variety of applications.

ClimateMaster products are built in the U.S.A.



