

RQ Series

Packaged Rooftop Units
2-5 Tons



Air-Source Heat Pumps

Water-Source/Geothermal Heat Pumps

Outdoor Air Handling Units





RQ Series

AAON RQ Series packaged rooftop solutions feature AAON's industry-leading differentiators, including double wall foam injected cabinets and direct drive backward curved plenum fans. Commonly found in school districts, RQ units are ideal for Single Zone VAV applications. The RQ Series also excels in performance and serviceability for small tonnage DOAS applications.



2-5 Tons

AAON sets the standard for commercial packaged rooftop units in performance, serviceability, and long-term value.



Standard Features

- Double wall rigid polyurethane foam panel construction with a minimum of R-16 value
- Double sloped stainless steel drain pans for effective drainage and prevention of standing water that can lead to corrosion and bacterial growth
- Direct drive backward curved plenum fans
- AHRI certified performance for proven efficiency
- Standard two year parts warranty and five year non-prorated compressor warranty
- 15 year non-prorated aluminized steel gas heat exchanger warranty, and 25 year non-prorated stainless steel gas heat exchanger warranty
- Variable capacity and variable speed scroll compressors for load matching cooling and improved part load efficiency
- AMCA certified and labeled low leakage economizer dampers utilize outdoor air for cooling under certain conditions
- Available as a chilled water, or non compressorized DX air handling unit
- Air-source, water-source, and geothermal heat pump options
- Electric, gas, steam, or hot water heating design for application flexibility
- Power exhaust and power return options with economizer
- Corrosion resistant polyurethane paint exceeds a 2,500 hour salt spray test
- Access doors with full length stainless steel piano hinges and quarter-turn, lockable handles
- 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. With an insulation R-Value of 16, it creates a more rigid and durable assembly with less unwanted heat transfer.

ACCESSIBLE CABINET DOORS

Access doors with full-length stainless steel piano hinges and quarter-turn, lockable handles provide improved reliability over single point hinges and make the unit easily serviceable.

STREAMLINED SERVICEABILITY

AAON equipment prioritizes efficient serviceability, reducing downtime and costs. Easily accessible compressors, 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.

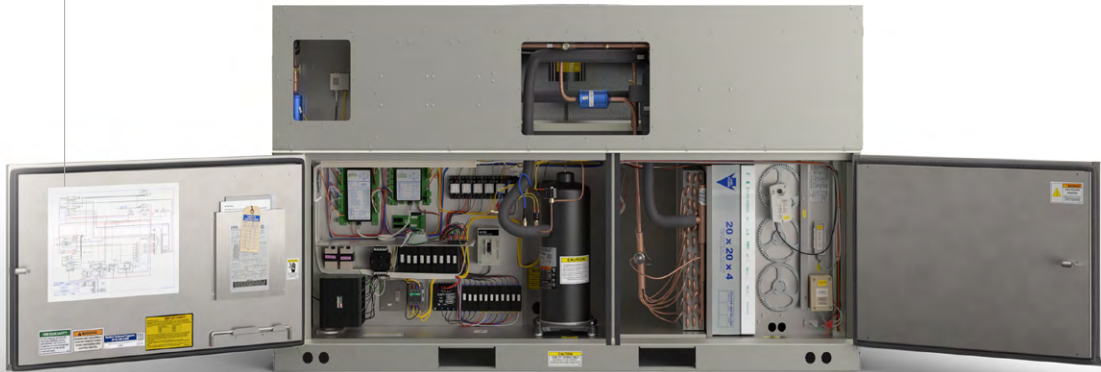
INCREASED THERMAL RESISTANCE

Double wall rigid polyurethane foam-injected 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

AAON equipment is service friendly with color coded wiring diagrams, heavy duty access doors and handles, and easy access to components.



Configurability

VARIABLE CAPACITY TECHNOLOGY

A single zone VAV system utilizes variable capacity or variable speed 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. This can be achieved with the use of AAON low leakage economizers. 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

AAON uses high capacity cooling coils to allow for maximum dehumidification. With modulating hot gas reheat, space temperature and humidity levels can be precisely controlled.

CONFIGURABLE AIR HANDLING UNIT

AAON RQ Series rooftop units can be set up as an air handling unit with chilled water or hot water coils. Gas, electric, and steam are also options for heating control. These units can be paired with a remote condensing unit set up in a different location.

HIGH AND LOW AMBIENT OPERATION

With premium design, construction, and testing, AAON RQ Series can be rated to operate up to 125°F (52°C) ambient and down to 0°F (-18°C).

Options

☐ Variable capacity and variable speed scroll compressors for load matching cooling and improved part load efficiency	☐ Chilled water cooling coils allow unit to tie into new or existing chilled water system
☐ Variable speed air-source heat pump for efficiency non-fossil fuel heating down to 0°F ambient and omni-climate performance	☐ Polymer e-coated coils for corrosion protection
☐ VFD controlled or ECM driven condenser fans for energy savings and refrigerant head pressure control	☐ Power exhaust options with economizer for better indoor air quality
☐ Humidity control options including: High Capacity Coils and Modulating Hot Gas Reheat	☐ Metal mesh pre-filters for additional filtration and to prevent moisture carryover
☐ Multiple high efficiency air filtration options for improved indoor air quality by reducing airborne allergens and pollutants	☐ Return and supply side firestat and smoke detector options for additional safety
☐ Factory installed AAONAIRES® total and sensible energy recovery wheels for pre-conditioning air, reducing the heating and cooling loads	☐ Phase and Brownout for protection against voltage imbalance
☐ Modulating gas heat with stainless steel heat exchanger for improved energy efficiency and enhanced durability	☐ Controls section service lights for easier maintenance
☐ SCR (Silicon Controlled Rectifier) electric heat control for reduced power consumption, longer heater life, and improved occupant comfort	☐ Shrink wrap and export crating available for protective shipping
☐ Hot water or steam heating coils allow unit to tie into new or existing boiler system	☐ 115V convenience outlet option available
☐ Low sound air-cooled condenser fans engineered for peak performance and a quiet operation	☐ Different paint color options available for unit customization
	☐ Additional customization is available by request for further flexibility in design



RQ Series meets capacities from 2-5 tons.





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 RQ 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 RQ 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.

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.

OUTSIDE AIR VENTILATION

Bringing fresh outside air into a building helps flush out infectious aerosols and reduces CO₂ levels in the space. High capacity cooling coils are available to handle the higher latent load of outside air. Research has shown that some viruses are rendered inactive on surfaces when the ambient relative humidity was between 40% - 60%.

FILTRATION

ASHRAE recommends using a minimum of MERV 13 filter to effectively trap viruses more effectively. This option is available on all sizes of rooftop equipment and the standard backward curved supply fans are capable of handling the additional static pressure associated with the higher quality filtration. AAON offers up to MERV 14 pleated air filters.

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 cost, especially on makeup air units. Energy recovery wheels are offered as polymer or aluminum construction with removable segments for quick cleaning.

UV LIGHTS

UV light options are available factory installed and can be used to inactivate pathogens in the airstream of an air handling unit.

CROSS-FLOW FIXED PLATE HEAT EXCHANGER ENERGY RECOVERY

Cross-flow fixed plate heat exchangers save heating and cooling dollars by pre-cooling, pre-heating, and humidifying the ventilation outdoor air (depending on ambient conditions). Cross-flow fixed plate heat exchangers have no moving parts and can improve indoor air quality by eliminating cross contamination. Sensible only or enthalpy fixed plate heat exchangers are available to meet application requirements.

OUTSIDE AIR BYPASS

Allowing outside entering air provides better ventilation airflow and full economizer operation. Bypass dampers can also be used for defrosting the heat exchanger.



Precision Cooling and Heating Control

RQ Series units have the options of using two-step, variable capacity, or variable speed compressors, depending on the cabinet size and application. Modulating compressors allow precise and efficient cooling control. Gas and electric heat can be staged or modulating to provide 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 RQ 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.

VARIABLE SPEED COMPRESSORS

Variable speed compressors are quiet in operation and provide load matching cooling and the highest efficiency ratings when operating at part load conditions. Refrigeration controls are built-in to the AAON equipment to protect the compressors and optimize the efficiency for single or multi-zone VAV and Makeup Air applications.

PRECISION HEATING CONTROL

AAON uses patented dimpled stainless steel or aluminized heat exchangers. Staging can be set up for on/off, two stage, four stage, modulating, or high turndown. Modulating gas heat provides greater fuel efficiency, longer heater life, and improved occupancy comfort. SCR controlled electric heat strips can be used for precise electric heating control without the need for gas piping.

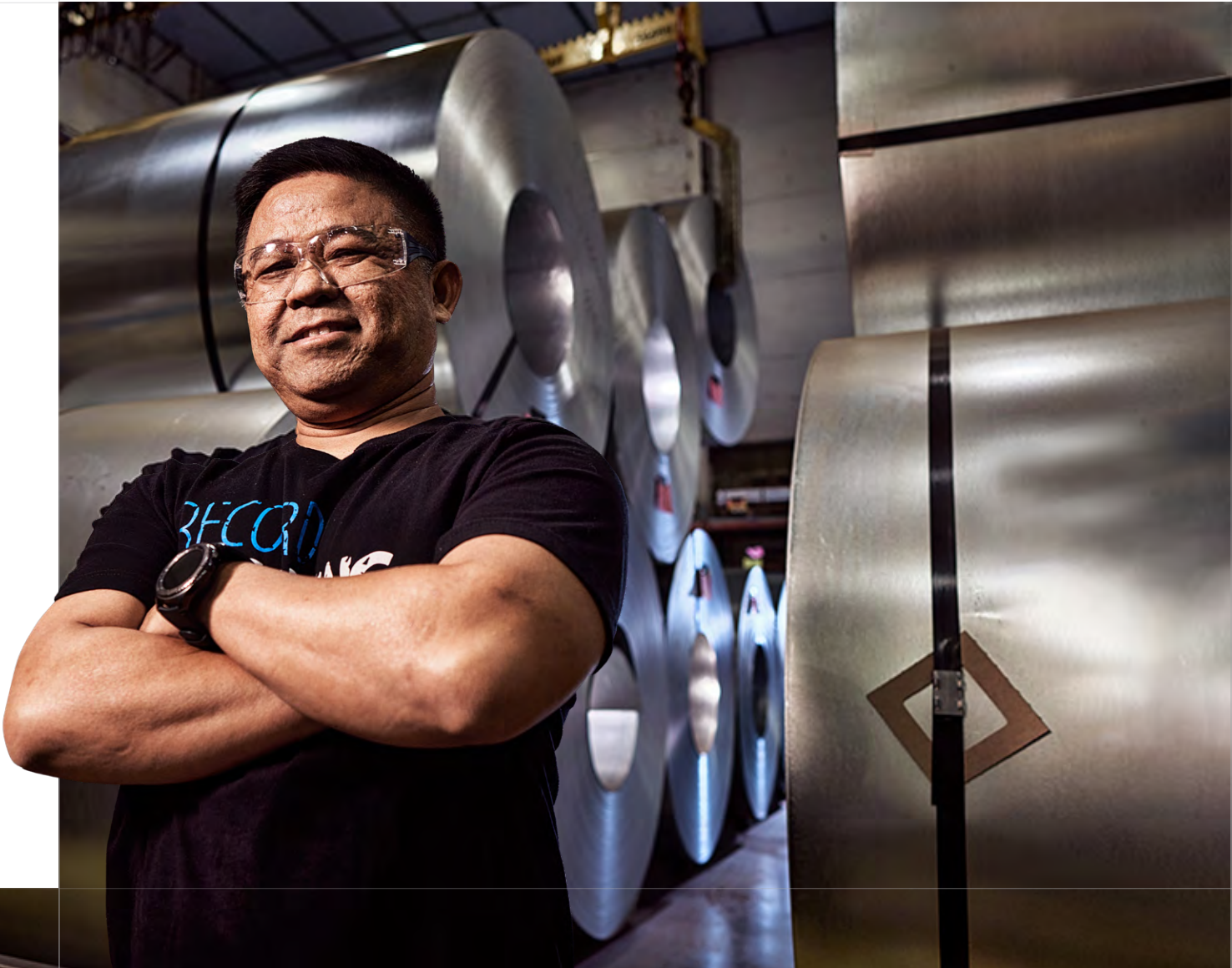


The RQ Series may be small in size, but it's big on quality and versatility. With its compact design, this premium rooftop unit is perfect for a variety of applications, offering precise control and reliable performance

*Dimensions vary depending on options selected. All dimensions are in inches. Design cfm may be 30-50% greater or less than nominal cfm.

RQ Series		
Capacity	2-5 tons	
Configuration	Vertical or Horizontal	
Air-Cooled SEER	Up to 20.3	
Air-Cooled EER	Up to 14.8	
Nominal cfm	RQ-002	850
	RQ-003	1,050
	RQ-004	1,400
	RQ-005	1,750
Dimensions*	W: 44, H: 51, L: 82	

Dimpled heat exchangers





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.



Built to last.
Built for you.





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