# Models AHR, AHS, and AVR

**Packaged, roof mounted or indoor mounted, rotary air-to-air energy recovery ventilator featuring the AIRotor® Series–R™ heat wheel with standard effectiveness of 75% sensible and 65% latent. Suitable for large office buildings, schools, libraries, factories, hotels, etc.**


AHR-2250-RT-CD

AIRotor, LLC ®

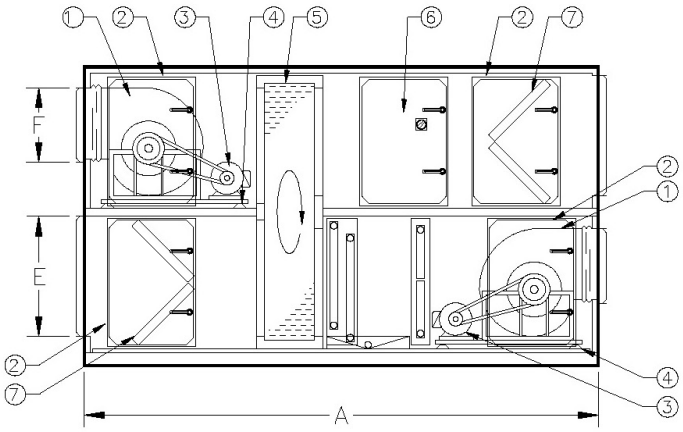
*Energy Recovery Wheel*

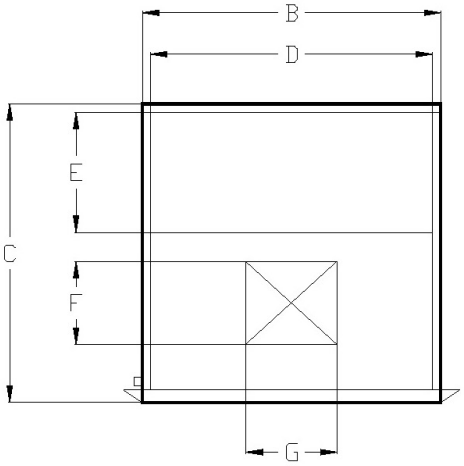
- The AHR features an over/under air flow configuration with the wheel perpendicular to the unit, ideal for indoor applications, providing service access from a single side.
- The AHS features a side-by-side, cross-over air flow configuration with the wheel parallel to the unit, ideal for rooftop applications with outside air (in) and exhaust air (out) at opposite ends, providing service access from both sides.
- The AVR features a side-by-side air flow configuration with the wheel perpendicular to the unit with flexible configurations (top, side, or end intake and discharge openings), ideal for both indoor and outdoor rooftop applications.

**www.xetexinc.com**

# Model: AHR

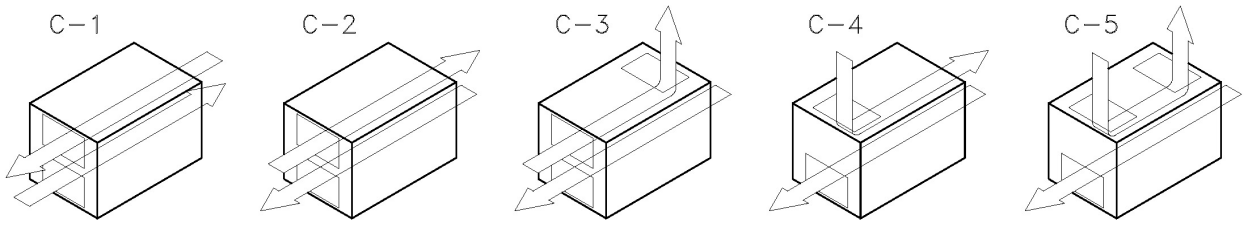
① FC DWDI BLOWER
② ACCESS DOOR WITH CAM-LOK LATCHES
③ NEMA ODP MOTORS
④ VIBRATION ISOLATORS
⑤ ALUMINUM ROTARY HEAT EXCHANGER
⑥ NEMA ELECTRICAL ENCLOSURE
⑦ 2" 30/30 TYPE PLEATED FILTERS (OA/RA)




| Model # | Dimension (Inches) | | | | | | | Max Blower | Est. Weight | Nominal CFM |
|---|---|---|---|---|---|---|---|---|---|---|
| | A | B | C* | D | E | F | G | | | |
| AHR-700 [1] | 82 | 36 | 37 | 32 | 14 | 11 | 12 | 9" FC | 1,000 | 1,000 |
| AHR-850 [1] | 108 | 46 | 42 | 42 | 16 | 11 | 12 | 9" FC | 1,400 | 1,500 |
| AHR-1100 [1] | 108 | 50 | 52 | 46 | 24 | 12 | 14 | 10" FC | 2,000 | 2,500 |
| AHR-1300 [1] | 122 | 60 | 64 | 56 | 26 | 14 | 16 | 12" FC | 2,250 | 3,500 |
| AHR-1600 [1] | 132 | 68 | 72 | 62 | 30 | 17 | 19 | 15" FC | 3,000 | 5,500 |
| AHR-1750 [1] | 132 | 76 | 78 | 66 | 32 | 20 | 23 | 18" FC | 3,400 | 6,500 |
| AHR-1900 [1] | 132 | 82 | 88 | 68 | 35 | 20 | 23 | 18" FC | 3,600 | 8,000 |
| AHR-2250 [2] | 144 | 96 | 100 | 90 | 45 | 28 | 28 | 22" FC | 5,500 | 12,500 |
| AHR-2500 [2] | 156 | 108 | 110 | 102 | 48 | 28 | 28 | 22" FC | 7,000 | 15,000 |
| AHR-2750 [2] | 168 | 116 | 120 | 110 | 54 | 32 | 32 | 25" FC | 8,000 | 17,500 |
| AHR-3000 [2] | 192 | 124 | 130 | 112 | 56 | 36 | 36 | 27" FC | 10,000 | 25,000 |

[1] Add 24" minimum to dim A for cooling coil section.
[2] Add 30" minimum to dim A for cooling coil section.
* Does not include custom height of Roof Curb.




Consult factory for other available configurations.

# Total Energy Recovery Up to 30,000 cfm

XeteX total energy recovery units are available up to 30,000 cfm with a non-sectioned heat wheel. This unit uses two backward inclined airfoil plenum blowers in each airstream to supply 29,150 cfm of air to a school. A hot water preheat coil is used in the supply air upstream of the heat exchanger so that the wheel can keep operating even when the outdoor temperature is well below freezing. With another hot water coil and premium efficiency blower motors, this unit provides fresh outdoor air ventilation and heating while also cutting building operating costs.

## *Performance Specification*

| | |
|---|---|
| Model: | **AHR–3000–RT–HW–SP** |
| Supply cfm: | 29,150 |
| Exhaust cfm: | 29,150 |
| Built: | August, 2005 |
| Dimensions: | 132" H, 252" L, 130" W |
| Weight: | 15,000 lbs |
| Energy Recovered: | 1,423 MBH (Winter)<br>881 MBH (Summer) |
| Design Conditions: | 10 °F / 15% RH (Winter)<br>82 °F / 62% RH (Summer) |

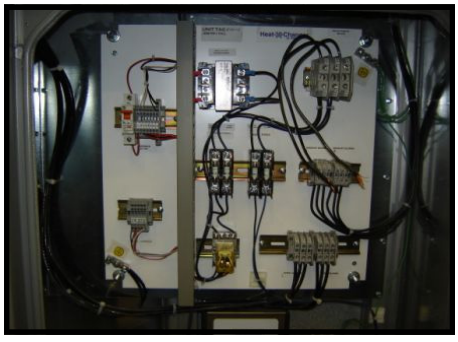
Unit being loaded onto a double-drop deck trailer for shipment.

## *Unit Features*

- AIRotor Series–R, RXA 3000 Hygroscopic Rotary Total Energy Recovery Exchanger is operated by an integrated VFD/Heat Wheel Control.
- 27" Backward Inclined, Airfoil Plenum Blowers (2 each Supply and Return), is belt driven by 25 hp (Supply) and 15 hp (Return) NEMA T-Frame ODP, Premium Efficiency Motors on Spring-Isolated Welded Frames.
- Outdoor Constructed Cabinet is Enamel Painted (Double Coated), 16 gauge Galvanealed Steel with 2" Insulated, 20 gauge Galvanized Double Wall Case and Hinged Access Doors.
- Outdoor Intake and Exhaust Discharge Hoods with Bird-Screens keep rain and debris out.
- 2" MERV 8 (30/30) Filters keep the unit and components clean (in both Airstreams) with additional 4" 85% Final Filters in the Supply Airstream.
- Hot Water Coils provide Pre-Heat (before the wheel) @ 663 MBH and Heating (after the wheel) @ 1,390 MBH.
- Shutoff Dampers with Actuators are provided for the Supply Air and Exhaust Air.

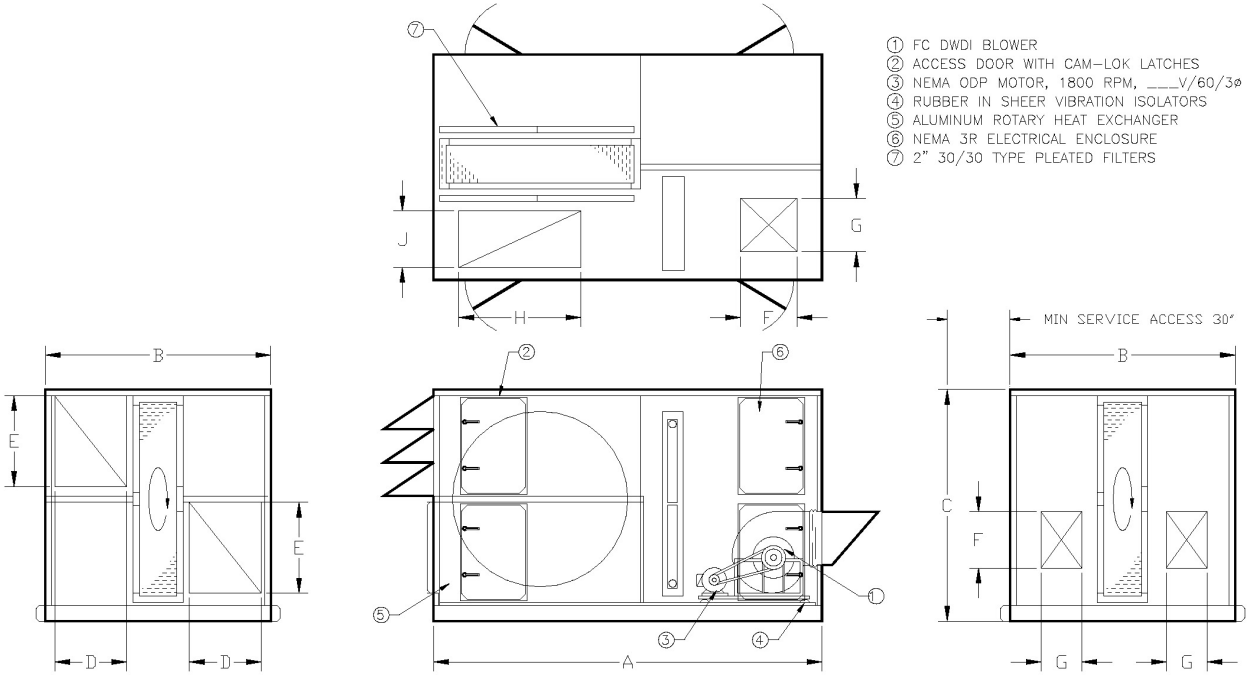
Dual blower and motor configuration

Filter and Damper Access



Single point power, Controls by others

# Model: AHS




| Model # | Dimension (Inches) | | | | | | | | | Max Blower | Est. Weight | Nominal CFM |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | A | B | C* | D | E | F | G | H | J | | | |
| AHS-700 [1] | 72 | 36 | 37 | 14 | 14 | 11 | 12 | 24 | 6 | 9" FC | 1,000 | 1,000 |
| AHS-850 [1] | 88 | 46 | 42 | 16 | 16 | 11 | 12 | 36 | 10 | 9" FC | 1,250 | 1,500 |
| AHS-1100 [1] | 96 | 50 | 52 | 18 | 22 | 12 | 11 | 48 | 12 | 10" FC | 2,000 | 2,500 |
| AHS-1300 [1] | 108 | 60 | 64 | 20 | 24 | 14 | 13 | 48 | 16 | 12" FC | 2,500 | 3,500 |
| AHS-1600 [1] | 122 | 68 | 72 | 24 | 28 | 17 | 15 | 54 | 18 | 15" FC | 3,000 | 5,500 |
| AHS-1750 [2] | 132 | 76 | 78 | 26 | 30 | 20 | 18 | 60 | 18 | 18" FC | 3,800 | 6,500 |
| AHS-1900 [2] | 144 | 82 | 88 | 28 | 34 | 20 | 18 | 64 | 20 | 18" FC | 3,800 | 8,000 |
| AHS-2250 [2] | 162 | 96 | 100 | 36 | 42 | 26 | 21 | 84 | 32 | 20" FC | 5,500 | 12,500 |
| AHS-2500 [2] | 192 | 108 | 110 | 44 | 48 | 28 | 21 | 94 | 38 | 22" FC | 7,000 | 15,000 |
| AHS-2750 [3] | 192 | 116 | 120 | 48 | 52 | 32 | 27 | 98 | 40 | 25" FC | 8,000 | 17,500 |
| AHS-3000 [3] | 216 | 124 | 130 | 48 | 60 | 36 | 28 | 98 | 40 | 27" FC | 10,000 | 25,000 |

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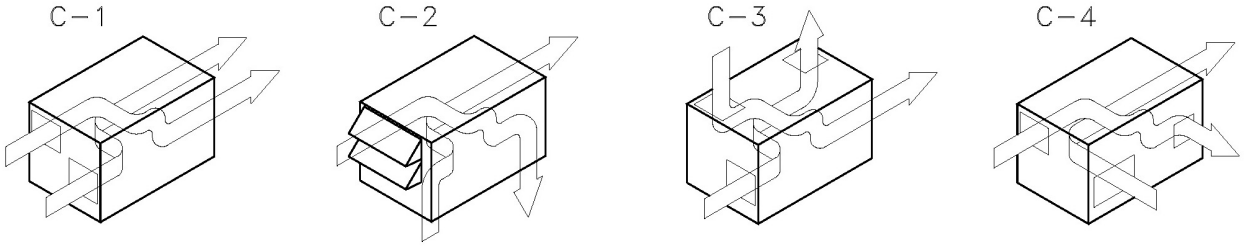
[2] Add 30" minimum to dim A for cooling coil section.

[3] Add 36" minimum to dim A for cooling coil section.

* Does not include custom height of Roof Curb.




Consult factory for other available configurations.

# Total Energy Recovery Even for Small Jobs

XeteX total energy recovery units use heavy-duty, 10" thick heat wheels to achieve very highly effective recovery of both heat and moisture. But these big heat wheels are not limited to just big jobs. This total energy recovery unit was built for a small school addition, keeping indoor air dry in the summer and comfortable in the winter. Even at this scale it remains cost-effective—cutting energy bills, saving the school money, and improving indoor air quality.

OA Damper and Filters

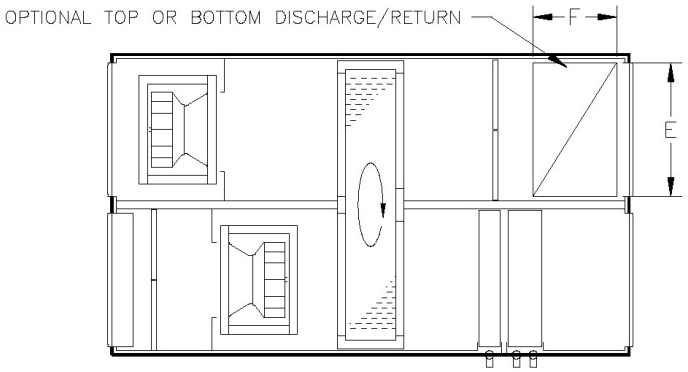
## *Performance Specification*

| | |
|---|---|
| Model: | **AHS–1300–RT** |
| Supply cfm: | 2,710 |
| Exhaust cfm: | 2,710 |
| Built: | March 2005 |
| Dimensions: | 64" H, 108" L, 60" W |
| Weight: | 2,500 lbs |
| Energy Recovered: | 191 MBH (Winter)<br>62 MBH (Summer) |
| Design Conditions: | –6 °F / 90% RH (Winter)<br>87 °F / 46% RH (Summer) |

## *Unit Features*

- AIRotor Series–R, RXA 1300 Hygroscopic Rotary Total Energy Recovery Exchanger
- Forward curved, DWDI, belt driven by NEMA Frame ODP, High Efficiency, Isolated Motors
- Heavy Duty 18 ga Enamel Painted Galvanized Steel Cabinet with Double Wall Access Panels, 1" Thick Fiberglass Insulated; with Welded Steel Frame and Lifting Lugs
- Configured for Outdoor, Rooftop installation with Roof Curb, Slopped Cabinet Roof with Capped Seams, and Intake and Exhaust Hoods
- 2" MERV 8 (30/30) Outside Air and Return Air Filters
- Outside Air Shut-Off and Exhaust Air Backdraft Dampers
- Frost Control, Economizer, and Seasonal Changeover
- Complete with Motor Starters and Breakers; Disconnects; Fused Branch Circuits; and Single Point Power Connection

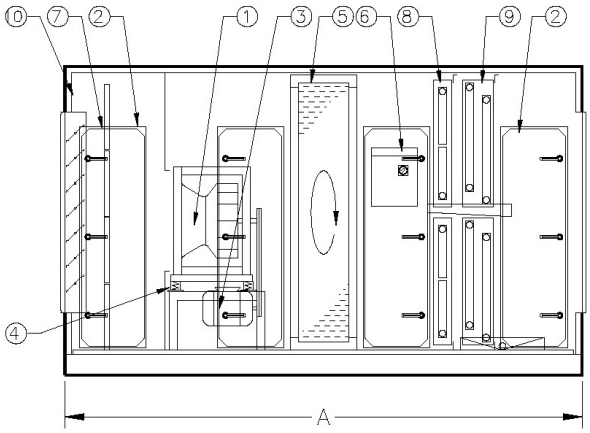
# Model: AVR

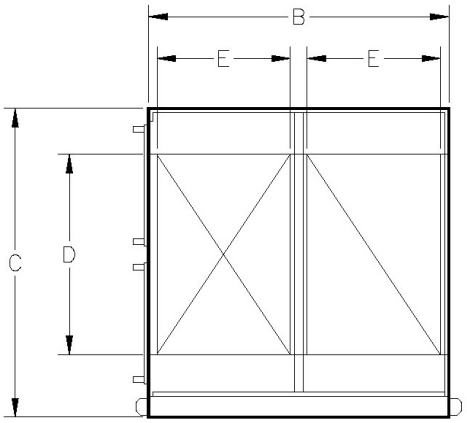



① HEAVY DUTY BLOWERS
② ACCESS DOOR WITH CAM–LOK LATCHES
③ NEMA ODP MOTORS
④ VIBRATION ISOLATORS
⑤ ALUMINUM ROTARY HEAT EXCHANGER
⑥ NEMA ELECTRICAL ENCLOSURE
⑦ 2" 30/30 TYPE PLEATED FILTERS (OA/RA)

OPTIONS

⑧ HOT WATER OR STEAM COIL
⑨ CHILLED WATER OR DX COIL
⑩ SHUT–OFF DAMPER




| Model # | Dimension (Inches) | | | | | | Blower Size | Est. Weight | Nominal CFM |
|---|---|---|---|---|---|---|---|---|---|
| | A | B | C* | D | E | F | | | |
| AVR-700 [1] | 82 | 34 | 34 | 24 | 21 | 20 | 9" FC | 1500 | 1000 |
| AVR-850 [1] | 82 | 46 | 40 | 30 | 21 | 20 | 10" FC | 1800 | 1500 |
| AVR-1100 [1] | 108 | 56 | 54 | 40 | 24 | 24 | 12" FC | 3000 | 2500 |
| AVR-1300 [1] | 108 | 62 | 64 | 44 | 26 | 28 | 13" FC | 3500 | 3500 |
| AVR-1600 [1] | 122 | 74 | 72 | 48 | 32 | 30 | 16" FC | 4500 | 5500 |
| AVR-1750 [2] | 132 | 80 | 78 | 50 | 34 | 30 | 18" FC | 6000 | 6500 |
| AVR-1900 [2] | 144 | 84 | 88 | 56 | 36 | 36 | 20" FC | 6000 | 8000 |
| AVR-2250 [2] | 156 | 108 | 100 | 72 | 46 | 44 | 27" FC | 8500 | 12500 |
| AVR-2500 [2] | 168 | 112 | 112 | 84 | 48 | 44 | 30" FC | 9500 | 15,000 |
| AVR-2750 [3] | 192 | 124 | 122 | 96 | 56 | 48 | 36" FC | 11,000 | 17,500 |
| AVR-3000 [3] | 216 | 124 | 130 | 96 | 56 | 48 | 40" FC | 13,000 | 20,000 |

[1] Add 24" minimum to dim A for cooling coil section.
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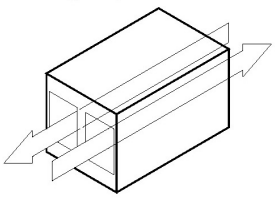
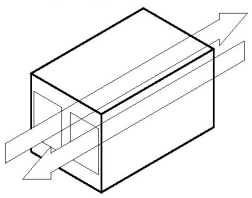
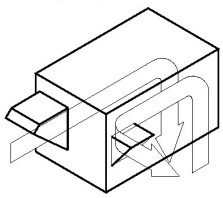
C–1



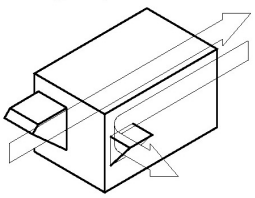
C–2



C–3



C–4



Consult factory for other available configurations.

# Total Energy Recovery for a School Addition

This unit provides total energy recovery and outdoor air ventilation for a school. The heat wheel unit transfers both heat and humidity, keeping the indoor space dry in the summer and maintaining a comfortable moisture level in the winter. With its integral gas fired furnace, this unit satisfies all the air conditioning needs for the students and instructors.

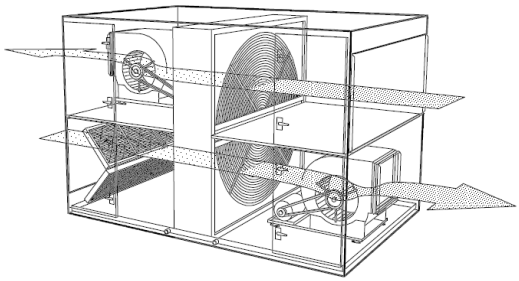
## *Performance Specification*

| | |
|---|---|
| Model: | **AVR–2250–HI** |
| Supply cfm: | 15,650 |
| Exhaust cfm: | 13,130 |
| Built: | July 2004 |
| Dimensions: | 100" H, 174" L, 112" W |
| Weight: | 8,000 lbs |
| Energy Recovered: | 927 MBH (Winter)<br>305 MBH (Summer) |
| Design Conditions: | –10 °F / 47% RH (Winter)<br>90 °F / 45% RH (Summer) |

## *Unit Features*

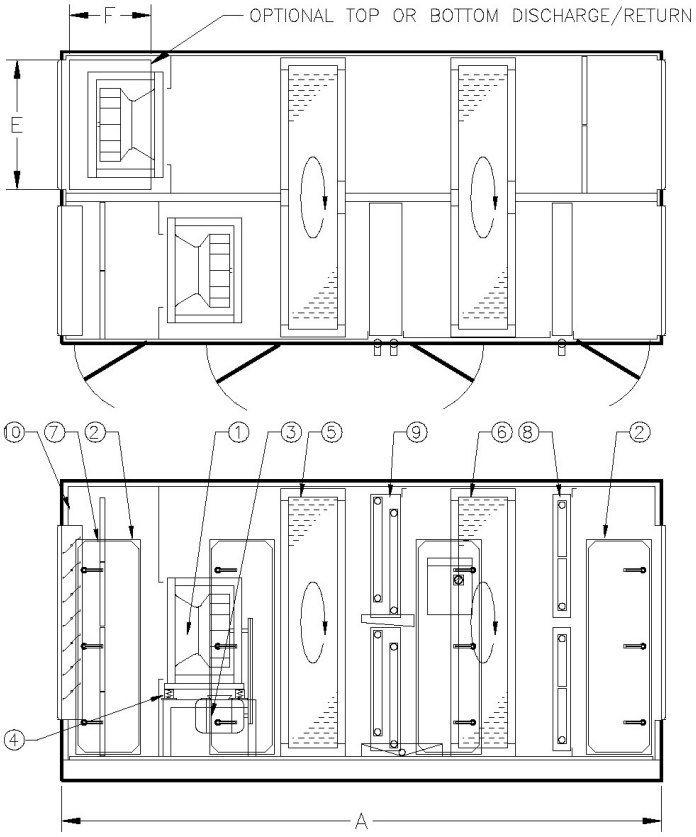
- AIRotor Series–R, RXA 2250 Hygroscopic Rotary Total Energy Recovery Exchanger
- 33” Heavy Duty, Spring Isolated, Backward Inclined Airfoil Plenum Blowers with NEMA Frame ODP, Premium Efficiency Motors
- Heavy Duty Double Wall (18 ga / 22 ga), 2" Thick Fiberglass Insulated, Galvanized Steel Cabinet
- Outside Shutoff and Exhaust Backdraft Dampers
- 813 Mbtu Indirect (Tube) Gas Fired Furnace
- 2" MERV 8 (30/30) Outside Air and Return Air Filters
- Configured for Indoor installation
- ETL Listed

15hp Exhaust Air Blower



Supply Air (on left w/gas fired furnace) and Return Air (on right) through the heat wheel

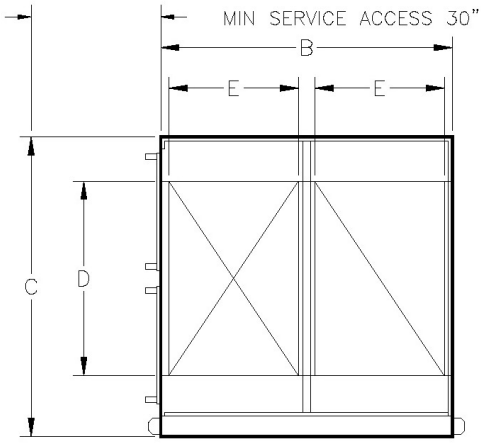
# Model: AVR-XD




① HEAVY DUTY BLOWERS
② ACCESS DOOR WITH CAM-LOK LATCHES
③ NEMA ODP MOTORS
④ VIBRATION ISOLATORS
⑤ HYGROSCOPIC ROTARY HEAT EXCHANGER
⑥ SENSIBLE ROTARY HEAT EXCHANGER
⑦ 2" 30/30 TYPE PLEATED FILTERS (OA/RA)

OPTIONS

⑧ HOT WATER OR STEAM COIL
⑨ CHILLED WATER OR DX COIL
⑩ SHUT-OFF DAMPER




| Model # | Dimension (Inches) | | | | | | Blower Size | Est. Weight | Nominal CFM |
|---|---|---|---|---|---|---|---|---|---|
| | A | B | C* | D | E | F | | | |
| AVR-850XD [1] | 108 | 56 | 40 | 30 | 21 | 20 | 10" FC | 2,500 | 1,700 |
| AVR-1100XD [1] | 144 | 62 | 54 | 40 | 24 | 24 | 12" PF | 3,500 | 3,300 |
| AVR-1300XD [1] | 144 | 74 | 64 | 44 | 26 | 28 | 13" PF | 4,500 | 4,000 |
| AVR-1600XD [1] | 162 | 84 | 74 | 48 | 32 | 30 | 16" PF | 5,500 | 6,000 |
| AVR-1750XD [2] | 162 | 92 | 80 | 52 | 32 | 34 | 20" PF | 7,000 | 8,000 |
| AVR-1900XD [2] | 162 | 98 | 90 | 56 | 36 | 36 | 20" PF | 7,000 | 8,000 |
| AVR-2250XD [2] | 192 | 112 | 100 | 72 | 46 | 44 | 27" PF | 9,500 | 13,000 |
| AVR-2500XD [2] | 210 | 124 | 112 | 84 | 48 | 44 | 30" PF | 11,000 | 17,000 |
| AVR-2750XD [3] | 240 | 132 | 122 | 96 | 56 | 48 | 36" PF | 12,500 | 20,000 |

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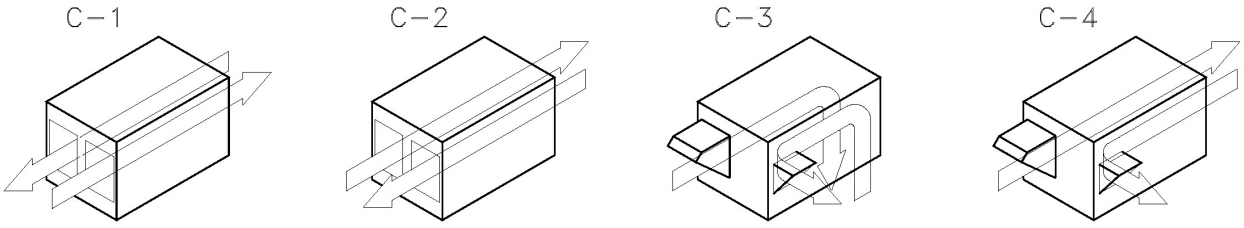


Consult factory for other available configurations.

# Total Energy Recovery with Geothermal Heat Pumps

This unit and another like it are dedicated outdoor air energy recovery ventilation units, providing all of the air handling and conditioning needs of the 105,000 square foot Maple Grove, MN Government Center. Heating and cooling are provided by an array of heat pumps sourced by two closed loop systems. The primary loop operates within the exterior walls of the building and the other uses hydro-thermal energy from a water run-off pond.

## *Performance Specification*

| | |
|---|---|
| Model: | **AVR–2000–XD–CW** |
| Supply cfm: | 10,000 |
| Exhaust cfm: | 9,000 |
| Built: | March 2000 |
| Dimensions: | 94" H, 234" L, 108" W |
| Weight: | 8,500 lbs |
| Energy Recovered: | 940 MBH (Winter)<br>635 MBH (Summer) |
| Design Conditions: | –17 °F / 100% RH (Winter)<br>91 °F / 48% RH (Summer) |

## *Unit Features*

- 2 AIRotor Heat Wheels: Hygroscopic Wheel operates at 70% Winter Effectiveness recovering 940 MBH and 65% Summer Effectiveness recovering 384 MBH. Sensible Wheel operates at 70% Summer Effectiveness recovering 251 MBH for Reheat.
- Heavy Duty 18 Gauge Galvanized Steel Case, Posts, Corners, and 2" Insulated Double-Wall Construction on a Welded Structural Steel Frame w/ Integral Lift Lugs, and All-Welded Steel Drain Pans.
- 27" SWSI BI Plenum Blowers Powered by High-Efficient ODP Belt-Drive VFD-Controlled Motors (25 hp Supply, 15 hp Exhaust) Mounted on Spring Isolators.
- Dual Purpose Water Coil provides 353 MBH Heating and 434 MBH Cooling.
- Unit includes Dampers, Filters, and Full Temperature Operation for Economizer, Summer Recovery, and Frost Control.

# Model AHR/AHS/AVR Unit Specification

Contractor shall provide a Model [AHR, AHS, AVR, AVR-XD] packaged, [roof mounted or indoor mounted], rotary air-to-air energy recovery ventilator as manufactured by XeteX, Inc. Unit to include an AIRotor Series–R rotary exchanger, supply air and exhaust air blowers, motors with starters and relays, air filters, and specified options.

Unit shall have a welded structural steel base frame with integral lifting lugs. Frame shall be coated with rust inhibiting paint. Lower floor shall have a sub-floor of 22 gauge galvanized steel, formed structural supports with rigid closed cell load-bearing insulation under blowers and components, and an interior floor of 16 gauge galvanized steel.

Cabinet frame exterior shall be of formed 18 gauge (minimum) galvanized steel. Panels (fixed and access) to be of 18 gauge galvanized steel. Frame and panels to have [double-wall construction with [1", 1.5", or 2"] thick, 3# density, hardboard fiberglass insulation; internal liner of 22 gauge (minimum) galvanized steel—or: single-wall AHS with [1", 1.5"] thick, 3# density, hardboard fiberglass insulation; reinforced aluminum lining secured with metal fasteners and sealed with aluminum tape]; and silicone sealant to provide a complete vapor barrier and non-contaminating surface to all airstreams. Framing and panels of dissimilar metals that could create a galvanic effect are not allowed. Optional fully painted exterior with 2 coats minimum of High Performance Acrylic over galvanealed sheet metal. Optional fully painted interior with 2 coats minimum of epoxy over galvanealed sheet metal. Drain pans shall be 18 gauge galvanized steel, double sloped with welded seams and MPT connections—optional epoxy or Heresite over galvanealed or all stainless steel construction. Cooling coil sections will have epoxy coating or stainless steel construction standard, double sloped with MPT connections. If provided, flat plate exchanger sections shall have a full width drain pan minimum 3" deep with drains on supply and exhaust air plenums. Heat wheel sections shall not require drain pans.

Provide access to all exchanger surfaces, blowers, motors, and filters, through double walled, hinged, and gasketed access doors. Doors shall be held closed by a minimum of two roller cam latches. Continuous hollow rubber gasket shall be applied to all access openings to provide water and airtight seals. Door hinges shall be galvanized steel (optional—stainless steel).

The AIRotor Series–R air-to-air heat exchanger shall have the following features:

- Exchanger rotor shall be 10" deep, constructed of alternate layers of corrugated and flat aluminum.
- Enthalpy wheels shall be coated with a corrosion-prohibiting, non-migrating, permanently-bonded desiccant adsorbent specifically developed for the selective transfer of water vapor.
- The air channels shall be formed smooth to ensure laminar airflow for low pressure drops and allow free passage of particles up to 900 microns in diameter.
- Rotor structure shall be internally reinforced and mounted on flange type bearings.
- The rotor shall also be removable from the frame.
- Brush seals shall be provided around the periphery of the rotor and between the inlet and outlet air passages to effectively prevent air leakage and cross contamination between airflows.
- An adjustable purging sector shall be installed to prevent carryover of contaminated exhaust air into the supply airstream.
- Cross contamination shall be verified in writing by an independent laboratory confirming that the desiccant surface freely transmits water vapor without detectable gaseous cross contamination.
- Sensible and latent recovery performance and leakage must be clearly measured and certified through ARI in accordance with the 1060 Standard.
- Factory mounted electronic speed control shall provide soft-start/stop, rotation detection and alarm, and self-cleaning jog functions. [Optional DDC Package for full temperature control providing frost protection and economizer functions. Includes DDC panel, adjustment keypad, and four temperature sensors, one for each air stream.]

Blowers shall be [AHR/AHS: forward curved, DWDI, class I, and arranged in a draw through configuration relative to exchanger for quiet efficient operation; AVR: non overloading, plenum type, class I or II, with backward inclined airfoil blades, and arranged in a draw-through exhaust air, blow-through supply air configuration relative to the exchanger for efficient operation]. Motors shall be premium efficiency (optional high efficiency), NEMA frame [optional T-frame], ODP, nominal 1,750 rpm (optional 3,500 rpm), 1.15 service factor minimum, and mounted on an adjustable base. Motor and blower are to be mounted on a common frame, isolated from the unit case with RIS isolators (optional spring or seismic isolator) and flexible duct connections. Motors and blowers shall have V-belt drives with variable pitch sheaves on motors up to 10 hp and fixed sheaves on motors above 10 hp.

Electrical controls shall include motor starters with overloads, fuses, control transformer for low voltage controls, service switch, and terminal points.

Outdoor air and return air filters shall be 2" pleated 30/30 type. Filters shall be mounted within unit in galvanized holding frames upstream of exchanger and accessible through access panels.

Dampers shall have heavy duty extruded aluminum frames and 4" extruded aluminum air-foil blades mounted on brass shafts and supported and inter-connected by nylon gears. Low leakage dampers shall have hollow rubber jamb seals built into both the blades and the frame. The side casings shall enclose the gears with ABS plastic covers that also serve as seals in the closed position. Outside air dampers shall be mounted on the inlet of the unit and operated by a spring return direct-coupled actuator with an end switch to be interlocked with the supply air motor relay. Exhaust air backdraft damper to be parallel blade. Recirculation air dampers shall be mounted between the return air and the supply air streams and operated by a direct-coupled actuator.

Weatherized outdoor construction shall include sloped roof panels with rain gutters that overhang the sidewalls to shed water away from access panels, capped roof seams, intake and exhaust weather hoods with bird-screens, outside air shut-off damper, and exhaust air backdraft damper. Secondary roof panels that could trap moisture are not allowed. Roof curb shall be 16 gauge (minimum) galvanized steel with additional supports and cross members as needed. Curb to have 1.5" thick fiberglass insulation and wood nailer.