

M2 Series

Modular Air Handling Units
3,800–21,000 cfm



Self-Contained Units

Water-Source/Geothermal Heat Pumps

Indoor Air Handling Units





M2 Series

AAON M2 Series air handling units offer an exceptional solution for both new installations and replacement projects thanks to their innovative modular design and premier factory installed features. These units are designed with a strong focus on serviceability, ensuring ease of maintenance. Their operation is characterized by a remarkable quietness, guaranteeing minimal disruption. The M2 Series is renowned for its unwavering reliability, superior energy efficiency, and robust construction, making it the perfect choice to meet the unique requirements of your project.





3,800 to 21,000 cfm

For M2 Series modular units, AAON raises the bar, establishing a new standard for excellence in modularity, performance, serviceability, and long-term value.

Standard Features

- Available as a chilled water or non compressorized DX air handling unit
- Air-source, water-source, and geothermal heat pump options
- Electric, steam, or hot water heating design for application flexibility
- Direct drive backward curved plenum fans
- Double wall rigid polyurethane foam panel construction with a minimum of R-13 value
- Access doors with removable pin hinges, lockable zinc cast handles, and slide-out access to coils and energy recovery wheels for easy maintenance and cleaning
- AMCA certified and labeled low leakage economizer dampers utilize outdoor air for cooling under certain conditions
- Power exhaust and power return options with economizer
- Double-sloped stainless steel drain pans for effective drainage and prevention of standing water that can lead to corrosion and bacterial growth
- Run test report, wiring diagram, and Installation, Operation, and Maintenance manual with startup provided with every unit



Direct Drive Backward Curved Plenum Fans are more energy efficient, quieter, and require less maintenance than belt driven fans. VFD controlled and ECM driven supply, exhaust, and return fans are available for precise airflow control, building pressure control, and reduced power consumption.

Construction and Serviceability

DURABLE, ENERGY-EFFICIENT DESIGN

Double wall construction using closed cell polyurethane foam insulation with G90 galvanized steel walls instead of fiberglass insulation, which can be harmful to indoor air quality. Featuring an insulation R-value of 13 in the two-inch construction design and R-6.5 in the one-inch construction design, it not only enhances rigidity and durability but also significantly reduces unwanted heat transfer.

STREAMLINED SERVICEABILITY

AAON equipment prioritizes efficient serviceability, reducing downtime and costs. Easily accessible control components, color-coded wiring diagrams, and labeled components minimize delays in evaluating service issues. This AAON standard feature ensures low service costs and maximizes unit run time.

ACCESSIBLE CABINET DOORS

Access doors with removable pin hinges and lockable zinc cast handles allow for easy serviceability for maintenance and troubleshooting of the unit.

INCREASED THERMAL RESISTANCE

Double wall rigid polyurethane foam insulated cabinet panel increases thermal resistance, reduces air leakage, and attenuates radiated sound. Thermal break reduces heat transfer between interior and exterior metal cabinet walls.

Thermal break



Double layer configuration



Energy Recovery Unit with Water-Source Heat Pump, Economizer and Electric Heat Strips

Configurability

VARIABLE CAPACITY TECHNOLOGY

A single zone VAV system utilizes variable capacity compressor technology as well as modulating VFD controlled supply fans to accurately control the cooling and humidity levels within the space. This is a great option for applications with varying sensible and latent loads.

ENHANCED AIRFLOW AND AIR QUALITY

Improve airflow and air quality by selecting a unit with makeup air capabilities and low leakage AAON economizers, allowing up to 100% outside air. Add modulating reheat to make the unit DOAS certified, providing accurate humidity control for the space.

LOW ENERGY CONSUMPTION AND LEAKAGE

Factory installed, sensible or enthalpy, gear driven economizer allows for free cooling. Gear driven economizer eliminates the excess play and bind that occurs with linkage type economizers. Standard AMCA certified and labeled AAON low leakage dampers meet the California Title 24 damper air leakage requirement.

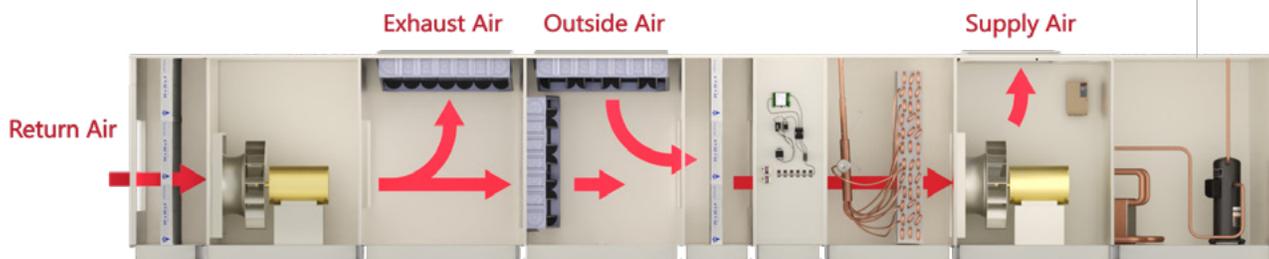
PRECISE HUMIDITY CONTROL

Modulating hot gas reheat system efficiently delivers only the necessary amount of reheat to ensure optimal space comfort, achieving precise dehumidification without unnecessary cooling. As a result, occupants experience consistent and uniform comfort, eliminating the abrupt temperature fluctuations often associated with on/off type reheat systems.

CONFIGURABLE AIR HANDLING

AAON M2 Series air handling unit modules offer practical design flexibility, providing an adaptable solution to meet various job application requirements. Modules are engineered to accommodate different project demands, making them suitable for situations with specific spatial constraints, performance criteria, or energy efficiency goals. With their modular construction, they simplify customization and potential future expansions, making them a versatile choice for projects with evolving needs.

Single layer configuration



Water-Source Heat Pump with Return Fan

Options

- Hot water or steam heating coils allow unit to tie into new or existing boiler system
- Chilled water cooling coils allow unit to tie into new or existing chilled water system
- VFD controlled or ECM driven backward curved plenum supply fans for precise airflow and reduced power consumption
- Modulating Hot Gas Reheat: Maintains occupant comfort by providing precise humidity control and eliminating temperature swings commonly found in on/off reheat systems
- Multiple high efficiency air filtration options for improved indoor air quality by reducing airborne allergens and pollutants
- Factory installed AAONAIRE® total and sensible energy recovery wheels for pre-conditioning air, reducing the heating and cooling loads
- SCR (Silicon Controlled Rectifier) electric heat control for reduced power consumption, longer heater life, and improved occupant comfort
- Polymer e-coated coils for corrosion protection
- Power exhaust options for better indoor air quality
- Return and supply side firestat options for additional safety
- Phase and Brownout for protection against voltage imbalance
- Controls section service lights for easier maintenance
- Shrink wrap and export crating available for protective shipping
- Different paint color options available for unit customization
- Additional customization is available by request for further flexibility in design



M2 Series meets capacities
from 3,800 - 21,000 cfm.

Low GWP Refrigerant

AAON selected R-454B, a sub 500 GWP refrigerant, to drive the industry towards a cleaner and more sustainable future.

AIM ACT COMPLIANT

The AIM Act of 2020 empowered the U.S. Environmental Protection Agency to manage Hydrofluorocarbons (HFCs) and regulate refrigerants based on global warming potential (GWP). GWP was developed to compare refrigerants' impact on global warming. The final ruling mandating all new air conditioners to use refrigerants with a GWP below 700 is anticipated to begin January 1, 2025.

AAON thoroughly researched and tested low GWP refrigerants and selected R-454B for its similarity to R-410A in capacity and properties, requiring less product redesign. With a GWP of 466, R-454B is well below the upcoming regulation limits.



Heat Pumps

The M2 Series units offer efficient cooling and heating capabilities with the heat pump option. By reversing the refrigeration circuits, the heat pump provides heating without the need for gas or electric heat, eliminating fossil fuel usage. With potential cost savings compared to gas heating systems, the M2 is available as an air-source, water-source, or geothermal heat pump.

AIR-SOURCE HEAT PUMP

Air-source heat pumps use the outdoor air as the heat transfer medium. This system provides heat pump efficiency benefits and does not require a water loop. The M2 can be configured as an air source heat pump by pairing it with an outdoor condensing unit in a split system configuration.

WATER-SOURCE HEAT PUMP

Water-source heat pumps work in a similar way as geothermal heat pumps except this type of unit utilizes a cooling tower and boiler system. A typical WSHP application is a multistory building or large campus.

GEOTHERMAL HEAT PUMP

Geothermal heat pumps use underground pipes and water flow to transfer heat between the building and the earth, leveraging the stable ground temperature ranging from 45°F to 75°F. This method provides efficient heating in the winter and cooling in the summer. Ground water heat pumps utilize bodies of water for heat transfer with the refrigerant.





Factory installed AAONAIRE® energy recovery wheel saves heating and cooling energy. Slide-out wheel allows for quick and easy maintenance.



Indoor Air Quality

The quality of air inside a building impacts the health and cognition of those inside. AAON standard design and rooftop equipment options improve indoor air quality.

CONSTRUCTION

Featuring a cleanable and easily wiped down metal liner in the cabinet interior, the M2 Series utilizes foam-insulated paneling instead of fiberglass insulation, thus eliminating the potential for trapping dirt or moisture inside the air handler. This composite panel construction not only ensures a low air leakage rate but also minimizes the infiltration of unconditioned air.

FILTRATION

ASHRAE recommends using a minimum of MERV 13 filter to trap viruses more effectively. Versatile filtration choices encompass pleated or cartridge filters with an efficiency of up to 95% (MERV 14), which can be installed in a prefilter position, a final filter position, or a combination of both positions.

AAONAIRE® ENERGY RECOVERY WHEEL

Sensible only or enthalpy energy recovery wheels can be used to pre-condition the outside air which can greatly improve energy savings and reduce unit operation costs, especially on makeup air units. Energy recovery wheels are offered as polymer or aluminum construction with removable segments for quick cleaning.

STAINLESS STEEL DRAIN PANS

The drain pans, fabricated from stainless steel, not only ensure positive drainage but also offer the invaluable advantage of superior corrosion resistance, ensuring long-lasting durability and reliability.

POLYMER E-COATED COILS

Employing an immersion process, a consistently thick polymer coating covers the entire coil, effectively minimizing the likelihood of coverage gaps that can occur with spray coating methods. This polymer coil coating not only delivers more than 6,000 hours of corrosion protection in salt spray testing but also preserves the coil's thermal performance, ensuring durability and reliability.

Precision Cooling and Heating Control

M2 series units have the option of using two-step, or variable capacity compressors, depending on the cabinet size and application. Modulating compressors allow precise and efficient cooling control. SCR controlled electric heat provides precise heating temperature control.

TWO-STEP COMPRESSORS

Two-step compressors allow for improved part load efficiency with simple staged control and are available on select M2 units. Unit IEER can be optimized without requiring complex refrigeration and DDC controls, reducing operating costs and maintenance costs.

VARIABLE CAPACITY (DIGITAL) COMPRESSORS

Variable capacity compressors allow for a wide range of capacity control (10-100%) for improved part load efficiency with simple controls.

PRECISION HEATING CONTROL

SCR-controlled electric heat strips for optimal precision electric heating control. Flexible heating solutions with versatile options like hot water coils, seamlessly allow for integrating with existing boiler systems in buildings.





M2 Series Air Handling

Capacity	3,800 - 21,000 cfm	
Configuration	Horizontal	
Nominal cfm	M2-018	6,000
	M2-026	13,500
	M2-036	18,500
Dimensions*	M2-018 - W: 84 H(SL): 48 H(DL): 98 M2-026 - W: 84 H(SL): 64 H(DL): 128 M2-036 - W: 96 H(SL): 70 H(DL): 142	

M2 Series Water-Source Heat Pump

Capacity	16-70 tons	
Configuration	Horizontal	
Model Number	M2-018	16, 18, 20, 25, and 30 tons
	M2-026	30, 40, and 50 tons
	M2-036	50, 60, and 70 tons
Dimensions*	M2-018 - W: 84 H(SL): 48 H(DL): 98 M2-026 - W: 84 H(SL): 64 H(DL): 128 M2-036 - W: 96 H(SL): 70 H(DL): 142	



The M2 provides a fully custom solution with configurable boxes and features. These boxes can be configured to create a modular air handling unit for split-system applications or a self-contained water-source heat pump unit.

**Dimensions vary depending on options selected. All dimensions are in inches. Design cfm may be 30-50% greater or less than nominal cfm. Matching air-cooled condensing units available for a complete split system solution ranging from 13 to 60 tons. (SL) = Single Level • (DL) = Dual Level*

M2 Series: 3,800-21,000 cfm





Built to last.
Built for you.



There's a confidence that comes from knowing you've chosen the best. Because our operations are as efficient as our HVAC systems, you get premier AAON quality at a reasonable price. Outstanding serviceability and support create lifetime AAON customers.





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