

**Improved Indoor Air Quality through
Fresh, Outdoor Air Ventilation**



**Reduced Cost through Air-to-Air
Energy Recovery**



**Designed and Built Specifically to
Suit Your Requirements**

About XeteX

XeteX is a specialty manufacturer of energy recovery and heat transfer systems. Our area of expertise is applying cost-effective air-to-air energy recovery technologies to a wide variety of applications:

- **HVAC Indoor Air Quality (IAQ) Improvement in Institutional, Commercial, and Industrial/Manufacturing Facilities**—Providing Economical Outdoor Air Ventilation
- **HVAC Moisture Control in Wet/Moist Environments Such as Pool and Recreation Facilities**—Providing Economical Moisture and Temperature Control for Pleasant, High Indoor Air Quality that Protects Your Facility Investment and a Comfortable Environment for Guests
- **Industrial Equipment Cooling**—Providing Cooling for Temperature Sensitive Equipment, Replacing or Complimenting Mechanical Cooling
- **Industrial Process Cooling and Drying**—Providing Cooling and Drying for Temperature and Moisture Sensitive Processes, Replacing or Complimenting Mechanical Cooling
- **Industrial and Mechanical Waste Heat Recovery**—Providing an Economical Source of Heat from Other Processes that Generate Waste Energy or Waste Heat

Our application expertise and knowledge ensure that the best-suited design and cost-effective solution is provided for your application. Our standard system designs are a starting point for developing highly effective and flexible customized layouts, options, and capacities to meet virtually any requirement you may have.

- **Complexity**—From simple inline exchanger modules to complete units with many options, we have experience that you can count on.
- **Capacity**—Our designs range from smaller, custom residential-scale units that provide 80 cfm up to large systems capable of handling 80,000 cfm.
- **Flexibility and Options**—Our knowledge and skill provide our customers with many exchanger options: footprint size, indoor or outdoor mounting, countless ducting configurations, filtration, make-up heating and cooling options, single point power interface and delivery, air source volume control, operational controls, and many others.

XeteX Background

XeteX represents experience in technical design and application of HVAC equipment that began in 1960. XeteX was founded and incorporated in 1985 to develop heat exchangers and systems appropriate for the expanding need of buildings to improve indoor air quality.

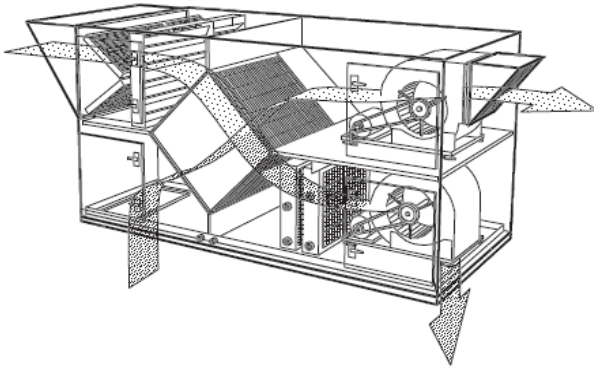
We engineer, design, specify, manufacture, assemble, and warrant our products.

Vision

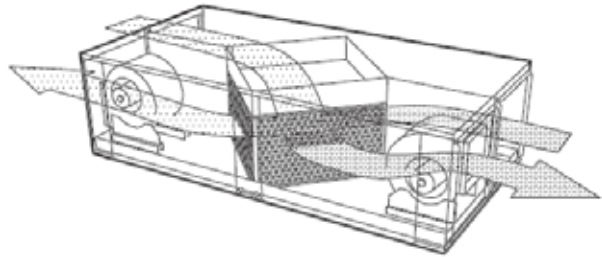
To design and manufacture high quality, cost-effective ventilation solutions that increase indoor air quality. We produce the best air-to-air heat recovery systems available and we welcome the opportunity to help you design the best solution for your application.

Configuration Options

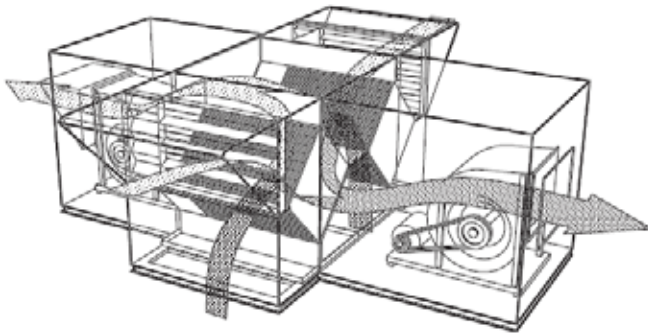
Depending on your design conditions, space restraints, or ducting configuration, one of Xetex's standard Heat-X-Changer® designs may already be well suited for your application. If, however, you have specific needs that require a more specialized system, a fully-customized unit can be built based on any of these designs.



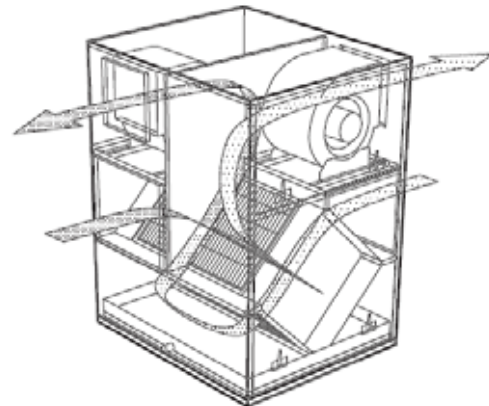
Single-Pass Unit with Vertical Mounted Exchanger.
Model XHS RT Shown.



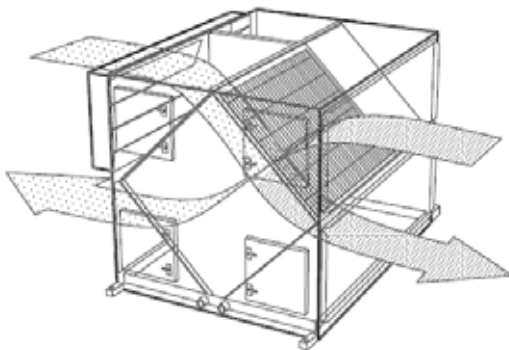
Single-Pass Unit with Horizontal Mounted Exchanger. Model IAQ Shown.



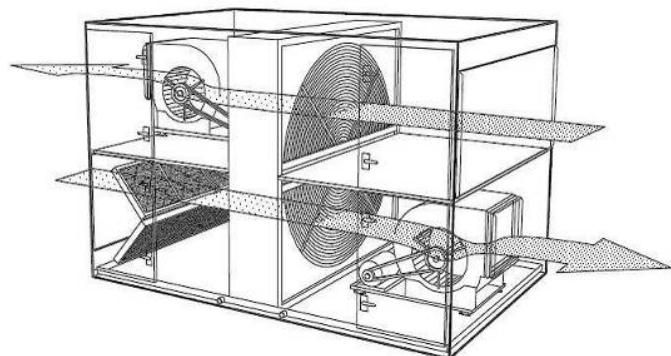
High Capacity Unit with Dual Exchangers.
Model XTR RT Shown.



High Efficiency Unit with a Double-Pass Exchanger. Model XVS Shown.



Single-Pass Exchanger Unit in Case.
Model XC Shown.



Total Energy Recovery Unit with AirRotor® Heat Wheel.
Model AHR Shown.

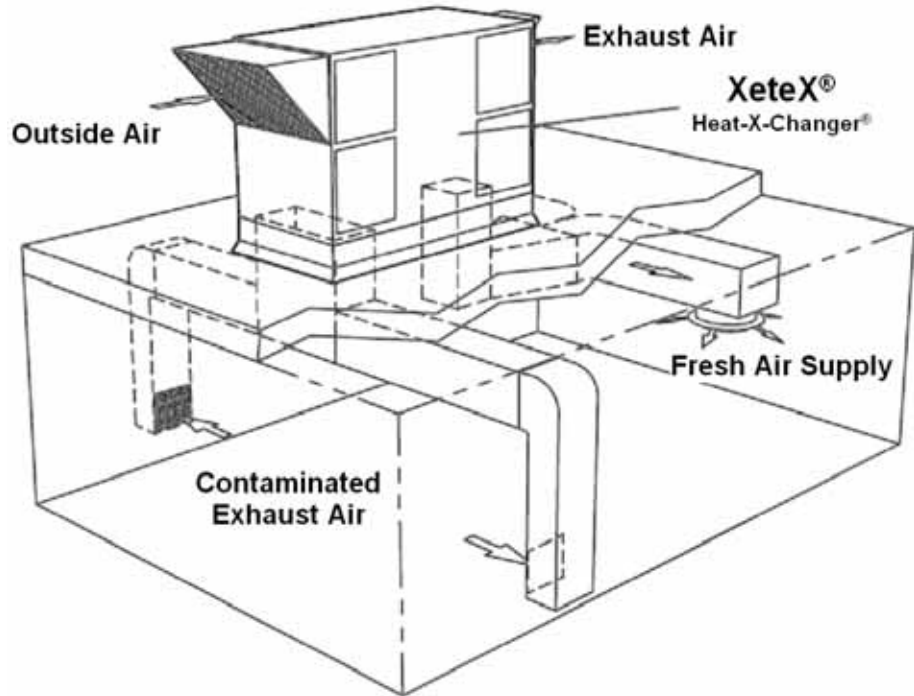
Applications

Outdoor Air Ventilation

State and local building codes are increasingly requiring larger amounts of fresh air ventilation.

Heating and cooling this growing amount of ventilation air can be extremely expensive and, in some cases, cost prohibitive.

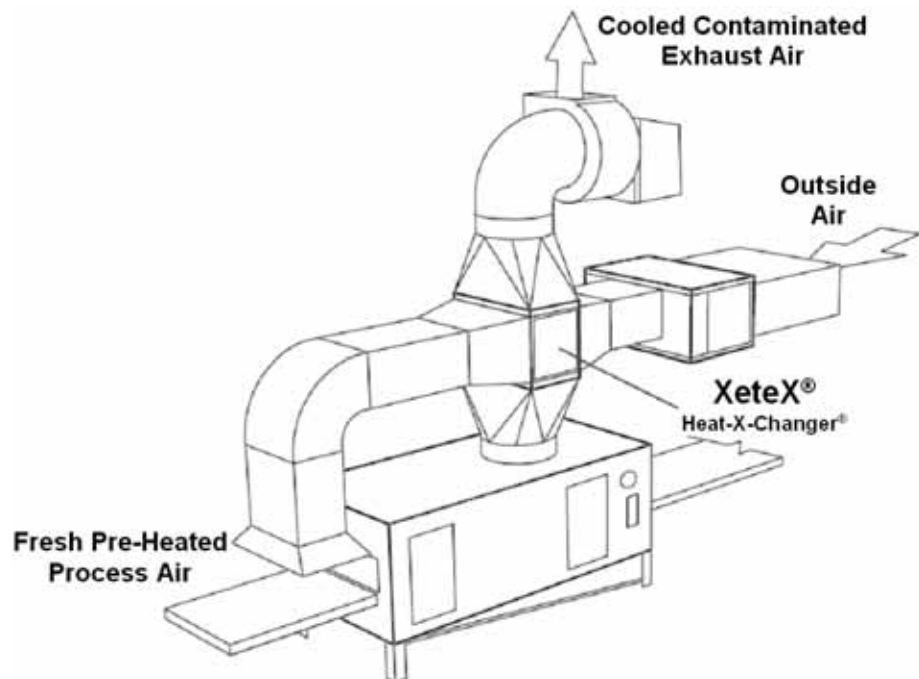
Xetex units are the solution, bringing in the required amount of outdoor ventilation air and reducing both operating energy costs and initial installation investment cost by up to 80%.



Process Heat Recovery

An Xetex unit can be custom-built to fit almost any process application, recovering waste heat and reducing energy cost by preheating fresh outdoor air.

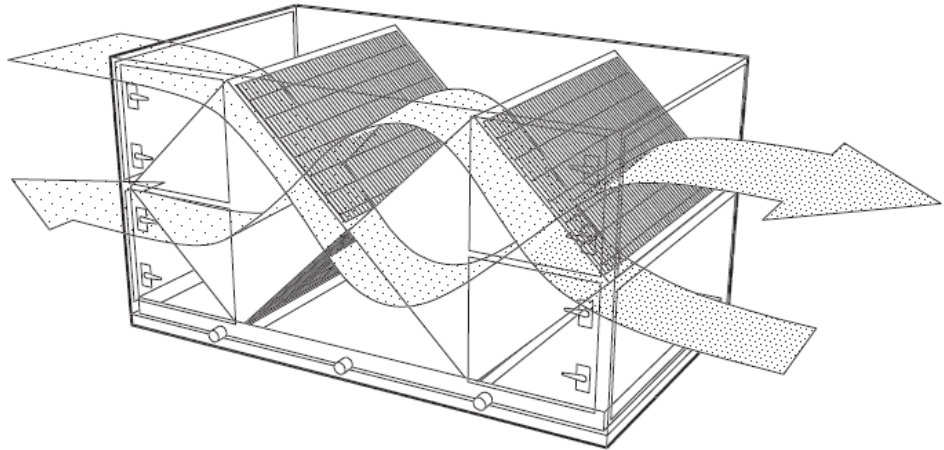
Optional materials and coatings are available for temperatures up to 390 °F and for corrosive environments.



Double-Pass Exchanger

For applications where systems run continuously or where utility costs are high, a double-pass exchanger configuration is often the best solution.

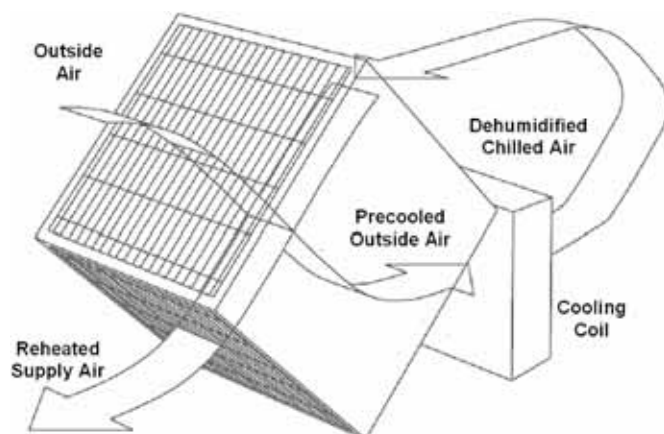
The higher effectiveness (75 to 85%) of the double-pass exchanger results in additional fuel savings which easily offset the increased installation investment.



Fresh Air Make-Up Cooling and Dehumidification

The Model DXH configuration pre-cools the hot outside air, then uses a cooling coil for dehumidification. It then passively reheats the supply air to achieve a comfortable humidity level (e.g., 40% RH).

This configuration reduces the size of the required mechanical cooling equipment and the associated capital and operational cost.

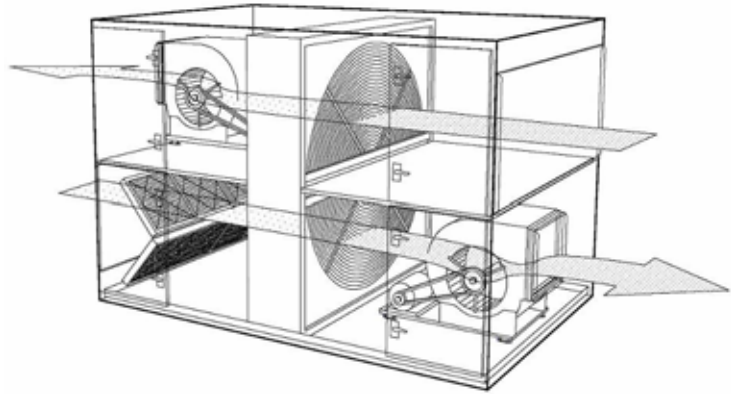


Rotary Heat Wheel Exchanger

Energy recovery can do more than simply transfer heat. AIRotor® total energy recovery rotary exchangers transfer both heat and water vapor between airstreams. They are available for applications when very high efficiency recovery of both heat and moisture is required.

The capability to transfer moisture allows these exchangers to dehumidify summer supply air, relieving other cooling components of a substantial portion of the total cooling load. In the winter, they can also recover moisture from the exhaust air, helping to humidify the space and increase comfort.

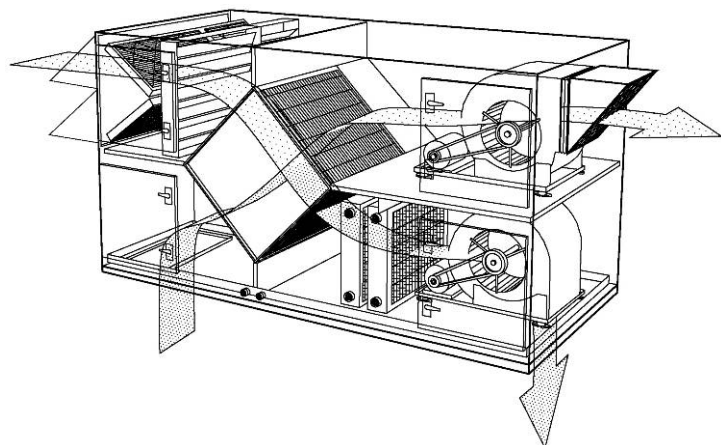
The standard AIRotor recovers both sensible and latent heat with a total effectiveness of up to 80%.



Make-Up Heating and Cooling

Beyond energy recovery, Xetex can provide systems that include make-up heating and/or cooling capability. Hot and cold water coils, steam coils, electric heaters, direct and indirect gas-fired furnaces, and DX cooling coils are all available options.

From its beginning Xetex was a pioneer in green HVAC solutions and we continue today to lead in this field. Our product capability extends to use of integral and efficient compressorized systems (EER \approx 11, SEER \approx 13–14 depending on application) with direct expansion, earth-friendly R-410A refrigerants. Units can also employ hot gas reheat and high-efficiency compressor/condensers or highly effective heat pump solutions that use air-cooled or water/geothermal loops.



Air Displacement Ventilation

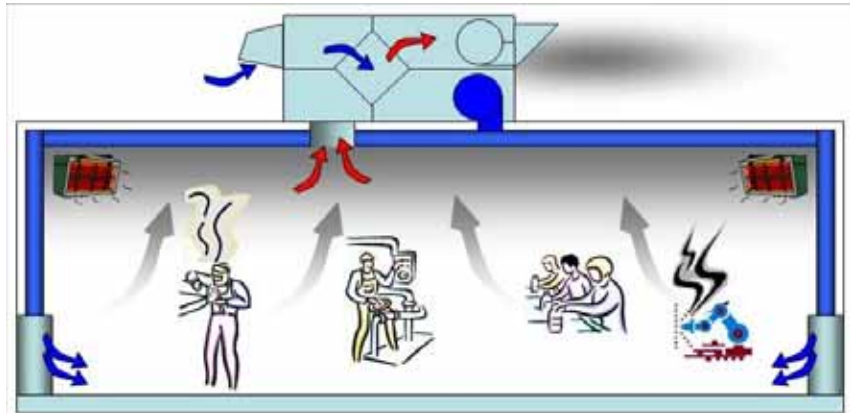
Energy recovery units are a crucial component in Air Displacement Ventilation systems.

Contaminated air is collected from the ceiling level and exhausted through the unit.

Outdoor air is pre-heated using the contaminated exhaust air. This fresh supply air is then delivered to the floor level at low velocity.

Make-up heating is provided by a radiant/static heat source located in-floor or overhead.

Occupants enjoy the fresh air cushion at the working level while hot, contaminated air collects near the ceiling and is exhausted.



Recommended for 15 foot high ceilings or greater.

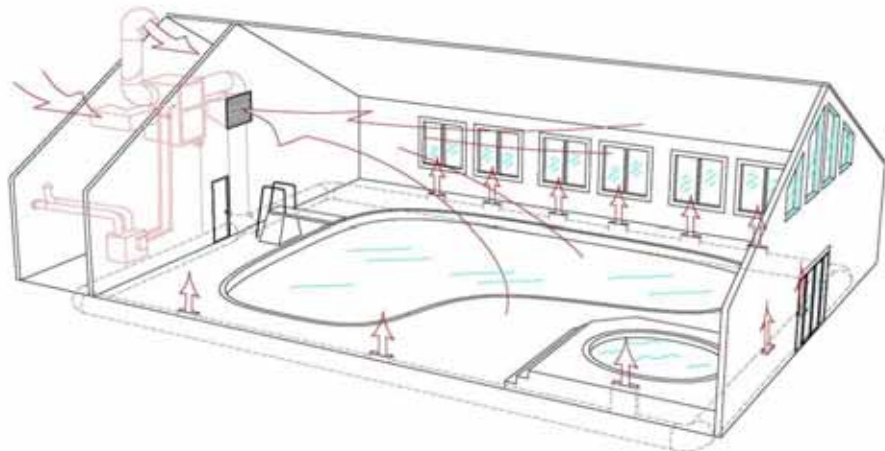
Water Park, Swimming Pool, Natatorium Ventilation

The air in your pool space should be as clean and fresh as the air outdoors.

Energy recovery ventilation dehumidifies the air in the room and keeps it fresh.

Stale moist air collects near the ceiling and is exhausted through the unit.

Outdoor air is (pre) heated and supplied near the windows and walls, not over the pool water.



Heat Pump Air Conditioning and Modular Construction

This unit was built to meet several unique job requirements. First, the customer wanted to use heat pumps to provide winter heating and summer cooling and reheat. XeteX was able to provide all the necessary components—including DX and Hot Gas Reheat coils, compressors, and valves, as well as all plumbing, wiring, and controls—and build them all into one, packaged unit. But in order to fit the unit into an existing indoor mechanical room, the customer also required that it be delivered in separate modules for final assembly on-site. To keep the modules within the specified dimensions, XeteX built the unit in five separate sections, even though this required splitting the heat pump circuit between two modules. When put together with its Series-R heat wheel module, this unit shows that there’s always room for total energy recovery.



Modular construction with five sections

Performance Specification

Model: **AHR-1750-CD-HP**
 Supply cfm: 7,020
 Exhaust cfm: 6,320
 Built: February, 2008
 Dimensions: 78" H, 156" L, 76" W
 Weight: 4,300 lbs
 Energy 462 MBH (Winter)
 Recovered: 295 MBH (Summer)
 Design -10 °F / 100% RH (Winter)
 Conditions: 95 °F / 45% RH (Summer)



From left: The end section contains the OA damper; the next section contains the exhaust blower (top) and OA filter rack (bottom); the middle section houses the heat wheel; the next section contains the DX and Hot Gas Reheat coils (bottom) and two compressors (top); and the last section houses the twin supply blowers (bottom) and another two compressors (top).

Unit Features

- A Series-R Rotary Heat Exchanger operates at 74% effectiveness under Winter Design Conditions and at 65% effectiveness in Summer.
- The Double Wall cabinet has an 18 gauge Galvanealed Steel Exterior, 22 gauge Galvanized Interior, and 2" thick Fiberglass Insulation. Frame is Welded Structural Steel. Cabinet features modular construction for final assembly on-site.
- FC DWDI Blowers (10" twin supply, 15" exhaust) are belt driven by Premium Efficiency, NEMA Frame, ODP, motors (7.5 hp supply, 5 hp exhaust). The blowers are mounted on common frames and have 1" Spring isolators and Flexible Duct Connections.
- A packaged Heat Pump provides 303 MBH cooling and 175 MBH Hot-Gas Reheat. In winter, this system provides 285 MBH of heating.
- Unit includes OA and EA dampers and full controls for all unit components and systems.

Flexibility in Pool Unit Design

This unit provides total air conditioning with energy recovery for a large health center and swimming pool facility. The entire interior, including drain pans and blowers, was coated with Heresite to protect it from the corrosive pool environment. The exchanger itself has corrosion-resistant epoxy-coated plates and a powder-coated frame. In addition to corrosion resistance, the customer had several other custom requirements. To meet them, XeteX designed and built the unit with a cold water coil bypass damper and a preheat coil used for exchanger frost control. The unit was then delivered ready for configuration by the customer's controls contractor. In the end, XeteX was able to provide the design and manufacturing flexibility to satisfy all the customer's custom requirements.



The Finished and Installed PXHS

Performance Specification

Model:	PXHS-80-96-RT-BP- CW-HD-HW
Supply cfm:	27,000
Exhaust cfm:	27,000
Built:	December, 2008
Dimensions:	132" H, 372" L, 132" W
Weight:	26,500 lbs
Energy Recovered:	2,307 MBH (Winter) 292 MBH (Summer)
Design Conditions:	-15 °F / 100% RH (Winter) 95 °F / 43% RH (Summer)



Heresite-Coated Cabinet Interior and Epoxy-Coated Exchanger



Heresite-Coated Blower and Cage



Cooling coil and Heresite-coated drain pans

Unit Features

- An XLT Type H Aluminum Flat Plate Exchanger operates at 63% effectiveness under summer conditions and 83% under winter.
- The Double Wall cabinet has an 18 gauge Epoxy-Coated Galvanealed Steel Exterior, 22 gauge Galvanized Interior, and 2" thick Fiberglass Insulation. Frame is Welded Structural Steel.
- The 36" quiet Air Foil Plenum blowers are belt driven by Premium Efficient 40 hp (supply) and 30 hp (exhaust) motors.
- A Cold Water coil provides 900 MBH cooling and a Modulating Direct Fired Furnace provides 1500 MBH heat. An additional Hot Water coil provides 797 MBH of pre-heat.

Packaged DX for a School

This unit was built with a complete, on-board, packaged 410A refrigeration circuit including compressors, condensing section, DX coil, and Hot Gas Reheat. For winter heating, it also has an indirect gas-fired furnace. The components, plumbing, wiring, and controls for all these systems were installed at the factory. The unit was built for a school in Connecticut to provide year-round total air conditioning, and with the combination of energy recovery, 410A high-pressure refrigerant, and airfoil blowers it is one of the most energy efficient units available.

Performance Specification

Model:	XHS-30G-48-RT-BP- CD-HI-AC
Supply cfm:	4,490
Exhaust cfm:	4,280
Built:	July, 2008
Dimensions:	70" H, 228" L, 72" W
Weight:	8,000 lbs
Energy Recovered:	209 MBH (Winter) 48 MBH (Summer)
Design Conditions:	0 °F / 100% RH (Winter) 92 °F / 49% RH (Summer)



Unit Features

- An XLT Type H Aluminum Flat Plate Exchanger operates at 64% effectiveness under Winter Design Conditions and at 60% effectiveness in Summer.
- The Double Wall cabinet has an 18 gauge Painted Galvanealed Steel Exterior, 22 gauge Galvanized Interior, and 1½" thick Fiberglass Insulation. Frame is Welded Structural Steel.
- 16" Quiet Air Foil Plenum Blowers are belt driven by Premium Efficiency, NEMA Frame, ODP, motors (7.5 hp supply, 5 hp exhaust). The blowers are mounted on common frames and have 1" Seismic Spring isolators and Flexible Duct Connections.
- A packaged 410A DX circuit provides 286 MBH cooling and 70 MBH Hot-Gas Reheat.
- An Indirect Gas-Fired Furnace provides 400 MBH of winter heating capacity.
- Outside Air Shut-Off, Outside Air Face-and-Bypass, Recirculation, and Exhaust Air Backdraft Dampers and Actuators are included.
- Single Point Power Terminal Blocks, Main Disconnect, Protected Branch Circuits, and other electrical equipment are accessed in an Electrical Panel.

Improving Indoor Air Quality on the Casino Floor

For casinos, maintaining guest comfort can be a challenge, especially when the indoor air is filled with smoke. Keeping this air clean means using large volumes of outdoor air, typically around 20 or more air changes per hour. Cooling and dehumidifying this air in warm, moist climates or heating it in cooler climates can lead to a huge energy bill. This unit uses energy recovery to reduce energy costs and both hot and chilled water coils to keep guests comfortable.



Electrical Panels located on the end of the unit

Performance Specification

Model:	XHR-80-72-RT-BP-CW-HW
Supply cfm:	32,000
Exhaust cfm:	32,000
Built:	Dec, 2008
Dimensions:	132" H, 510" L, 126" W
Weight:	26,500 lbs
Energy Recovered:	1,671 MBH (Winter) 308 MBH (Summer)
Design Conditions:	-20 °F / 99% RH (Winter) 95 °F / 47% RH (Summer)



Unit Features

- An XLT Type H Aluminum Flat Plate Exchanger operates at 77% effectiveness under Winter Design Conditions and at 64% effectiveness in Summer.
- The Double Wall cabinet has an 18 gauge Painted Galvanealed Steel Exterior, 22 gauge Galvanized Interior, and 2" thick Fiberglass Insulation. Frame is Welded Structural Steel.
- 40" Quiet Air Foil Plenum Supply Air Blower is belt driven by a Premium Efficiency, NEMA Frame, TEFC, 40 hp motor. 33" Air Foil Plenum and 15" FC DWDI Exhaust Air Blowers are belt driven by Premium Efficiency, NEMA Frame, TEFC 10 and 20 hp motors, respectively. The blowers are mounted on common frames and have 2" Spring isolators.
- A Cold Water Coil provides 1705 MBH, or 142 tons of cooling capacity.
- A Hot Water Coil provides 1900 MBH of heating and reheat capacity.
- Outside and Exhaust Air Shut-Off, Outside Air Face-and-Bypass, Recirculation, and Exhaust Air Backdraft Dampers and Actuators are included.
- Single Point Power Terminal Blocks, Main Disconnect, Protected Branch Circuits, and other electrical equipment are accessed in an Electrical Panel. Unit is ETL Listed.

Fresh Air Ventilation for the New Education Wing

Not every job requires an enormous amount of equipment. This unit and two others like it were used to ventilate a high school addition in eastern Pennsylvania. The low-profile, horizontal configuration works well for roof-top applications, reducing un-slightly equipment profiles while providing clean and easy duct connections through the bottom of the unit. The hot water coil, also plumbed through the curb, provides additional make-up heat during the coldest winter periods. The Heat-X-Changer makes outdoor air ventilation possible without breaking the school's facilities and operating budget.



Performance Specification

Model: **IAQ-4000-RT-BP-HW**

Supply cfm: 3,000

Exhaust cfm: 3,000

Built: February 2007

Dimensions: 39" H, 144" L, 68" W

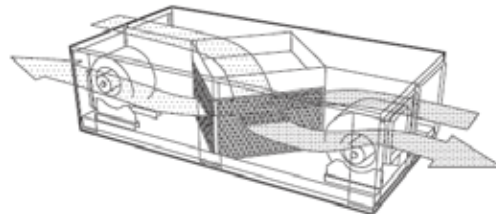
Weight: 3,000 lbs

Energy 139 MBH (Winter)

Recovered: 41 MBH (Summer)

Design 4 °F / 45% RH (Winter)

Conditions: 95 °F / 40% RH (Summer)



Unit Features

- XLT-40-24 Aluminum, Flat Plate Heat Exchanger
- 12" Heavy Duty, Forward Curved, DWDI Blowers driven by Premium Efficiency Motors (3hp supply / 2hp exhaust) mounted on RIS Isolators
- Heavy Duty Double Wall with Enamel Painted Galvanized Steel Exterior (16 ga) and Galvanized Steel Interior (22 ga); 2" Thick Fiberglass Insulated; All Welded Structural Steel Base Frame with Integral Lifting Lugs
- Configured for Outdoor, Rooftop installation with 18" Roof Curb, Slopped Cabinet Roof with Capped Seams, and Intake and Exhaust Hoods
- 280 MBH Hot Water Coil
- 4" 30/30 Outside Air and Return Air Filters
- Outside and Exhaust Air Shut-Off, Face and Bypass, and Recirculation Dampers
- Galvanized Steel Drain Pan
- Frost Control and Warm Weather Economizer
- Complete with Motor Starters and Breakers; Disconnect; and Single Point Power Connection

Add Energy Recovery to Any HVAC System

This simple unit was built for an elementary school in Virginia. Consisting of just a flat plate heat exchanger, face-&-bypass damper and actuator, cabinet, and simple analog damper controls, it complements the primary heating and cooling equipment provided by others. This simple design makes it possible to add energy recovery to any new or existing HVAC system and allows the customer and engineer the flexibility to use other equipment from any desired manufacturer—and in this case, the pay off was big. The XeteX unit pre-warms the winter air from 10 °F to 47 °F, and in summer it pre-cools the air from 95 °F to 83 °F. This dramatically reduces the load on the primary heating and cooling equipment and results in savings for the building owner every month of the year.

Performance Specification

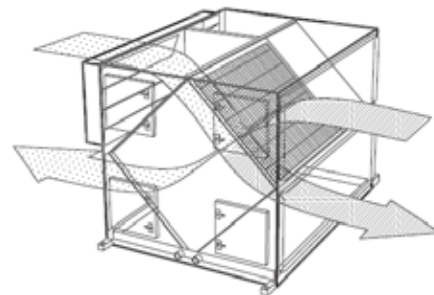
Model:	XC-60-60-BP-FD
Supply cfm:	12,175
Exhaust cfm:	10,750
Built:	February, 2009
Dimensions:	120" H, 96" L, 86" W
Weight:	4,500 lbs
Energy Recovered:	490 MBH (Winter) 156 MBH (Summer)
Design Conditions:	10 °F / 15% RH (Winter) 95 °F / 40% RH (Summer)



The completed XC Unit with Face-and-Bypass Damper visible through outdoor air opening



Exchanger, with bypass air channel on the left



Unit Features

- An XLT Type H Aluminum Flat Plate Exchanger operates at 66% effectiveness under Summer Design Conditions and at 69% effectiveness in Winter.
- The Double Wall cabinet has an 18 gauge Galvanealed Steel Exterior, 22 gauge Galvanized Interior, and 2" thick Fiberglass Insulation. Frame is Welded Structural Steel.
- Frost control is accomplished by the provided Face-&-Bypass damper, actuators, temperature sensors, and analog controls.

Total Energy Recovery for Every Application

No job is too big or too small for total energy recovery. This unit was built for a gymnasium in Quebec. Although only sized for 1,367 cfm, the Series-R heat wheel can still save the customer a significant amount of energy. At winter design conditions, the wheel operates at 71% effectiveness, recovering 138 MBH. Even in summer, the wheel recovers 26 MBH of dehumidification and cooling. With Premium Efficiency motors, this unit took advantage of every opportunity to cut operating costs. To meet another customer requirement, Xetex had this unit C-ETL listed according to the Canadian standard.



Heat Wheel and Filters

Performance Specification

Model: **AHS-850-RT**
Supply cfm: 1,367
Exhaust cfm: 1,367
Built: October, 2007
Dimensions: 42" H, 90" L, 46" W
Weight: 1,200 lbs
Energy Recovered: 138 MBH (Winter)
26 MBH (Summer)
Design Conditions: -20 °F / 100% RH (Winter)
84 °F / 60% RH (Summer)



Unit Features

- A Series-R Rotary Heat Exchanger operates at 71% effectiveness under Winter Design Conditions and at 59% effectiveness in Summer.
- The Heavy Duty cabinet has an 18 gauge Painted Galvanealed Steel Exterior and 1" thick Foil-Lined Fiberglass Insulation. Frame is Welded Structural Steel.
- 10"-8" FC DWDI Blowers are belt driven by Premium Efficiency, NEMA Frame, ODP, motors (0.75 hp supply, 1.0 hp exhaust). The blowers are mounted on common frames and have RIS isolators and Flexible Duct Connections.
- Unit includes OA and EA shutoff dampers and full controls for all components and systems.
- C-ETL Listed to meet Canadian customer's requirements.

Customized Cooling of Electrical Equipment

Building ventilation is not the only application for energy recovery. XeteX works with industrial OEMs to design custom solutions for process heating and cooling. This unit was developed to provide cooling for industrial-scale variable frequency drives used in coal mining. The XeteX unit replaced mechanical cooling and achieved the desired cooling at one tenth the operating cost, resulting in a pay-back period of just a few months.

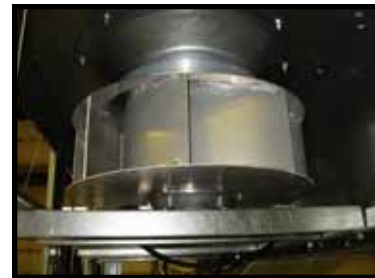
Requiring no changes to the original drive equipment, these units were designed to bolt directly onto the existing drive cabinets. The highly efficient, double-pass heat exchanger removes 76.9 kW of heat even under the worst hot summer conditions while consuming only 6.67 kW of fan power. The fully sealed, epoxy coated heat exchangers withstand the corrosive industrial environment and maintain the required clean-room quality air used to cool the drive equipment. The primary and redundant blowers were wired to interface with the pre-existing VFD controls making the XeteX unit a plug-and-play system.



The VFD bolts on to the back side. The double-pass heat exchanger configuration results in 80% heat transfer effectiveness.

Performance Specification

Model:	DXC-850
Supply cfm:	15,650
Exhaust cfm:	13,130
Built:	July 2004
Dimensions:	100" H, 174" L, 112" W
Weight:	8,000 lbs
Energy	927 MBH (Winter)
Recovered:	305 MBH (Summer)
Design	-10 °F / 47% RH (Winter)
Conditions:	90 °F / 45% RH (Summer)



Redundancy—two of the three blowers (BI and direct drive) in each bank operate at design conditions.

Unit Features

- Flat Plate Heat Exchanger is a Double-Pass, Epoxy Coated Aluminum, model XLT-34-90.
- 18" Backward Inclined Plenum Blowers are driven by NEMA Frame ODP, High Efficiency, Direct-Drive Motors on RIS Isolators.
- Heavy Duty Double Wall Cabinet has Galvanized Steel construction (18 ga Exterior, 22 ga Interior), 1" Thick Fiberglass Insulation, and a Welded Steel Frame with integral Lifting Lugs.
- Unit is Configured for Outdoor Installation with Capped Roof Seams.
- Outdoor Air Shut-Off Dampers are included.
- Drain Pan is Galvanized Steel.
- Exterior individual blower connections provide plug-and-play integration with external VFD control system.
- Electrical system includes Motor Starters, Disconnect, and Blower Connections.



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