



M2 Series



MODULAR AIR HANDLING UNITS, SELF-CONTAINED UNITS, & WATER-SOURCE/ GEOTHERMAL HEAT PUMPS



Features:

- 1,000 to 21,600 cfm with overlapping cabinet sizes for application flexibility
- Double wall rigid polyurethane foam injected panel construction reduces air leakage and dampens resonated sound
- Direct expansion (DX) or chilled water cooling
- Air-source heat pumps available with or without factory installed gas, electric, hot water, or steam heating for dual fuel applications
- Water-source heat pump module for a packaged heating & cooling system
- Backward curved plenum supply fans
- Power return, power exhaust, and energy recovery wheel configurations
- Service access doors with removable pin hinges and lockable handles
- Labeled components for quick and easy installation
- Matching air-cooled condensing units available for a complete split system solution

Application Flexibility
Minimizes Installation Time and Reduces Cost

- *Makeup Air Applications Up to 100% Outside Air*
- *Dehumidification and Premium Filtration Capabilities*
- *A Wide Variety of Factory Installed Features*
- *Comfort or Process Heating and Cooling*

M2 Series Modular Air Handlers

AAON M2 Series air handling units provide an ideal solution for new and replacement applications with its modular construction and premier factory installed features. The serviceability, quiet operation, reliability, premium efficiency, and rugged construction allow M2 Series air handling units to expertly fit the needs of your specific job requirements. These units reflect the proven reliability and engineering excellence from AAON, the premier manufacturer of heating and cooling products.



M2 Series shipping split modules (filter, coil, fan)

Superior Features

- Double wall rigid polyurethane foam injected panel construction with thermal break reduces air leakage, dampens resonated sounds, increases thermal resistance, and offers a cleanable air tunnel ideal for demanding indoor air quality applications.
- Backward curved plenum supply fans are quieter, more energy efficient, and handle higher static pressure applications than forward curved supply fans.
- Units can be shipped factory assembled or shipped as individual modules to meet the installation demands of any application.
- Sloped stainless steel drain pans eliminate standing water which can support microbial growth and prevents corrosion that can lead to water leaks and contaminants in the air stream.
- Removable pin hinges, lockable zinc cast handles, and slide out access to coils and energy recovery wheels provide easy access for maintenance and cleaning when required.
- Multiple base heights are available that allow ease of installation and can eliminate the need for a housekeeping pad for condensate drain trap.
- Labeled electrical components and color-coded wiring match the unit specific color-coded wiring diagram that is laminated and permanently affixed inside the control compartment.
- Factory run test report, wiring diagram, and Installation, Operation, and Maintenance manual with startup form are provided in the control compartment of every unit.

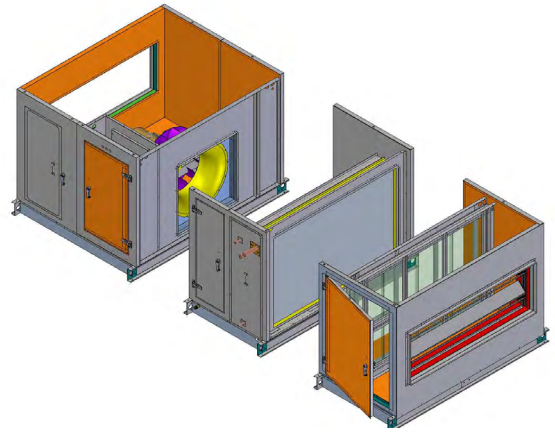
M2 Series Water-Source Heat Pump Units

M2 WSHP	Cabinet Size*	Compressors/ Circuits	Refrigerant-to-Water Heat Exchanger
003	005	1/1	Coaxial
004			
005			
006	008	1/1	Braze Plate
007			
008			
010			
011	011 014	2/2	Braze Plate
013			
015			
016			
018			
020	018 022	2/2	Braze Plate
025			
030	026 032	4/2	Braze Plate
040			
050			
060	026 032 036	4/2	Braze Plate
070			

* The cabinet size corresponds to the air handling unit cabinet size in the base model description section.

Premier Options

- Available for Constant Volume, Variable Air Volume (VAV), Single Zone VAV, and Makeup Air applications with up to 100% outside air.
- Water-source or geothermal heat pump configurations with 10-100% variable capacity compressors for a packaged indoor system and energy efficient heating and cooling.
- Factory installed total or sensible AAONAIRE energy recovery wheels save heating and cooling dollars by pre-cooling, dehumidifying, pre-heating and humidifying the ventilation outside air (depending on ambient conditions). Up to 80% of the exhaust air energy can be recovered by the wheel.
- Modulating Hot Gas Reheat for precise humidity control necessary to maintain occupant comfort without the temperature swings common with on/off reheat systems.
- Modulating gas heat with 5:1 turndown natural gas or 3:1 turndown LP gas applications with open or separated combustion.
- SCR (Silicon Controlled Rectifier) electric heat control for reduced power consumption, longer heater life, and improved occupant comfort.
- Multiple high efficiency filtration options with up to MERV 14 efficiency rating are available with or without monitoring devices.
- Multiple corrosion protection options including 6,000 hour salt spray tested polymer e-coated indoor coils, CuNi coaxial or SMO 254 brazed plate refrigerant-to-water heat exchangers, and 2,500 hour salt spray tested interior and exterior corrosion cabinet protection.
- ECM (Electronically Commutated Motor) driven or VFD controlled backward curved plenum supply fans for precise air flow control and reduced power consumption.
- Fixed Plate Heat Exchanger Energy Recovery saves heating and cooling energy and features extremely low cross contamination. Both sensible and enthalpy cross-flow heat exchangers are available and have no moving parts.



Available Modules

Fan Module

Filter Module

Mixing Box Module

Heating Module

Cooling Module

Blank Module

Controls Module

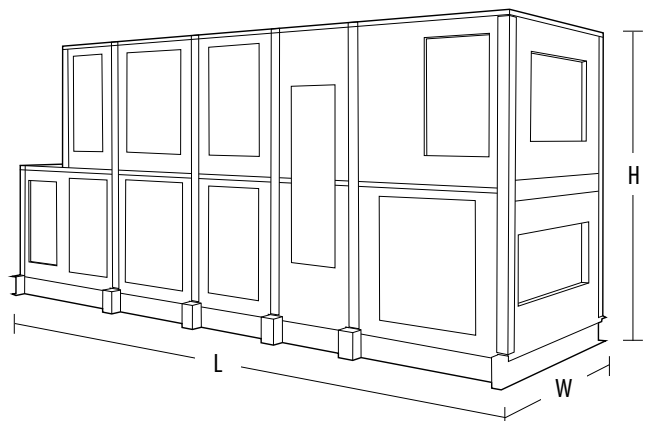
Energy Recovery Module

Water-Source Heat Pump Module

M2 Series Air Handling Units

M2 Model	Nominal cfm	Width (inches)	Height (in) Single Level	Height (in) Dual Level	Length (inches)
005	2,000	50	32	66	Length varies depending on options selected.
008	3,500		44	90	
011	4,500	62	48	98	
014	6,500		54	110	
018	8,000	84	48	98	
022	11,500		54	110	
026	13,500		64	130	
032	16,500		96	70	
036	18,500				

*Units with Energy Recovery Wheels will always be dual level.
Maximum cfm may be up to 35% greater than nominal cfm.*



M2 Series

Modular Air Handlers

Indoor Air Quality Features

- Drain pans are sloped to ensure positive drainage and constructed from stainless steel to provide resistance to corrosion.
- The cabinet interior metal liner is cleanable, and easily wiped down. The use of foam insulated paneling rather than fiberglass insulation eliminates the potential for trapping dirt or moisture in the interior of the air handler.
- Access to the unit interior for maintenance is made easy with standard hinged doors that open against pressure. Adhering to the unit's maintenance schedule is an important element in combating mold growth and maintaining indoor air quality.
- Cabinet composite panel construction allows M2 Series to offer a low air leakage rate and minimizes the infiltration of unconditioned air.
- Multiple filtration options including pleated or cartridge filters up to 95% efficiency (MERV 14) in a prefilter position, final filter position, or a combination of both positions.



Energy Efficiency

The M2 Series standard backward curved plenum fans are more energy efficient, quieter, can handle higher static pressures, and are easier to clean than comparable forward curved blowers. A clean fan not only requires less energy than a dirty one, but also maintains capacity and reduces stress on the unit.

AAON rigid polyurethane foam injected composite construction provides more than twice insulating value of 1/2 lb./ft³ density fiberglass insulated construction. Two inch AAON foam insulated construction provides a thermal resistance of R-13 (size 011-036) and one inch AAON foam insulated construction provides an R-6.5 (size 005-008).

M2 Series Features



Acoustical Features

When compared with single wall cabinet construction, the M2 Series has greater sound insulation capabilities due to the composite paneling.

Additionally, vibration isolation mounts are available for fan and motor assemblies to minimize undesirable noise.

Control Features

AAON pre-engineered factory installed controls are tested to ensure consistent quality, and reduce field labor costs associated with development and installation of unique control strategies.

AAON also features factory installed customer provided control, allowing the customer to specify the type and manufacture of unit controller. This flexibility allows the unit to match an existing building control architecture.

Energy Recovery Wheel

AAON AIRE energy recovery wheel is capable of transferring sensible and latent energy from the incoming air stream to the exhaust and preconditioning the supply air. This saves energy by reducing mechanical heating and cooling use, and also lowers costs by increasing effective system capacity by 30% or more which allows smaller equipment to be selected. Energy recovery wheels are also available as sensible only and with mechanical purge that reduces carryover to less than 1%.

Polymer E-Coated Coils

A uniformly thick polymer coating is applied to the entire coil by an immersion process that minimizes the potential for gaps in coverage that may occur with spray coating. The polymer coil coating provides corrosion protection for more than 6,000 hours in salt spray testing, while maintaining the thermal performance of the coil.

Modulating Hot Gas Reheat

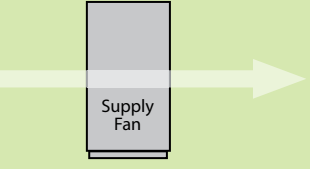
This system delivers only the amount of reheat required for space comfort, providing precise dehumidification without overcooling the space. Occupant comfort is uniform and consistent; drastic temperature swings common to on/off type reheat systems are eliminated.

M2 Series
Modular Air Handlers

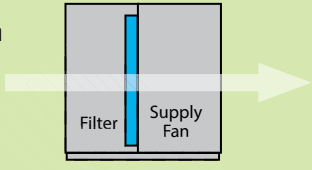
M2 Series Typical Configurations

The AAON M2 Series Air Handling Unit Modules provide design flexibility and ease to meet job application requirements.

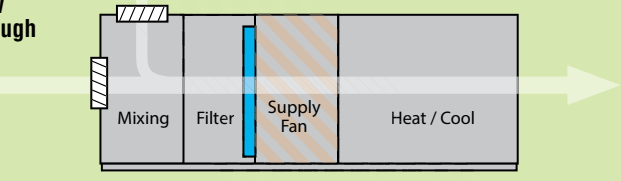
EQUIPMENT



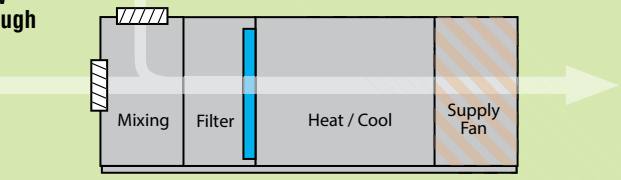
Supply Fan



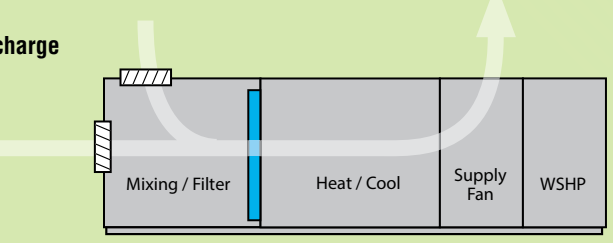
Filter and Fan



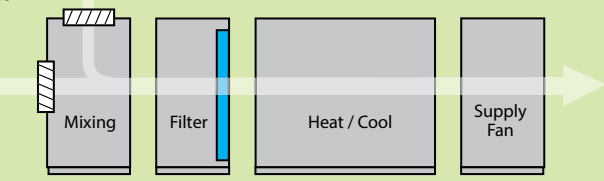
Blow Through



Draw Through



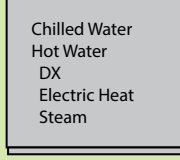


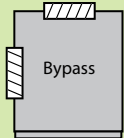
Top Discharge




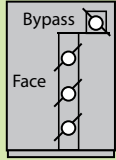
Shipping Splits

* Each of the available configurations can be shipped with individual modules for field assembly to accommodate renovation and replacement jobs with tight installations.

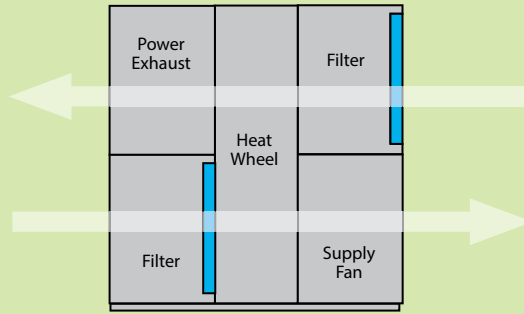
TYPICAL APPLICATIONS

EQUIPMENT	RESULT
 <p>Chilled Water Hot Water DX Electric Heat Steam</p>	<p>Heat and Cool COMFORT OR PROCESS TEMPERATURE CONTROL</p>
 <p>Reheat</p>	<p>Humidity Control MODULATING HOT GAS</p>
 <p>WSHP</p>	<p>Water-Source Heat Pump GEOTHERMAL</p>
 <p>Bypass</p>	<p>Air Quality RETURN AIR OUTSIDE AIR UP TO 100%</p>

SPECIAL APPLICATIONS

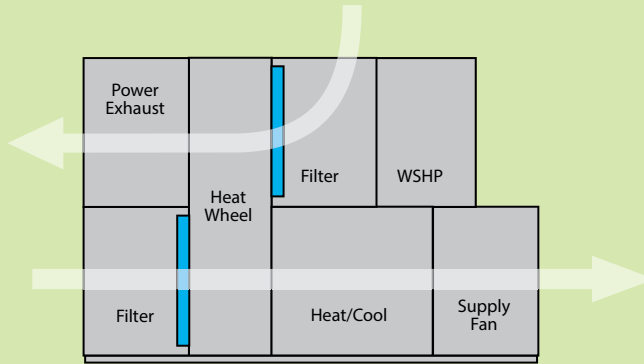
EQUIPMENT	RESULT
 <p>Preheat</p>	<p>Preheat HOT WATER, STEAM OR ELECTRIC</p>
 <p>Bypass Face</p>	<p>Face and Bypass HOT WATER OR CHILLED WATER SPECIAL TEMPERATURE AND HUMIDITY CONTROL</p>

**AAONAIRE
Heat Recovery Unit (HRU)**



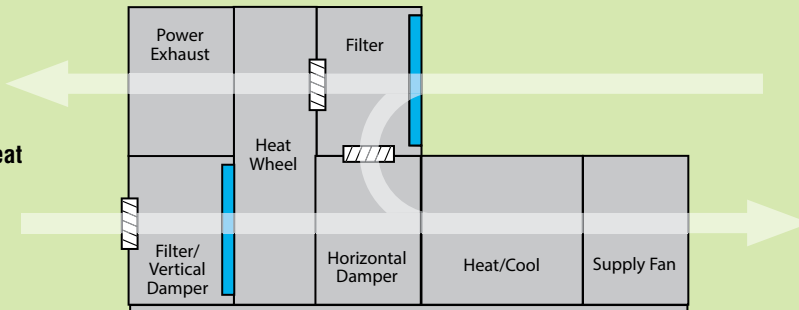
AAONAIRE HRU With:

- DX or CW Cool
- WSHP



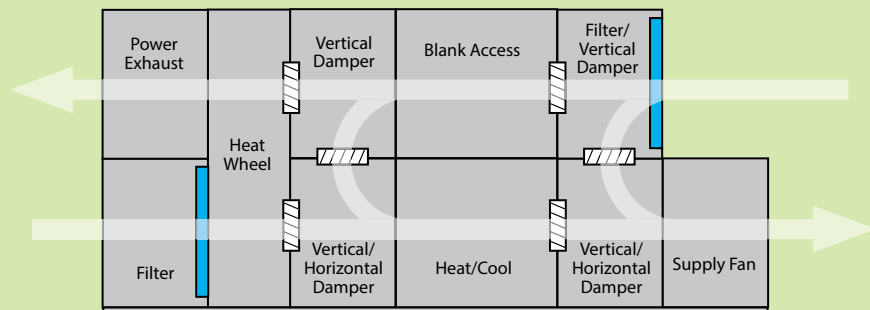
AAONAIRE HRU With:

- DX or CW Cool
- HW, Steam or Electric Heat
- OA/RA Mixing



AAONAIRE HRU With:

- DX or CW Cool
- HW, Steam or Electric Heat
- OA/RA Mixing
- RA Bypass



AAON Environmentally Friendly HVAC Product Family

**Custom & Cataloged
Air Handling Units** ■
(800-200,000+ cfm)

Condensers & Condensing Units ■
(2-230 tons)

**Chillers (Air-Cooled, Evaporative-
Cooled, Heat Pumps)** ■
(4-540 tons)

Rooftop Units ■
(2-240 tons)

Outdoor Equipment Rooms ■
(Chillers, Boilers & Pumps)

Self-Contained Units ■
(3-70 tons)

Residential Systems ■
(2-5 tons)

Geothermal & WSHP Units ■
(1/2-230 tons)

Air-Source Heat Pumps ■
(2-230 tons)

Heating and Cooling Coils ■
(Booster, Hydronic, & DX)

Fluid Coolers ■
(50-450 tons)

Heating and Cooling *for...*

Auditoriums
Convenience Stores
Health Clubs
Healthcare Facilities
Homes
Lodgings
Manufacturing
Museums & Libraries
Natatoriums
Office Buildings
Restaurants
Retail Stores
Schools
Supermarkets



Defining Quality. Building Comfort.

2425 S. Yukon Ave.
Tulsa, OK 74107-2728
www.AAON.com

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