From **230 tons** to **½ ton**

AAON

Water-Source Heat Pump Products

Horizontal and Vertical Units • Self-Contained Units • Rooftop Units

Premium Performance • Environmentally Friendly • Superior Construction

Water-Source Heat Pump
Products

Small Packaged Water-Source Heat Pumps (½ to 30 tons)
Horizontal and Vertical Configuration

Rooftop and Self-Contained Units (2 to 230 tons)
Water-Source Heat Pump Configuration

Water-Source Heat Pumps (WSHP) recover otherwise wasted energy and employ it to cool, heat, and provide dehumidification to a building – making it one of the most efficient and environmentally friendly systems. AAON Water-Source Heat Pumps offer a variety of configuration options, innovative design, premium performance, and unmatched serviceability.

Premium Mass Production

Horizontal and Vertical Small Packaged Units

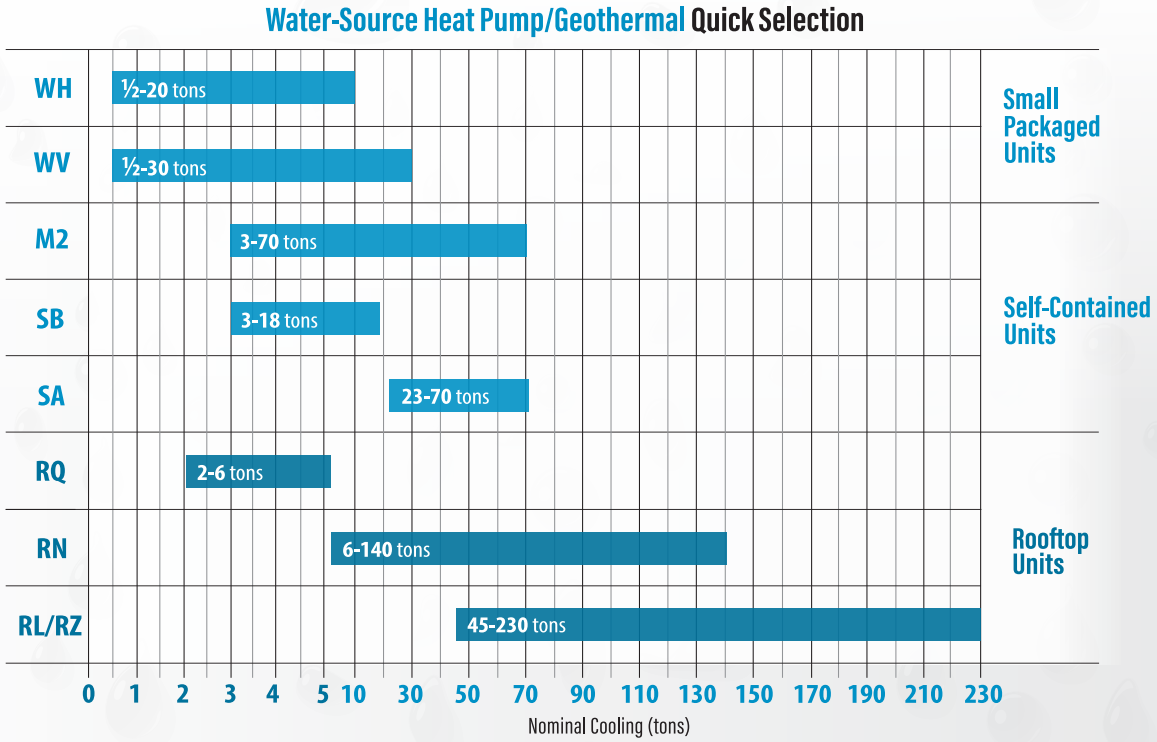
For more than 50 years the mass produced Water-Source Heat Pump has been a reliable product in the HVAC market, with its design and functionality not significantly changing over time. The market lacked an innovative, premium quality, competitively priced water-source heat pump that could be quickly produced. AAON responded to this need with the WH and WV Series Water-Source Heat Pumps.

WH Series horizontal and WV Series vertical water-source heat pumps are offered in multiple efficiency levels and include premium standard features, such as a microchannel DX coil for improved efficiency. An expanding line of optional features allow for further flexibility while remaining a quickly produced product. Quality is designed into the small packaged AAON water-source heat pump and the state-of-the art AAON manufacturing lines are unmatched in the industry. WH Series and WV Series are available in replacement ready stock configurations that are ready to ship out today.

Mass Customization

Rooftop and Self-Contained Units

AAON manufactures water-source heat pumps with mass customization in a variety of configurations - Rooftop Units, Indoor Vertical Self-Contained Units and Modular Units - with capacities ranging from 2-230 tons. Mass customization means the ability to configure the features and options of the unit at the factory to meet nearly any application's requirements. The units are constructed with double wall rigid polyurethane foam insulated panels with thermal breaks and quality air seals – providing superior insulation with low leakage for reduced energy loss and operational cost savings. Available with variable capacity compressors to vary the cooling and heat pump heating capacity needed to match the load of the space - providing further energy savings and improved occupant comfort. AAON water-source heat pump units can be configured for Makeup Air Ventilation, Constant Volume, Variable Air Volume, or Single Zone VAV and Energy Recovery. A multitude of factory installed premium features and options are available, allowing these units to meet any application.



Small Packaged Units

AAON WH Series Horizontal and WV Series Vertical Water-Source Heat Pumps incorporate state-of-the-art manufacturing processes with the latest HVAC design technical knowledge to create a WSHP product with innovative design, performance, and serviceability. The technologically advanced AAON WSHP manufacturing line is unmatched in the industry, utilizing a unique product methodology that integrates mass production with mass customization and allows production of hundreds of units per day.

WV Series
Vertical

(½ to 30 tons)

WH Series
Horizontal

Applications

- Horizontal Configuration Water-Source Heat Pumps, from ½ to 20 tons
- Vertical Configuration Water-Source Heat Pumps, from ½ to 30 tons
- Multiple Levels of Efficiency
- Standard efficiency level significantly exceeding ASHRAE Standards.

Standard Features

- R-410A Scroll (2 to 30 tons) or Rotary (½ to 1 ½ tons) Compressors for reliable operation
- Aluminum Microchannel DX Coil with large face area for improved efficiency, reduced air pressure drop, reduced fan horsepower, reduced refrigerant charge, and reduced unit weight
- Copper Coaxial Refrigerant-to-Water Heat Exchanger for reliable operation
- High Efficiency Direct Drive Supply Fans available with Permanent Split Capacitor (PSC) motors or Electronically Commutated Motors (ECM)
- AAON Pioneer Silver Controller with terminal block for connection to a standard heat pump thermostat containing the following terminals:

G = Blower	R = 24V Supply
Y = Compressor	COM = Common
O = Reversing Valve	

Construction

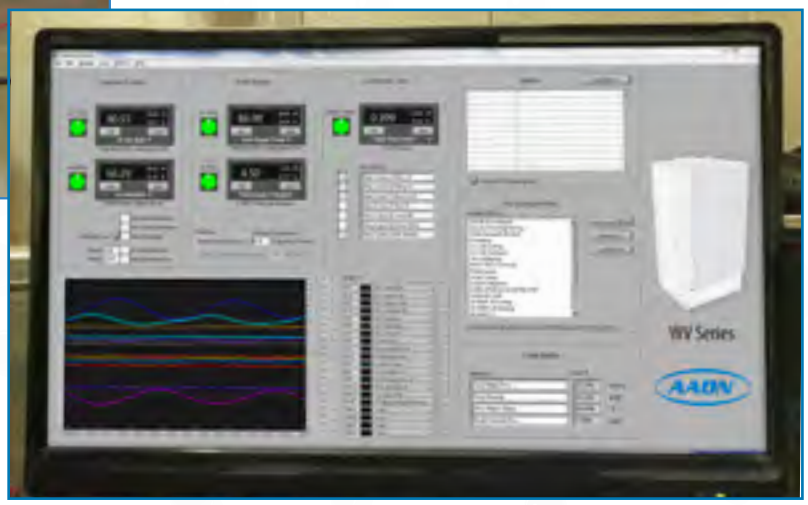
- Replacement Ready size matches with conventional water-source heat pumps
- All Aluminum Construction results in significantly less weight and superior corrosion resistance
- Hem Bends reduce sharp edges and improve serviceability
- Left or Right Hand Return
- Left, Right or End Discharge (field convertible) - Horizontal
- Top Discharge - Vertical
- Closed Cell Neoprene Foam Cabinet Insulation eliminates fiber in the air stream.
- Bottom Service Access to expansion valve, reversing valve, filter drier, supply fan, and filters - Horizontal
- Integrated Hanging Brackets with Rubber Vibration Isolation are durable and simplify installation - Horizontal
- Integrated Internal condensate P-Trap within the cabinet eliminates need for housekeeping pad - Vertical Configuration
- Sloped Stainless Steel Drain Pan includes Automated TIG and Induction Welding
- Induction Brazed Copper Piping
- Integrated Filter Rack with Pleated MERV 8 filtration
- Sellable or Recyclable Sheet Metal Pallet
- 5 Year Parts Warranty

Factory Installed Options

- ECM Fan Speed Control Dehumidification
- Two-Step Compressors (2-5 tons) for part load energy savings.
- Corrosion Resistant Cupronickel Coaxial Refrigerant-to-Water Heat Exchanger
- Factory Installed Non-Fused Disconnect Switch
- Low Sound Package reduces fan and compressor sound
- Economical One Inch Foil Face Cotton Fiber Cabinet Insulation
- Four Inch Filter Rack available with High Efficiency Filters, Up to MERV 14
- Factory Provided Return Air Duct Connection
- Hot Gas Reheat Dehumidification
- Factory Installed Waterside Economizer with Three-Way Motorized Valve
- Ground Loop/Ground Source Insulation for geothermal application
- AAON Pioneer Gold controller for standalone control with space sensor and BACnet MSTP network capabilities

All Units are Performance and Safety Tested in a High Tech Water-Source Heat Pump Testing Laboratory

▼ Advanced Test Chamber Provides Detailed Testing Results



All Aluminum Construction

AAON Water-Source Heat Pumps feature all aluminum cabinet construction with unit weight that is significantly less than a conventional water-source heat pump galvanized steel unit. Additional construction features include hem bends on all exposed edges, integrated hanging brackets and a filter rack that is integrated into the unit cabinet.

Microchannel Coils

AAON Water-Source Heat Pumps feature an aluminum microchannel indoor DX coil with a larger surface area than conventional water-source heat pumps. Microchannel coils improve the efficiency of the unit, reduce air pressure drop, reduce fan horsepower, reduce refrigerant charge, and reduce unit weight.

AAON Metal Pallet

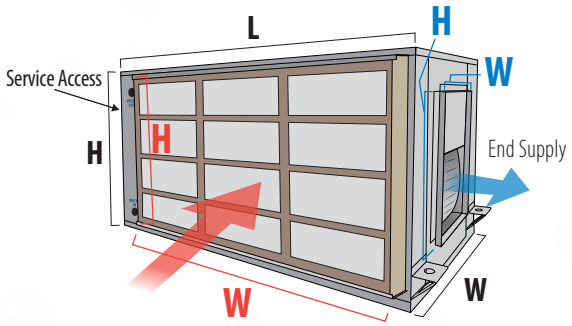
AAON designed a custom sheet metal pallet for the AAON Water-Source Heat Pump. The pallet allows multiple units to be stacked and is used to ship and store the units. Once the equipment is installed at the jobsite the metal pallet can be easily sold or recycled!

Advanced Testing Technology

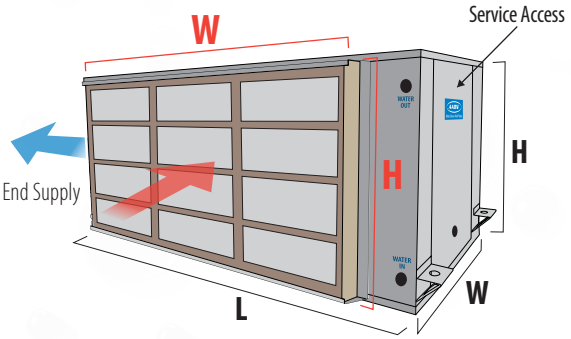
All AAON Water-Source Heat Pumps are lab tested before going into production. The state-of-the-art AAON Water-Source Heat Pump Laboratory utilizes the most recent advances in HVAC chamber testing technology to allow testing from 20-120°F, 30-80% RH, up to 6,000 cfm, and up to 50 gpm. Performance testing completed in accordance with ISO Standard 13256.

Replacement Ready

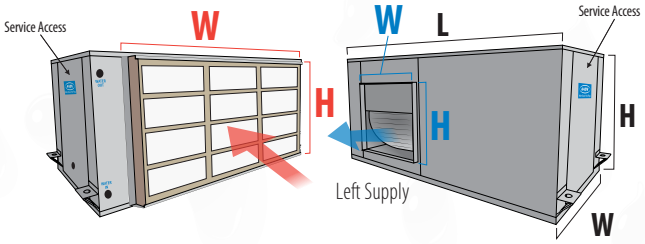
AAON Water-Source Heat Pumps are stocked and ready to ship. Replacement units match the size of conventional water-source heat pump units.



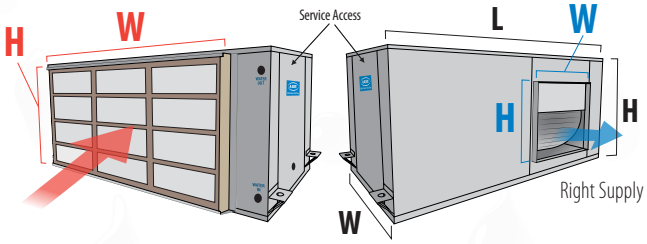
WH Series Horizontal Water-Source Heat Pump
Right Return with End Supply



WH Series Horizontal Water-Source Heat Pump
Left Return with End Supply



WH Series Horizontal Water-Source Heat Pump
Right Return with Left Supply

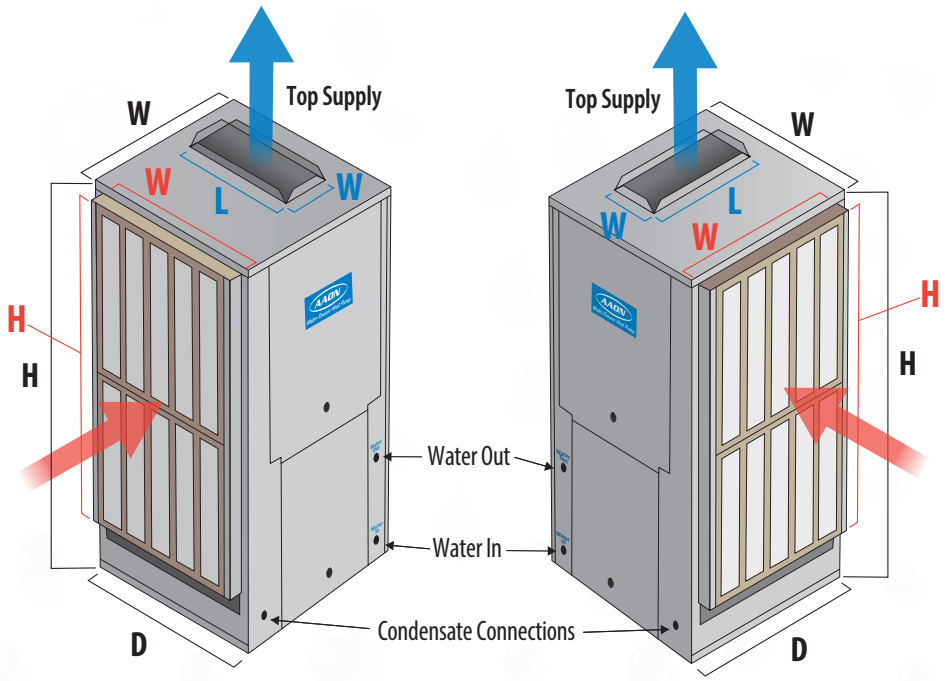


WH Series Horizontal Water-Source Heat Pump
Left Return with Right Supply

WH Series Physical Data

WH Model (MBH)	Cabinet	Configuration	Cabinet Size			Supply Air Opening		Return Air Opening		Water (FPT)		Weight (lbs.)	Refrigerant Charge (oz.)
			W	L	H	W	H	W	H	In	Out		
WH-006	A	Horizontal Left or Right Return Left, Right, or End Discharge	19	34	10 ¾	9 ⅛	4 ¼	23 ½	9 ¾	½	½	73	18
WH-009												75	25
WH-012												78	
WH-015	B		20	43	17	7 ⅜	10 ⅜	31 ½	15 ¾	½	½	120	36
WH-018												122	
WH-024	C		22	43	17	9 ⅜	9 ⅞	31 ½	15 ¾	½	½	158	42
WH-030										¾	¾	162	
WH-036	D		22	48	25 ½	10 ¾	10 ⅜	38 ¾	19 ⅛	¾	¾	179	52
WH-042												199	62
WH-048	E		24	54	21	10 ¾	13	46 ½	19 ⅝	¾	¾	239	76
WH-060										1	1	247	80
WH-072	F												
WH-096													
WH-120	G												
WH-150													
WH-180													
WH-240	H												

All dimensions are in inches. Dimensions and weight may vary depending on options selected.



WV Series Vertical Water-Source Heat Pump
Left Return with Top Supply

WV Series Vertical Water-Source Heat Pump
Right Return with Top Supply

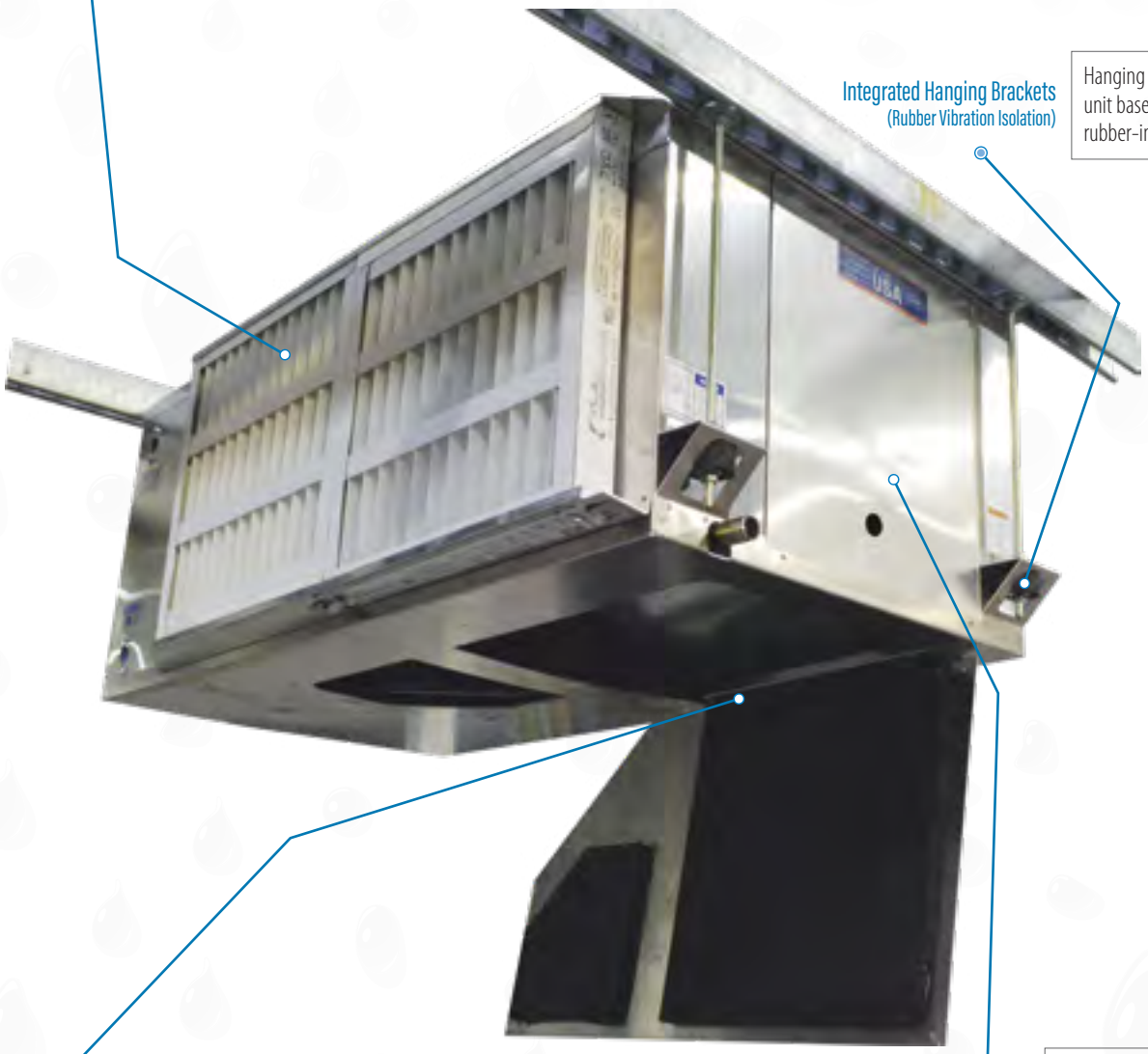
WV Series Physical Data

WV Model (MBH)	Cabinet	Configuration	Cabinet Size			Supply Air Opening		Return Air Opening		Water (FPT)		Weight (lbs.)	Refrigerant Charge (oz.)
			W	D	H	W	L	W	H	In	Out		
WV-006	A	Vertical Left or Right Return Top Discharge	15	19	52 ½	4 ⅞	11 ⅞	15 ½	24 ½	½	½	85	26
WV-009												85	28
WV-012												85	30
WV-015	B					9 ½	7 ⅛			½	½	90	32
WV-018												90	38
WV-016	B Short		21	19	40	9 ½	7 ⅛			½	½	90	32
WV-019												90	38
WV-024	C		21 ½	21 ½	44	11 ⅜	10 ¾	19 ⅝	35	½	½	98	42
WV-030										¾	¾	105	44
WV-036	D		21 ½	25 ½	48	11 ½	10 ¾	23 ½	39	¾	¾	115	48
WV-042												121	62
WV-048	E		24	29	60	11 ½	10 ¾	27 ⅛	47	¾	¾	221	66
WV-060										1	1	229	74
WV-072	F												
WV-096													
WV-120	G												
WV-150													
WV-180	H												
WV-240													
WV-300	I												
WV-360													

All dimensions are in inches. Dimensions and weight may vary depending on options selected.

Standard Two Inch Pleated Filter

Two inch filter rack is included as standard on B Cabinet (1 ¼ ton) and larger units for pleated MERV 8 filtration. Unit can also be factory configured with a four inch filter rack for high efficiency filtration applications. Filters can be replaced from the side or bottom of the unit for ease of maintenance.



Integrated Hanging Brackets
(Rubber Vibration Isolation)

Hanging brackets and integrated into the unit base and include factory provided rubber-in-shear vibration isolation.

Bottom Service Access

Expansion valve, reversing valve, filter drier, air filters, supply fan and motor can all be accessed from the bottom of the unit for ease of in-place maintenance.

Toolless Panel Access

Access panels do not require tools to open/close. Panels provide service access to the TXV, reversing valve, compressor, filters, and supply fan.

WH Series Horizontal Unit with Standard Bottom Service Access

Copper Coaxial Refrigerant-to-Water Heat Exchanger

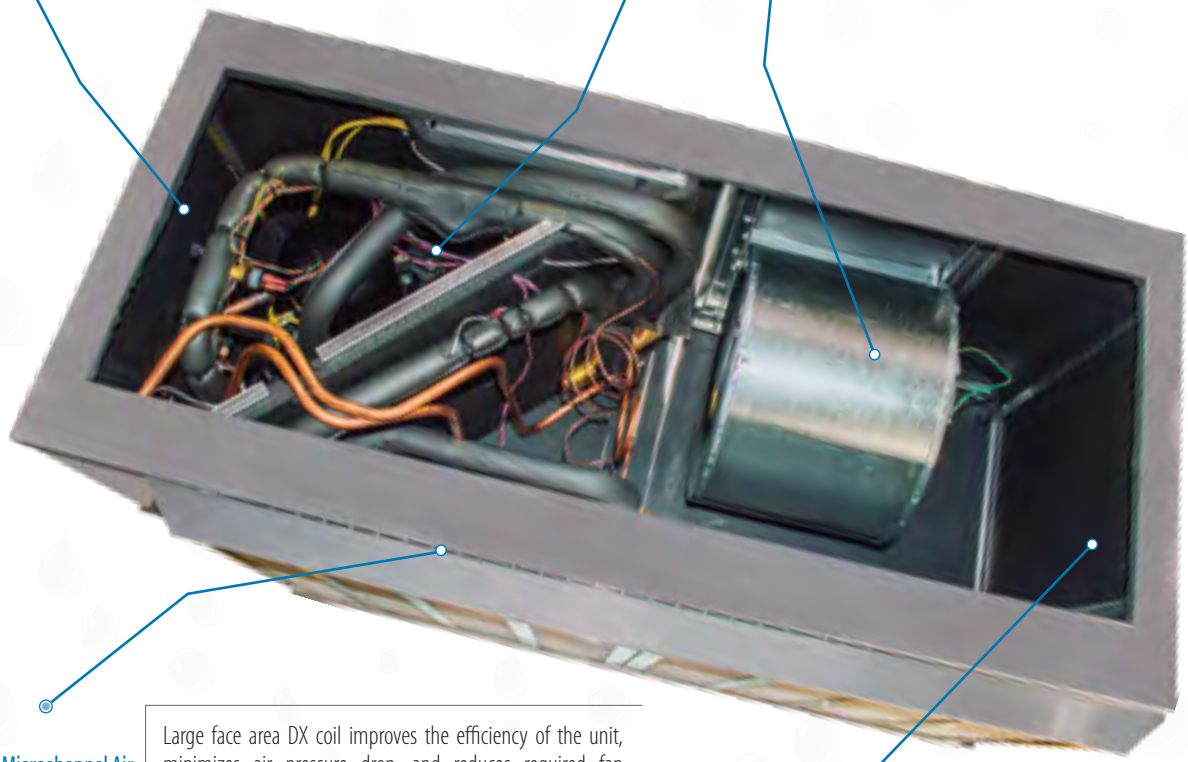
Coaxial heat exchanger provides reliable operation. Cupronickel heat exchanger option is available for additional corrosion resistance.

Reliable Scroll/ Rotary Compressors

R-410A scroll compressors are included on units 2 tons and larger. R-410A rotary compressors are included on units from ½ through 1 ½ tons. Compressors are mounted with rubber-in-shear on an isolation plate that is rubber-in-shear isolated in the cabinet foam reduced vibration.

High Efficiency Fan
(Left, Right, or End Discharge)

Direct drive forward curved supply fan is available with Permanent Split Capacitor (PSC) motor or Electronically Commutated Motor (ECM). Fan can be factory or field converted between side and end discharge.



Aluminum Microchannel Air Coil Horizontal Configuration
(Left or Right Return)

Large face area DX coil improves the efficiency of the unit, minimizes air pressure drop, and reduces required fan horsepower. Aluminum microchannel coils minimize refrigerant charge and overall unit weight. Factory provided return duct flange connection is available.

Closed Cell Neoprene Foam Insulation

Provides cleaner, fiber free air and reduces sound transmission

Top View Interior of a WH Series Horizontal Unit with Right Return and Left Supply

WH Series Performance Data with PSC Motor Fan

WH Model (MBH)	Supply Fan			Fluid Flow (gpm)	Water Loop (Ratings at AHRI Cooling Tower/Boiler Conditions as in accordance with ISO Standard 13256-1)							Electrical		
					Cooling EWT 86°F				Heating EWT 68°F					
	Airflow (cfm)	Max e.s.p. at Airflow	HP		Total Cap. (btu/hr)	Sensible Cap. (btu/hr)	EER	Ht of Rejection	Capacity (btu/hr)	COP	Ht. of Absorption	Voltage	Minimum Circuit Amps	Maximum Overcurrent Protection
WH-015 (1¼ ton)	570	0.77	1/4	3.75	14,100	11,290	15.4	17,220	18,100	5.8	15,300	208/230V-60Hz-1ph	8.4	15
												265V-60Hz-1ph	7.7	15
WH-018 (1½ ton)	700	0.65	1/4	4.50	17,200	13,180	15.4	20,570	21,600	5.5	18,380	208/230V-60Hz-1ph	9.8	15
												265V-60Hz-1ph	8.8	15
WH-024 (2 ton)	8,000	0.62	1/3	6.00	23,600	17,500	14.4	29,410	27,800	4.7	26,690	208/230V-60Hz-1ph	18.8	30
												265V-60Hz-1ph	13.5	20
												208/230V-60Hz-3ph	10.8	15
												460V-60Hz-3ph	5.7	15
WH-030 (2½ ton)	1,000	0.33	1/3	7.50	28,400	20,610	14.7	35,970	35,100	4.3	29,130	208/230V-60Hz-1ph	19.5	30
												265V-60Hz-1ph	16.2	25
												208/230V-60Hz-3ph	13	20
												460V-60Hz-3ph	6.6	15
WH-036 (3 ton)	1,240	0.85	1/2	9.00	35,600	26,410	14.7	45,070	43,800	4.7	41,140	208/230V-60Hz-1ph	23.8	40
												265V-60Hz-1ph	20.3	30
												208/230V-60Hz-3ph	15.9	25
												460V-60Hz-3ph	8.8	15
WH-042 (3½ ton)	1,350	0.64	1/2	10.50	41,200	29,950	15.0	51,510	49,200	4.7	48,070	208/230V-60Hz-1ph	25.3	40
												265V-60Hz-1ph	23.4	35
												208/230V-60Hz-3ph	19.8	30
												460V-60Hz-3ph	9	15
WH-048 (4 ton)	1,660	0.96	3/4	12.00	49,500	39,570	14.5	63,970	63,700	5.0	47,370	208/230V-60Hz-1ph	34.1	50
												265V-60Hz-1ph	24.5	40
												208/230V-60Hz-3ph	22.9	35
												460V-60Hz-3ph	9.3	15
WH-060 (5 ton)	1,980	0.25	3/4	15.00	60,000	46,480	14.6	77,010	76,700	4.8	64,270	208/230V-60Hz-1ph	37	60
												265V-60Hz-1ph	29	45
												208/230V-60Hz-3ph	24	40
												460V-60Hz-3ph	11.3	15
WH-072-WH 240 (6-20 tons)	Future													

WH Series Performance Data with High Efficiency ECM Fan

WH Model (MBH)	Supply Fan			Fluid Flow (gpm)	Water Loop (Ratings at AHRI Cooling Tower/Boiler Conditions as in accordance with ISO Standard 13256-1)							Electrical		
					Cooling EWT 86°F				Heating EWT 68°F					
	Airflow (cfm)	Max e.s.p. at Airflow	HP		Total Cap. (btu/hr)	Sensible Cap. (btu/hr)	EER	Ht of Rejection	Capacity (btu/hr)	COP	Ht. of Absorption	Voltage	Minimum Circuit Amps	Maximum Overcurrent Protection
WH-006 (½ ton)	230	0.73	0.23	1.50	5,700	4,770	14.0	7,210	7,200	4.9	6,070	115V-60Hz-1ph	10	15
												208/230V-60Hz-1ph	5	15
												265V-60Hz-1ph	3.5	15
WH-009 (¾ ton)	380	0.50	1/4	2.25	8,700	72,270	14.6	11,200	10,800	5.1	9,540	115V-60Hz-1ph	13	15
												208/230V-60Hz-1ph	6.4	15
												265V-60Hz-1ph	5.6	15
WH-012 (1 ton)	420	0.33	1/4	3.00	11,000	9,310	12.8	15,200	15,100	4.6	13,210	115V-60Hz-1ph	19	30
												208/230V-60Hz-1ph	9.1	15
												265V-60Hz-1ph	8.1	15
WH-015 (1¼ ton)	610	0.66	1/3	3.75	14,200	11,480	17.0	17,200	17,900	6.3	15,300	208/230V-60Hz-1ph	9.5	15
												265V-60Hz-1ph	7.8	15
WH-018 (1½ ton)	640	0.66	1/3	4.50	16,600	13,440	16.7	20,750	20,000	5.6	17,780	208/230V-60Hz-1ph	10.9	15
												265V-60Hz-1ph	8.9	15
WH-024 (2 ton)	800	0.66	1/3	6.00	24,000	17,870	15.1	29,410	27,700	5.0	26,690	208/230V-60Hz-1ph	19.5	30
												265V-60Hz-1ph	13.2	20
												208/230V-60Hz-3ph	11.5	15
												460V-60Hz-3ph	5.2	15
WH-030 (2½ ton)	1,010	0.38	1/3	7.50	28,800	21,010	15.2	35,970	34,900	4.5	29,130	208/230V-60Hz-1ph	20.2	30
												265V-60Hz-1ph	15.9	25
												208/230V-60Hz-3ph	13.7	20
												460V-60Hz-3ph	6.1	15
WH-036 (3 ton)	1,200	0.85	1/4	9.00	36,100	27,030	15.2	45,070	43,500	5.0	41,140	208/230V-60Hz-1ph	25.5	40
												265V-60Hz-1ph	20.1	30
												208/230V-60Hz-3ph	17.6	25
												460V-60Hz-3ph	8.5	15
WH-042 (3½ ton)	1,310	0.74	1/4	10.50	41,800	30,530	15.3	51,510	48,900	5.0	48,070	208/230V-60Hz-1ph	27	40
												265V-60Hz-1ph	23.2	35
												208/230V-60Hz-3ph	21.5	30
												460V-60Hz-3ph	8.7	15
WH-048 (4 ton)	1,670	1.19	3/4	12.00	51,700	41,000	16.8	64,450	63,200	5.3	46,670	208/230V-60Hz-1ph	33.6	50
												265V-60Hz-1ph	24.6	40
												208/230V-60Hz-3ph	23.4	35
												460V-60Hz-3ph	9.9	15
WH-060 (5 ton)	2,000	0.84	3/4	15.00	61,000	47,290	16.2	77,010	76,700	4.8	64,270	208/230V-60Hz-1ph	39.3	60
												265V-60Hz-1ph	30.4	50
												208/230V-60Hz-3ph	26.3	40
												460V-60Hz-3ph	11.9	15
WH-072-WH 240 (6-20 tons)	Future													

Small Packaged Units

Closed Cell Neoprene Foam Cabinet Insulated

Interior of Supply Fan Section

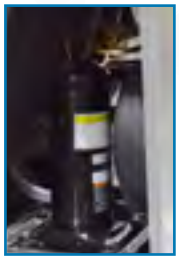
Direct drive is available with Permanent Split Capacitor (PCS) motor or Electronically Commutated Motor (ECM).

High Efficiency Fan (Top Discharge)

Neoprene Closed Cell Foam Insulation

Provides cleaner, fiber-free air and reduces sound transmission.

Condensate Drain Pan



Interior of Compressor and Refrigeration Components Section

Reliable Scroll/ Rotary Compressors

R-410A scroll compressors are included on units 2 tons or larger. R-410A rotary compressors are included on units from ½ to 1 ½ tons. Compressors are mounted with rubber-in-shear on an isolation plate that is rubber-in-shear isolated in the cabinet for reduced vibration.

Control Panel Service Access

Panel provides service access to the controls, and supply fan.

Pioneer Silver Controls

Terminal block connections allow connection to a standard heat pump thermostat.

Internal P-Trap

Eliminates the need for housekeeping pads.

Standard Two Inch Pleated Filter

Two inch filter rack is included as standard on C Cabinet (2 ton) and larger units for pleated MERV 8 filtration. Unit can be factory configured with a four inch filter rack for high efficiency filtration applications.

WV Series Vertical Unit with Right Return and Top Supply

WV Series Performance Data with PSC Fan

WV Model (MBH)	Supply Fan			Fluid Flow (gpm)	Water Loop (Ratings at AHRI Cooling Tower/Boiler Conditions as in accordance with ISO Standard 13256-1)							Electrical		
					Cooling EWT 86°F				Heating EWT 68°F					
	Airflow (cfm)	Max e.s.p. at Airflow	HP		Total Cap. (btu/hr)	Sensible Cap. (btu/hr)	EER	Ht of Rejection	Capacity (btu/hr)	COP	Ht. of Absorption	Voltage	Minimum Circuit Amps	Maximum Overcurrent Protection
WV-015 (1 ¼ ton)	500	0.74	1/4	3.75	14,100	10,390	15.2	16,630	15,700	4.4	14,740	208/230V-60Hz-1ph	8.4	15
												265V-60Hz-1ph	7.7	15
WV-016 (1 ¼ ton)		0.66				13,260						208/230V-60Hz-1ph	8.4	15
												265V-60Hz-1ph	7.7	15
WV-018 (1 ½ ton)	600	0.74		4.50	17,400	10,370	15.2	16,630	22,400	4.9	17,730	208/230V-60Hz-1ph	10.3	15
												265V-60Hz-1ph	9.3	15
WV-019 (1 ½ ton)		0.66				13,260						208/230V-60Hz-1ph	10.3	15
												265V-60Hz-1ph	9.3	15
WV-024 (2 ton)	800	0.73	1/3	6.00	22,600	17,510	14.6	29,390	27,500	4.3	26,700	208/230V-60Hz-1ph	18.8	30
												265V-60Hz-1ph	13.5	20
												208/230V-60Hz-3ph	10.8	15
												460V-60Hz-3ph	5.7	15
WV-030 (2½ ton)	1,000	0.50		7.50	27,400	20,960	14.6	36,220	34,200	4.7	29,170	208/230V-60Hz-1ph	19.5	30
												265V-60Hz-1ph	16.2	25
												208/230V-60Hz-3ph	13	20
												460V-60Hz-3ph	6.6	15
WV-036 (3 ton)	1,200	0.93	1/2	9.00	36,800	27,950	15.0	46,320	45,000	4.7	39,940	208/230V-60Hz-1ph	23.8	40
												265V-60Hz-1ph	20.3	30
												208/230V-60Hz-3ph	15.9	25
												460V-60Hz-3ph	8.8	15
WV-042 (3½ ton)	1,400	0.75		10.50	42,000	31,710	14.8	52,710	53,500	5.0	48,120	208/230V-60Hz-1ph	25.3	40
												265V-60Hz-1ph	23.4	35
												208/230V-60Hz-3ph	19.8	30
												460V-60Hz-3ph	9	15
WV-048 (4 ton)	1,550	0.78	1/2	12.00	46,100	37,480	13.6	62,130	64,100	4.6	54,070	208/230V-60Hz-1ph	33	50
												265V-60Hz-1ph	23.8	40
												208/230V-60Hz-3ph	21.8	35
												460V-60Hz-3ph	9.3	15
WV-060 (5 ton)	1,950	0.65	3/4	15.00	57,500	43,450	13.9	74,630	73,800	4.7	67,130	208/230V-60Hz-1ph	37	60
												265V-60Hz-1ph	29	45
												208/230V-60Hz-3ph	24	40
												460V-60Hz-3ph	11.3	15
WV-072-WV-360 (6-30 tons)	Future													

WV Series Performance Date with High Efficiency ECM Fan

WV Model (MBH)	Supply Fan			Fluid Flow (gpm)	Water Loop (Ratings at AHRI Cooling Tower/Boiler Conditions as in accordance with ISO Standard 13256-1)							Electrical		
					Cooling EWT 86°F				Heating EWT 68°F					
	Airflow (cfm)	Max e.s.p. at Airflow	HP		Total Cap. (btu/hr)	Sensible Cap. (btu/hr)	EER	Ht of Rejection	Capacity (btu/hr)	COP	Ht. of Absorption	Voltage	Minimum Circuit Amps	Maximum Overcurrent Protection
WV-006 (½ ton)	250	0.56	0.27	2.00	5,900	4,930	15.3	7,970	8,500	6.0	6,440	115V-60Hz-1ph	7	15
												208/230V-60Hz-1ph	4.3	15
												265V-60Hz-1ph	3.9	15
WV-009 (¾ ton)	330	0.55	0.27	2.25	9,100	7,250	15.4	12,280	12,000	5.4	9,500	115V-60Hz-1ph	11.2	15
												208/230V-60Hz-1ph	7	15
												265V-60Hz-1ph	5.7	15
WV-012 (1 ton)	440	0.64	0.27	4.00	13,100	9,400	15.2	16,420	17,800	5.1	13,810	115V-60Hz-1ph	13.4	20
												208/230V-60Hz-1ph	8.1	15
												265V-60Hz-1ph	6.7	15
WV-015 (1¼ ton)	500	0.71	1/3	3.75	14,800	10,590	15.5	16,630	15,600	4.4	14,740	208/230V-60Hz-1ph	9.5	15
												265V-60Hz-1ph	7.8	15
WV-016 (1 ¼ ton)												208/230V-60Hz-1ph	9.5	15
												265V-60Hz-1ph	7.8	15
WV-018 (1½ ton)	600			4.50	17,500	13,360	15.8	22,530	22,300	5.0	17,730	208/230V-60Hz-1ph	11.4	15
												265V-60Hz-1ph	9.4	15
WV-019 (1 ½ ton)												208/230V-60Hz-1ph	11.4	15
												265V-60Hz-1ph	9.4	15
WV-024 (2 ton)	800	0.77		6.00	22,900	17,880	15.3	29,390	27,400	4.6	26,700	208/230V-60Hz-1ph	19.5	30
												265V-60Hz-1ph	13.2	20
												208/230V-60Hz-3ph	11.5	15
												460V-60Hz-3ph	5.2	15
WV-030 (2½ ton)	1,000	0.55		7.50	27,800	21,370	15.1	36,220	34,000	4.9	29,170	208/230V-60Hz-1ph	20.2	30
												265V-60Hz-1ph	15.9	25
												208/230V-60Hz-3ph	13.7	20
												460V-60Hz-3ph	6.1	15
WV-036 (3 ton)	1,200	0.93	1/2	9.00	35,700	28,570	15.5	46,320	43,400		39,940	208/230V-60Hz-1ph	25.5	40
												265V-60Hz-1ph	20.1	30
												208/230V-60Hz-3ph	17.6	25
												460V-60Hz-3ph	8.5	15
WV-042 (3½ ton)	1,400	0.75		10.50	42,000	32,290	15.3	52,710	52,700	5.1	48,120	208/230V-60Hz-1ph	27	40
												265V-60Hz-1ph	23.2	35
												208/230V-60Hz-3ph	21.5	30
												460V-60Hz-3ph	8.7	15
WV-048 (4 ton)	1,550	1.43	3/4	12.00	48,500	37,960	16.4	62,130	63,900		54,070	208/230V-60Hz-1ph	33.6	50
												265V-60Hz-1ph	24.6	40
												208/230V-60Hz-3ph	23.4	35
												460V-60Hz-3ph	9.9	15
WV-060 (5 ton)	2,100	1.08		15.00	59,000	44,260	15.0	74,630	72,900	5.0	67,130	208/230V-60Hz-1ph	39.3	60
												265V-60Hz-1ph	29.1	45
												208/230V-60Hz-3ph	26.3	40
												460V-60Hz-3ph	11.9	15
WV-072-WV-360 (6-30 tons)	Future													

PIONEER Controls

Water-Source Heat Pump Controls

PIONEER Silver

Pioneer Silver System Applications

- Terminals to Connect to a DDC System or Heat Pump Thermostat
- Heating, Cooling, and Dehumidification Modes of Operation

Pioneer Silver
Standard Terminals - G, Y, O, 24V, COM

Factory or Field Provided
Heat Pump Thermostat

Pioneer Silver + Thermostat Advantages

- PSC or ECM Fan Control
- Rotary or Scroll Compressor Control
- Night Setback
- High Condensate Level Sensor
- Status and Alarm LEDs
- Test Mode for Startup and Maintenance
- Emergency Shutdown Input

Pioneer Silver + Expansion Board + Thermostat Advantages

Pioneer Silver

Pioneer Silver Expansion Board

Factory or Field Provided
Heat Pump Thermostat

- PSC or ECM Fan Control
- Rotary or Scroll Compressor Control
- Hot Gas Reheat Dehumidification Control
- Waterside Economizer Control
- Two Stage Fan Control
- Two Stage Compressor Control
- Two Stage Auxiliary Heat Control
- Night Setback
- High Condensate Level Sensor
- Motorized Water Valve Control
- Status and Alarm LEDs
- Test Mode for Startup and Maintenance
- Emergency Shutdown Input

PIONEER Silver

Pioneer Gold System Applications

- Standalone Control with Space Sensors and Touchscreen Configuration
- Constant Volume or Single Zone VAV
- Terminals to Connect to a DDC System or Heat Pump Thermostat

Pioneer Gold + Space Sensor

Pioneer Gold with Touchscreen Interface and BACnet IP/MSTP and Modbus

4.3" Wall Mounted Touchscreen Space Temperature and Humidity Sensor

OR

Simple Space Temperature Sensor

Pioneer Gold + Thermostat

Pioneer Gold with Touchscreen Interface and BACnet IP/MSTP and Modbus

Factory or Field Provided Heat Pump Thermostat

Pioneer Gold Advantages

- User-Friendly Touchscreen Interface on the Control Board
- PSC or ECM Fan Control
- Rotary or Scroll Compressor Control
- Hot Gas Reheat Dehumidification Control
- Waterside Economizer Control
- Two Stage Fan Control
- Two-Step Compressor Control
- Two Stage Auxiliary or Emergency Heat Control
- Occupancy Scheduling
- Night Setback
- High Condensate Level Sensor
- Motorized Water Valve Control
- Variable Speed Pump Control
- Status and Alarm LEDs
- Test Mode for Startup and Maintenance
- Emergency Shutdown Input
- Hot Water Valve Control
- CO_2 Alarm
- CO_2 Setpoint Outside Air Damper Override

Modular Self-Contained Units

AAON M2 Series water-source heat pump self-contained units provide an ideal solution for new and replacement applications with its modular construction and premier factory installed features. Features such as variable capacity scroll compressors, direct drive backward curved plenum supply fans, head pressure control water valves, and double wall rigid polyurethane foam insulated cabinet construction provide the M2 Series WSHP with unmatched performance.

(3 to 70 tons)

M2 Series

Applications

- Modular Self-Contained Water-Source Heat Pumps, from 3 to 70 tons
- Available for Constant Volume, Variable Air Volume (VAV), Single Zone VAV, and Makeup Air applications with up to 100% outside air
- Total Energy Recovery with 100% Outside Air
- Dehumidification with Modulating Hot Gas Reheat and Return Air Bypass
- Premium High Efficiency Filtration for Indoor Air Quality
- Modular Construction for renovation installations with restricted install space

Standard Features

- 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.
- Water-source or geothermal heat pump configurations with 10-100% variable capacity compressors for a packaged indoor system with energy efficient heating and cooling.

Construction

- 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.
- Sloped stainless steel drain pans eliminate standing water that can support microbial growth and prevents corrosion and rust 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.

Factory Installed Options

- ECM (Electronically Commutated Motor) driven or VFD controlled backward curved plenum supply fans for precise airflow control and reduced power consumption.
- Modulating gas heat with 5:1 turn down natural gas or 3:1 turn down 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.

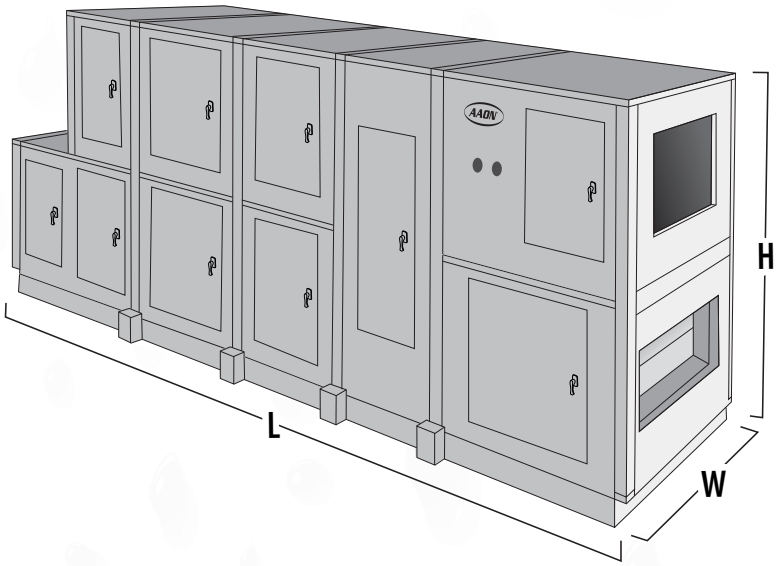
Backward curved fans are quiet, energy efficient and have high static pressure capabilities ▶

Controls

- Labeled electrical components and color-coded wiring match the unit specific color-coded wiring diagram which is laminated and permanently affixed inside the control compartment.
- Ship loose units use quick connects between the modules to simplify wiring in the field.
- Factory provided or customer provided controller can be selected to meet existing or new building control architecture.
- Factory run test, inspection report, and Installation, Operation, and

Variable Capacity Scroll Compressors

Variable capacity scroll compressors can modulate from 10-100% capacity. This allows the system to maintain consistent supply air temperatures at all operating conditions. During part load operation, reducing compressor capacity increases part load efficiency and ultimately saves valuable system operating costs.



M2 Series Physical Data

M2 Model (tons)	Model Coil Face Area (ft^3)	Compressors/ Circuits	Refrigerant-to-Water Heat Exchanger	Cabinet Size			Supply Duct		Return Duct		Water Connections In & Out	Weight (lbs.)
				W	H	L	W	L	W	H		
M2-003	005	1/1	Coaxial	50	39 ½	164	40	14	40	20	1 FPT	1,690
M2-004												
M2-005											1 ¼ FPT	
M2-006	008		Brazed Plate		51 ½	162		16		32	1 ½ Sch 80	1,993
M2-007												
M2-008												
M2-010		2/2										
M2-011	011			62	55 ½	166	50	20	50	40		2,799
M2-013	014				61 ½							3,018
M2-015	014										2 Sch 80	
M2-016	018			84	55 ½	210	72		72	34		4,061
M2-018	018											
M2-020	018											
M2-025	022				61 ½	216	74			48	2 ½ Sch 80	4,511
M2-030	026				71 ½	222		22		50		5,234
M2-040	032	4/2		96	77 ½	258			84			6,158
M2-050	036									55		6,010
M2-060	036										3 Sch 80	
M2-070	036											

All dimensions are in inches • Only one basic configuration of M2 Series shown and dimensions and weights will differ (Filter/Control/Coil/Fan/Discharge/WSHP modules)
Cabinet dimensions, duct connections, water connection, and weight will vary depending on module configuration and options selected
Basic configuration includes On/Off Scroll Compressors, 6 inch Base Rail

Modulating Hot Gas Reheat for Humidity Control

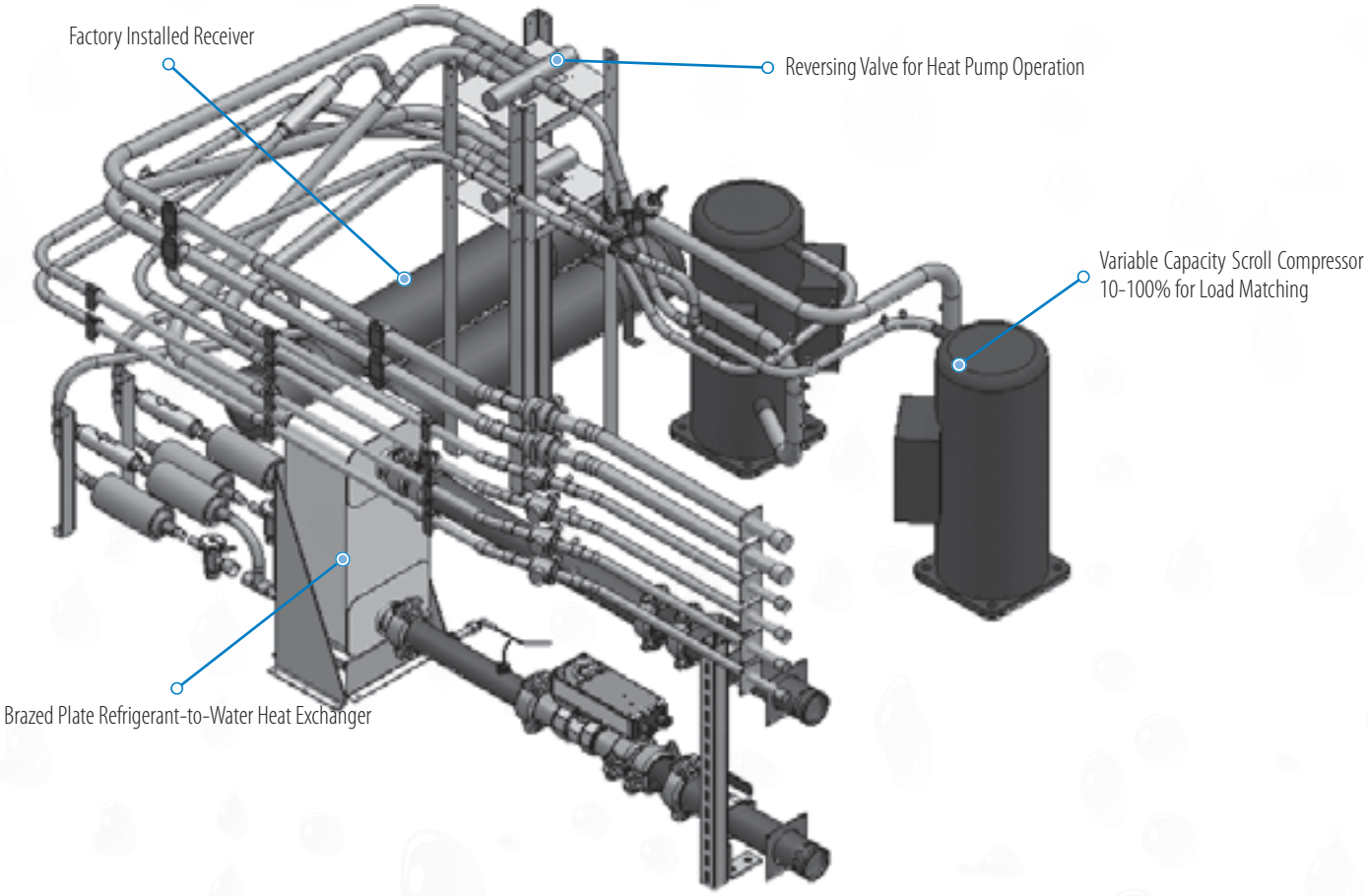
2-Way Head Pressure Control for Lower Water Temperatures and Variable Water Pump Energy Savings

30 ton WSHP Module Interior

Energy Recovery Wheel

AAONAIRE 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%.

M2 Series Water-Source Heat Pump ▶ with Energy Recovery



WSHP with Modulating Hot Gas Reheat Piping Layout

Modulating Hot Gas Reheat

This system delivers only the amount of reheat required for space comfort, providing precise dehumidification without over cooling the space. Occupant comfort is uniform and consistent even with 100% outside air applications; temperature swings common to on/off type reheat systems with ventilation air are eliminated.

Modulating Water Valve Control

Modulating head pressure control, via either 2 or 3-way modulating water valve, allows unit operation below 65° F condenser water temperature. This gives the unit a larger operating range, which is especially beneficial in the dehumidification mode of operation.

M2 Series Performance Data (3-13 tons)

M2 Model (tons)	Supply Fan			Fluid Flow (gpm)	Water Loop (Ratings at AHRI Cooling Tower/Boiler Conditions as in accordance with ISO Standard 13256-1)							Electrical		
					Cooling EWT 86°F				Heating EWT 68°F					
	Airflow (cfm)	Mtr hp	Fan Size		Total Cap. (btu/hr)	Sensible Cap. (btu/hr)	EER	Ht of Rejection	Capacity (btu/hr)	COP	Ht. of Absorption	Voltage	Minimum Circuit Amps	Maximum Overcurrent Protection
M2-003	1,200	1.34 (ECM)	14" BC Plenum	9.00	38,900	30,890	16.4	46,229	47,210	5.4	39,103	230V-60Hz-1ph	25	40
												230V-60Hz-3ph	18	25
												460V-60Hz-3ph	9	15
												575V-60Hz-3ph	6	15
												208V-60Hz-1ph	25	40
												208V-60Hz-3ph	18	25
M2-004	1,850	1.34 (ECM)	14" BC Plenum	12.00	52,300	43,480	15.2	62,003	62,670	5.3	52,355	230V-60Hz-1ph	32	50
												230V-60Hz-3ph	20	30
												460V-60Hz-3ph	10	15
												575V-60Hz-3ph	8	15
												208V-60Hz-1ph	32	50
												208V-60Hz-3ph	20	30
M2-005	1,850	1.34 (ECM)	14" BC Plenum	15.00	57,300	45,610	13.6	69,554	71,850	5.0	58,920	230V-60Hz-1ph	42	70
												230V-60Hz-3ph	25	40
												460V-60Hz-3ph	11	15
												575V-60Hz-3ph	8	15
												208V-60Hz-1ph	42	70
												208V-60Hz-3ph	25	40
M2-006	3,200	4 (ECM)	18" BC Plenum	18.00	71,800	67,560	15.6	84,419	88,990	6.2	76,822	230V-60Hz-3ph	28	40
												460V-60Hz-3ph	15	20
												575V-60Hz-3ph	11	15
												208V-60Hz-3ph	28	40
M2-007	3,200	4 (ECM)	18" BC Plenum	21.00	84,300	842,280	14.9	100,765	107,410	5.6	90,406	230V-60Hz-3ph	36	50
												460V-60Hz-3ph	18	25
												575V-60Hz-3ph	14	20
												208V-60Hz-3ph	36	50
M2-008	3,200	4 (ECM)	18" BC Plenum	24.00	97,300	94,850	14.2	117,621	126,620	5.1	103,792	230V-60Hz-3ph	40	60
												460V-60Hz-3ph	20	30
												575V-60Hz-3ph	15	20
												208V-60Hz-3ph	40	60
M2-010	3,200	4 (ECM)	18" BC Plenum	30.00	114,700	107,780	14.0	139,471	154,040	4.5	122,135	230V-60Hz-3ph	46	70
												460V-60Hz-3ph	26	40
												575V-60Hz-3ph	19	30
												208V-60Hz-3ph	46	70
M2-011	4,550	4 (ECM)	18" BC Plenum	33.00	137,300	137,250	14.5	163,174	171,920	5.6	145,638	230V-60Hz-3ph	44	50
												460V-60Hz-3ph	22	30
												575V-60Hz-3ph	17	20
												208V-60Hz-3ph	44	50
M2-013	4,550	4 (ECM)	18" BC Plenum	39.00	160,500	150,700	13.8	193,426	206,610	5.0	169,860	230V-60Hz-3ph	59	80
												460V-60Hz-3ph	29	35
												575V-60Hz-3ph	21	25
												208V-60Hz-3ph	59	80

Rated at AHRI Cooling Tower/Boiler conditions in Accordance with ISO Standard 13256-1. Only one basic configuration of unit shown. Actual performance will vary depending on unit configuration and application conditions. Multiple fan and compressor options are available to meet airflow and part load capacity control requirements. Contact your local AAON representative for AAON ECat calculated performance at your application conditions.

M2 Series Performance Data (15-70 tons)

M2 Model (tons)	Supply Fan			Fluid Flow (gpm)	Water Loop (Ratings at AHRI Cooling Tower/Boiler Conditions as in accordance with ISO Standard 13256-1)							Electrical		
					Cooling EWT 86°F				Heating EWT 68°F					
	Airflow (cfm)	Mtr hp	Fan Size		Total Cap. (btu/hr)	Sensible Cap. (btu/hr)	EER	Ht of Rejection	Capacity (btu/hr)	COP	Ht. of Absorption	Voltage	Minimum Circuit Amps	Maximum Overcurrent Protection
M2-015	6,350	8 (ECM)	18" BC Plenum	45.00	199,800	199,800	11.8	241,647	251,490	4.8	208,719	230V-60Hz-3ph	75	90
												460V-60Hz-3ph	36	45
												575V-60Hz-3ph	27	35
												208V-60Hz-3ph	75	90
M2-016	8,150	7 ½	22.5" BC Plenum	48.00	212,300	212,280	13.3	253,406	262,710	5.4	223,214	230V-60Hz-3ph	78	100
												460V-60Hz-3ph	38	50
												575V-60Hz-3ph	29	35
												208V-60Hz-3ph	80	100
M2-018	8,150	7 ½	22.5"BC Plenum	54.00	228,100	228,100	13.6	271,886	285,400	5.5	242,025	230V-60Hz-3ph	84	110
												460V-60Hz-3ph	40	50
												575V-60Hz-3ph	30	40
												208V-60Hz-3ph	86	110
M2-020	8,150	7 ½	22.5" BC Plenum	63.00	255,300	255,270	13.7	305,589	323,330	5.2	270,348	230V-60Hz-3ph	90	110
												460V-60Hz-3ph	49	60
												575V-60Hz-3ph	36	45
												208V-60Hz-3ph	92	110
M2-025	11,550	10	27" BC Plenum	75.00	335,300	335,340	13.0	424,437	424,440	5.2	356,925	230V-60Hz-3ph	136	175
												460V-60Hz-3ph	56	70
												575V-60Hz-3ph	44	50
												208V-60Hz-3ph	139	175
M2-030	13,550	15	27" BC Plenum	90.00	387,800	387,800	12.2	464,422	488,140	5.0	411,139	230V-60Hz-3ph	157	200
												460V-60Hz-3ph	73	90
												575V-60Hz-3ph	62	80
												208V-60Hz-3ph	162	200
M2-040	16,100	15	22.5" BC Plenum (2 Qty)	120.00	511,600	506,600	14.1	609,802	641,930	5.1	534,615	230V-60Hz-3ph	215	250
												460V-60Hz-3ph	114	125
												575V-60Hz-3ph	87	100
												208V-60Hz-3ph	224	250
M2-050	18,050	15	22.5" BC Plenum (2 Qty)	133.00	641,800	596,150	13.4	770,983	813,940	4.7	664,454	230V-60Hz-3ph	288	300
												460V-60Hz-3ph	122	125
												575V-60Hz-3ph	97	110
												208V-60Hz-3ph	297	300
M2-060	18,050	15	22.5" BC Plenum (2 Qty)	180.00	703,900	623,710	13.4	848,930	920,220	4.5	736,550	230V-60Hz-3ph	302	350
												460V-60Hz-3ph	140	150
												575V-60Hz-3ph	118	125
												208V-60Hz-3ph	310	350
M2-070	19,000	15	22.5" BC Plenum (2 Qty)	210.00	801,100	690,150	12.8	971,486	1,059,570	4.2	833,415	230V-60Hz-3ph	321	350
												460V-60Hz-3ph	156	175
												575V-60Hz-3ph	134	150
												208V-60Hz-3ph	330	350

Rated at AHRI Cooling Tower/Boiler conditions in Accordance with ISO Standard 13256-1. Only one basic configuration of unit shown. Actual performance will vary depending on unit configuration and application conditions. Multiple fan and compressor options are available to meet airflow and part load capacity control requirements. Contact your local AAON representative for AAON ECat calculated performance at your application conditions.

Vertical Self-Contained Units

SA and SB Series water-source heat pump self-contained units lead the industry in self-contained unit technology and performance. Variable capacity scroll compressors, direct drive backward curved plenum supply fans, double wall rigid polyurethane foam insulated cabinet construction and heat pump configuration provide the SA and SB Series with unmatched performance.

SA Series

(3 to 70 tons)

SB Series

Applications

- Water-source and geothermal heat pump vertical self-contained units with capacities from 3-70 tons.
- Variable capacity compressors provide comfortable and precise supply air temperature control.
- Variable speed fans provide precise control with reduced sound levels.
- Dehumidification with modulating hot gas reheat.
- Makeup air ventilation with up to 100% outside air.

Construction

- Double wall rigid polyurethane foam injected panel cabinet construction has a higher thermal resistance, or R-value, compared with fiberglass construction. Panels include a thermal break, with no metal contact from inside to outside, to prevent heat transfer through the panel and prevent condensation on the outside of the cabinet. Construction also makes the cabinet more rigid and resistant to damage, provides increased sound attenuation, and reduces air leakage and infiltration.SA Series includes modular construction for renovation installations with restricted space.
- SB Series is designed to fit through a standard door (B Cabinet) or available with split shipping configuration to fit through a standard door opening (C and D Cabinet).
- Hinged access doors with lockable handles make the unit easily serviceable.
- Unit controls and compressor are contained within a compartment isolated from the air stream for ease of service and quiet operation
- Double sloped stainless steel drain pans eliminate standing water that can support microbial growth and stainless steel construction prevents corrosion and rust that could lead to water leaks and contaminants in the air stream.
- SA Series factory provided plenum height options allow the unit to meet space requirements.

Standard Features

- Direct Drive backward curved plenum fans are more energy efficient, quieter, and require less maintenance than belt driven fans. SA Series fans are spring isolated.
- ECM controlled supply fans are standard on the SB Series for precise airflow control and reduced power consumption.
- Variable capacity R-410A scroll compressors provide load matching cooling and improved part load efficiency.
- Coaxial refrigerant-to-water heat exchangers provide energy efficient heat transfer (SB Series)
- Brazed plate or shell and tube heat exchanger provide improved unit efficiency and design flexibility (SA Series).

Factory Installed Options

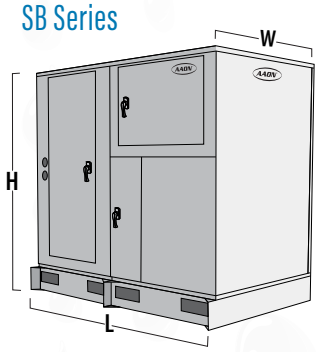
- VFD controlled supply fans are available on the SA Series for precise airflow control and reduced power consumption.
- Factory provided or customer provided controller to meet existing or new building control architecture.
- Modulating hot gas reheat humidity control option can provide precise humidity control necessary to maintain occupant comfort, without the temperature swings common with on/off reheat systems.
- Polymer e-coated coils are available to extend the life of the coils and protect them in corrosive environments.
- Multiple high efficiency filtration options, with up to a MERV 14 efficiency rating.
- Hot water or steam preheating coils allow unit to tie into new or existing boiler system.
- Waterside economizer is available for free cooling during low ambient conditions.
- SB Series condensing unit section is available separately to match with and single circuit air handling unit for a complete water-source heat pump split system.

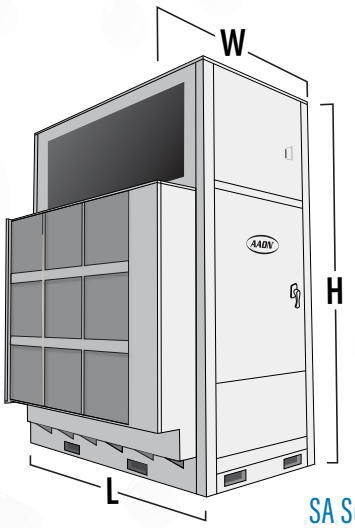
SB Series Physical Data

SB Model (tons)	Cabinet	Cabinet Size			Supply Duct		Return Duct		Water Connections (in. FPT)		Weight (lbs.)
		Width W	Height H	Length L	W	L	W	H	In	Out	
SB-003	B	30	53	65	22 1/8	22 1/8	22	22	1	1	703
SB-004											724
SB-005											743
SB-006	C	42	72		24 1/8	34 1/8	32	32	1 1/4	1 1/4	815
SB-007											829
SB-009									1 1/2	1 1/2	1,085
SB-010											1,094
SB-014	D	56	73	69	26	46	48	34	2	2	1,304
SB-016											1,371
SB-018											

All dimensions are in inches. Only one basic configuration of SB Series is shown (AHU/WSHP Modules). Dimensions, weight, and duct connections may vary depending on configuration and options selected. C and D cabinet units can be split for ease of installation.

SB Series





SA Series

SA Series Physical Data

SA Model (tons)	Configuration	Cabinet Size			Supply Duct		Return Duct		Water Connections (in. FPT)		Weight (lbs.)
		Width W	Height H	Length L	W	L	W	H	In	Out	
SA-023	Single	55	111	79	30 (Single Supply)	64 (Single Supply)	57 1/4 (Single Return)	58 1/8 (Single Return)	1 1/2	1 1/2	2,090
SA-028									2	2	2,099
SA-030											2,144
SA-035											2,117
SA-045	Dual	110			30 (Double Supply)	64 (Double Supply)	57 1/4 (Double Return)	58 1/8 (Double Return)	1 1/2	1 1/2	4,113
SA-050									2	2	4,122
SA-055											4,131
SA-058											4,151
SA-060											4,166
SA-065											4,166
SA-070											4,178

All dimensions are in inches. Only one basic configuration of SA Series is shown (AHU/WSHP Modules). Dimensions, weight, and duct connections may vary depending on configuration and options selected. Double intake SA Series units can be split in half for ease of installation.

Variable Capacity Scroll Compressors

With 10-100% capacity control, SA and SB Series scroll compressors can precisely match the load. The compressors vary the volume of refrigerant that flows through the refrigeration system allowing the unit to tightly control the air temperature and save energy.

SB Series Specific Features

- SB Series service compartment includes factory wired LED service lights.
- SCR (Silicon Controlled Rectifier) electric heat control for reduced power consumption, longer heater life and improved occupant comfort (SB Series).

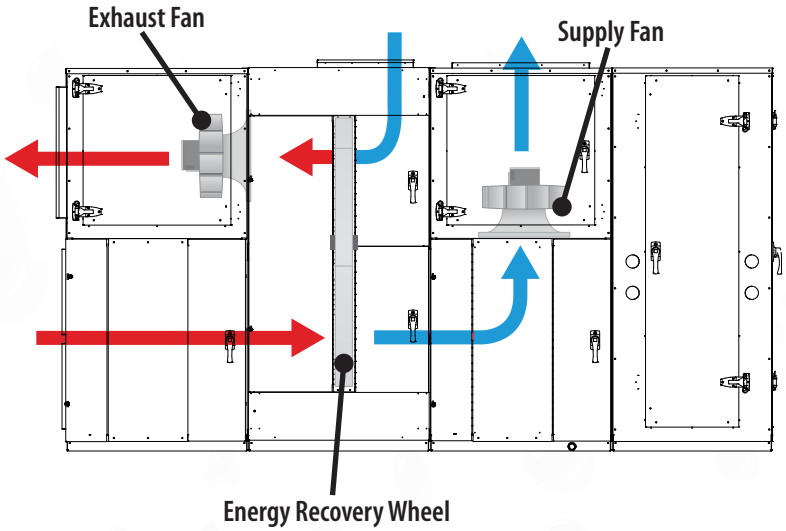
Energy Saving Waterside Economizer

Waterside economizers save compressor energy at low ambient conditions. The system can cool the air without running the compressors. High efficiency cooling coils are constructed of copper tubing technically bonded to aluminum fins and are designed to maximize performance. Waterside economizers utilize low outdoor air temperatures and a cooling tower to cool the condenser water loop. This ambient cooled fluid is then used in the waterside economizer coil to provide cooling without mechanical refrigeration or to supplement it. Waterside economizers are most effective in dry climates and for applications that require cooling during lower ambient conditions. Waterside economizers can also be effective in humid climates for humidity control because it does not introduce additional outdoor air into the space as an airside economizer does. Typical applications include health care facilities, data centers, laboratories, and manufacturing facilities.

▶ Variable capacity scroll compressors provide load matching cooling and heat pump heating and improve part load efficiency.

Units can be shipped in a split configuration with individual modules such each section can fit through a 36" door.

SB Series Water-Source Heat Pump with Energy Recovery



Outside air can be pre-cooled or pre-heated with an AAONAIRE® Energy Recovery Wheel configuration

AAONAIRE Energy Recovery Wheel

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. (SB Series).

▲ Factory Installed AAONAIRE® Energy Recovery Wheel saves heating and cooling energy.

Energy Savings

By recovering up to 80% of the energy of the exhaust air, far less energy is spent cooling and heating the outside air supplied to the building. This energy can typically reduce the operating cost by thousands of dollars per year for a single unit.

Humidity Control

Humidity directly affects the comfort level and health of occupants in the conditioned space. Humidity that reaches excessive levels, for even short periods of time, can create an environment that promotes the growth of fungi and bacteria. Human exposure to fungi and bacteria can cause serious health issues. The application of the AAONAIRE® Energy Wheel can help control the relative humidity and result in more comfortable conditions.

SB Series Performance Data

SB Model (tons)	Supply Fan			Fluid Flow (gpm)	Water Loop (Ratings at AHRI Cooling Tower/Boiler Conditions as in accordance with ISO Standard 13256-1)							Electrical		
					Cooling EWT 86°F				Heating EWT 68°F					
	Airflow (cfm)	Mtr HP	Fan Size		Total Cap. (btu/hr)	Sensible Cap. (btu/hr)	EER	Ht of Rejection	Capacity (btu/hr)	COP	Ht. of Absorption	Voltages	Minimum Circuit Amps	Maximum Overcurrent Protection
SB-003	1,200	1.34 (ECM)	310MM (14") BC Plenum	8.10	37,600	31,800	14.0	51,188	41,200	4.3	46,313	230V-60Hz-3ph	30	45
												460V-60Hz-3ph	18	25
												575V-60Hz-3ph	9	15
												208V-60Hz-1ph	9	15
												208V-60Hz-3ph	18	25
												230V-60Hz-1ph	30	45
SB-004	1,600			10.80	43,300	39,820	14.7	62,337	45,700		52,930	230V-60Hz-3ph	32	50
												460V-60Hz-3ph	23	35
												575V-60Hz-3ph	11	15
												208V-60Hz-1ph	11	15
												208V-60Hz-3ph	32	50
												230V-60Hz-3ph	23	35
SB-005	2,000			13.50	53,700	56,210	13.6	73,053	57,100		64,089	460V-60Hz-3ph	39	60
												575V-60Hz-3ph	24	40
												208V-60Hz-3ph	12	15
												230V-60Hz-3ph	11	15
												460V-60Hz-3ph	39	60
												575V-60Hz-3ph	24	40
SB-006	3,000	2.3 (ECM)	450MM (18") BC Plenum	16.20	76,600	72,140	14.5	108,555	85,100		89,720	208V-60Hz-3ph	47	70
												230V-60Hz-3ph	22	30
												460V-60Hz-3ph	21	30
												575V-60Hz-3ph	47	70
SB-007				18.90	92,200	75,760	14.3	121,737	110,000	4.4	100,706	208V-60Hz-3ph	48	70
												230V-60Hz-3ph	24	35
												460V-60Hz-3ph	22	30
												575V-60Hz-3ph	48	70
SB-009				24.30	120,900	78,490	14.3	128,567	121,000	4.6	107,790	208V-60Hz-3ph	53	80
												230V-60Hz-3ph	24	35
												460V-60Hz-3ph	19	25
												575V-60Hz-3ph	53	80
SB-010				27.00	116,100	83,950	14.7	143,147	136,900	4.4	118,828	208V-60Hz-3ph	56	80
												230V-60Hz-3ph	29	45
												460V-60Hz-3ph	22	30
												575V-60Hz-3ph	56	80
SB-014	5,000		450MM (18") BC Plenum (QTY. 2)	37.80	159,830	124,840	15.1	197,735	201,300		162,843	208V-60Hz-3ph	97	125
												230V-60Hz-3ph	40	50
												460V-60Hz-3ph	32	45
												575V-60Hz-3ph	97	125
SB-016	6,000			43.20	178,470	142,080	14.3	222,693	240,600	4.2	194,168	208V-60Hz-3ph	101	150
												460V-60Hz-3ph	45	60
												575V-60Hz-3ph	38	50
												208V-60Hz-3ph	101	150
SB-018	6,000			48.60	201,030	151,690	13.6	255,711	270,500	4.0	212,499	208V-60Hz-3ph	106	150
												230V-60Hz-3ph	50	70
												460V-60Hz-3ph	43	60
												575V-60Hz-3ph	106	150

Rated at AHRI Cooling Tower/Boiler conditions in Accordance with ISO Standard 13256-1. Only one basic configuration of unit shown, with 10-100% variable capacity compressor for Single Zone VAV, VAV or MUA supply air temperature control. Actual performance will vary depending on unit configuration and application conditions. Multiple fan and compressor options are available to meet airflow and part load capacity control requirements. Contact your local AAON representative for AAON ECat calculated performance at your application conditions.

SA Series Performance Data

SA Model (tons)	Supply Fan			Fluid Flow (gpm)	Water Loop (Ratings at AHRI Cooling Tower/Boiler Conditions as in accordance with ISO Standard 13256-1)							Electrical		
					Cooling EWT 86°F				Heating EWT 68°F					
	Airflow (cfm)	Mtr HP	Fan Size		Total Cap. (btu/hr)	Sensible Cap. (btu/hr)	EER	Ht of Rejection	Capacity (btu/hr)	COP	Ht. of Absorption	Voltages	Minimum Circuit Amps	Maximum Overcurrent Protection
SA-023	7,200	1 (VFD)	22" BC Plenum (2 Qty)	55.00	238,750	184,680	14.8	295,026	313,000	5.2	259,231	230V-60Hz-3ph	76	100
												460V-60Hz-3ph	42	50
												575V-60Hz-3ph	31	40
												208V-60Hz-3ph	77	100
SA-028	8,800	2 (VFD)		77.00	303,360	227,300	14.5	374,275	410,700	4.8	333,796	230V-60Hz-3ph	122	150
												460V-60Hz-3ph	49	60
												575V-60Hz-3ph	39	50
												208V-60Hz-3ph	123	150
SA-030	9,000	2 (VFD)		90.00	343,650	252,410	14.2	427,905	463,100	4.7	375,757	230V-60Hz-3ph	129	175
												460V-60Hz-3ph	59	80
												575V-60Hz-3ph	51	70
												208V-60Hz-3ph	130	175
SA-035	10,200	3 (VFD)		102.00	392,670	286,060	13.6	493,045	534,400	4.5	429,696	230V-60Hz-3ph	145	200
												460V-60Hz-3ph	70	90
												575V-60Hz-3ph	61	80
												208V-60Hz-3ph	147	200
SA-045	14,000	2 (VFD)	22" BC Plenum (4 Qty)	111.00	471,220	360,100	14.2	293,757	624,800	5.0	258,162	230V-60Hz-3ph	155	175
												460V-60Hz-3ph	85	100
												575V-60Hz-3ph	63	70
												208V-60Hz-3ph	158	175
SA-050	15,500	2 (VFD)		132.00	532,960	401,310	14.0	664,712	720,600	4.8	585,184	230V-60Hz-3ph	196	225
												460V-60Hz-3ph	89	100
												575V-60Hz-3ph	69	80
												208V-60Hz-3ph	198	225
SA-058	16,500	2 (VFD)		164.00	632,820	457,610	13.8	791,626	866,100	4.5	693,205	230V-60Hz-3ph	239	250
												460V-60Hz-3ph	103	125
												575V-60Hz-3ph	86	100
												208V-60Hz-3ph	242	250
SA-060	17,000	2 (VFD)		176.00	674,290	486,870	13.7	845,844	917,700		740,229	230V-60Hz-3ph	245	250
												460V-60Hz-3ph	112	125
												575V-60Hz-3ph	96	110
												208V-60Hz-3ph	248	250
SA-065	18,000	3 (VFD)		190.00	721,930	516,840	13.4	909,949	988,700	4.4	788,871	230V-60Hz-3ph	267	300
												460V-60Hz-3ph	126	150
												575V-60Hz-3ph	109	125
												208V-60Hz-3ph	271	300
SA-070	18,500	3 (VFD)		200.00	764,500	539,610	13.2	968,678	1,055,300	4.3	831,182	230V-60Hz-3ph	276	300
												460V-60Hz-3ph	134	150
												575V-60Hz-3ph	116	125
												208V-60Hz-3ph	280	300

Rated at AHRI Cooling Tower/Boiler conditions in Accordance with ISO Standard 13256-1. Only one basic configuration of unit shown, with 10-100% variable capacity compressor for Single Zone VAV, VAV or MUA supply air temperature control. Actual performance will vary depending on unit configuration and application conditions. Multiple fan and compressor options are available to meet airflow and part load capacity control requirements. Contact your local AAON representative for AAON ECat calculated performance at your application conditions.

Condensing Units

AAON M2 and SB Series water-source heat pumps units can be ordered as split, with a separate water-cooled condensing unit available to connect to an air handling unit section of the M2 or SB Series unit. The condensing unit can also be connected to another type of air handling unit, such as an H3 Series horizontal air handling unit. Water-cooled condensing unit includes coaxial or brazed plate refrigerant-to-water heat exchanger and energy efficient scroll compressors. Optional features include water flow switch, balancing valves, motorized shut-off valve, two-way head pressure control, and corrosion resistant heat exchanger.

SB Series

Air Handling Unit

(3-70 ton)

Condensing Unit

Applications

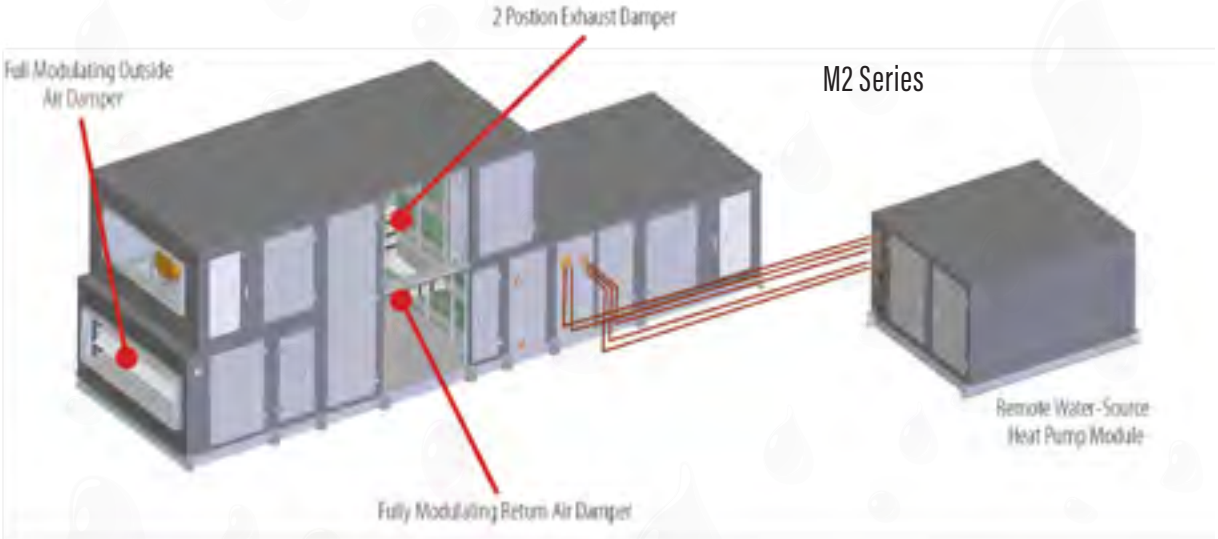
- Water-source and geothermal heat pump indoor condensing units with capacities from 3-70 tons.
- Modular Construction for renovation installations with applications with space limitations.
- Variable Capacity Compressors provide comfortable and precise supply air temperature control.
- Dehumidification with Modulating Hot Gas Reheat.

SB Series Water-Source Heat Pump Condensing Unit

Available as a water-cooled condensing only unit with a coaxial refrigerant-to-water heat exchanger and energy efficient 10-100% variable capacity scroll compressors. Unit comes included with a single circuit that can be matched with a single circuited air handling unit. Optional features include water flow switch, balancing valves, motorized shut-off valve, two way head pressure control, and cupronickel corrosion resistant heat exchanger.

M2 Series Water-Source Heat Pump Remote Condensing Unit Module

AAON M2 series modular self-contained units utilize quality construction to provide low air leakage, minimal radiated noise, and serviceability. the modular cabinet design adapts to complex engineering challenges, while remaining easy to install and service.



Premier Options Available

Variable Capacity Scroll Compressors

Variable capacity scroll compressors can modulate from 10-100% capacity. This allows the system to maintain consistent supply air temperatures at all operating conditions. During part load operation, reducing compressor capacity increases part load efficiency and ultimately saves valuable system operating costs.

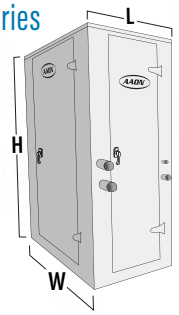
Modulating Hot Gas Reheat

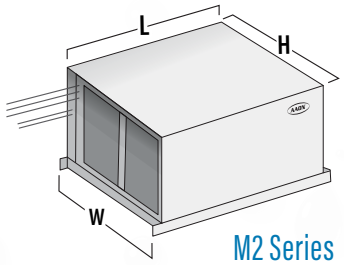
This system delivers only the amount of reheat required for space comfort, providing precise dehumidification without over cooling the space. Occupant comfort is uniform and consistent even with 100% outside air applications; temperature swings common to on/off type reheat systems with ventilation air are eliminated.

Modulating Water Valve Control

Modulating head pressure control, via either 2 or 3-way modulating water valve, allows unit operation below 65° F condenser water temperature. This gives the unit a larger operating range, which is especially beneficial in the dehumidification mode of operation.

SB Series





M2 Series

WSHP Condensing Unit Physical Data

Model (tons)	Configuration	Refrigeration System	Cabinet Size			Water Connections		Weight
			Width W	Height H	Length L	In	Out	
SB-003	Indoor Split System Water-Source Heat Pump Condensing Unit Module	Coaxial Heat Exchanger - Single Compressor	30	53	32	1 FPT	1 FPT	703
SB-004								724
SB-005								743
SB-006			42	72	32	1 ¼ FPT	1 ¼ FPT	815
SB-007								829
SB-009						1 ½ FPT	1 ½ FPT	1,085
SB-010								1,094
SB-014			56	72	34	2 FPT	2 FPT	1,304
SB-016								1,371
SB-018								1,371
M2-003		Coaxial - Single Compressor	50	39 ½	42	1 FPT	1 FPT	450
M2-004								
M2-005						1 ¼ FPT	1 ¼ FPT	
M2-006		Brazed Plate Heat Exchanger - Two Compressor, Two Circuit		51 1/2		1 ½ Sch 80	1 ½ Sch 80	
M2-007								
M2-008								
M2-010								
M2-011			62	55 ½				780
M2-013				61 ½				
M2-015						2 Sch 80	2 Sch 80	
M2-016			84	55 ½	68			1,207
M2-018								
M2-020								
M2-025				61 ½		2 ½ Sch 80	2 ½ Sch 80	1,238
M2-030				71 ½				1,366
M2-040		Brazed Plate - Four Compressor, Two Circuit	96	77 ½				1,417
M2-050								1,557
M2-060						3 Sch 80	3 Sch 80	
M2-070								

All dimensions are in inches. Dimensions and weight may vary depending on configuration and options selected.

Rooftop Units

AAON Rooftop Water-Source Heat Pumps incorporate the AAON long term commitment and dedication to excel as the premier manufacturer of rooftop equipment. Geothermal heat pump systems, often referred to as ground source heat pumps (GSHP) or water-source heat pumps (WSHP), are among the most efficient, environmentally friendly ways to heat, cool and dehumidify buildings by recovering otherwise wasted energy and utilizing that energy to satisfy the needs of the building.

RN Series

RQ Series

(2-230 tons)

Applications

- Water-source and geothermal heat pump rooftop units with capacities from 2-230 tons

Superior Features

- Compressors and unit controls are contained within a compartment isolated from the air stream for ease of service and increased sound dampening.
- Direct drive backward curved plenum fans provide improved energy efficiency and reduced maintenance versus belt driven fans.
- Run test report, wiring diagram, and Installation, Operation, and Maintenance manual with startup form is provided in control access compartment of every unit.
- 5 year non-prorated compressor warranty

Construction

- Cabinet construction consists of rigid polyurethane foam panels with G90 galvanized steel on both sides and a closed cell polyurethane foam interior core. The inner wall protects the insulation from moisture damage, prevents microbial growth, and is easy to clean.
- Double wall rigid polyurethane foam injected panel cabinet construction has a higher thermal resistance, or R-value, compared with fiberglass construction. Panels include a thermal break, with no metal contact from inside to outside, to prevent heat transfer through the panel and prevent condensation on the outside of the cabinet. Construction also makes the cabinet more rigid and resistant to damage, provides increased sound dampening, and reduces air leakage and infiltration.
- 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.
- Corrosion resistant polyurethane paint exceeds a 2,500 hour salt spray test.
- Double sloped stainless steel drain pans eliminate standing water that can support microbial growth and stainless steel construction prevents corrosion or rust that could lead to water leaks and contaminants in the air stream.

Factory Installed Options

- Variable capacity, variable speed, and two-step R-410A scroll compressors for load matching cooling and improved part load efficiency.
- Dual fuel, using both the heat pump and a second form of heat, provides heating flexibility and a supplemental form of heat during heat pump operation or a form of backup heat if water loop down time is required.
- Staged or SCR (Silicon Controlled Rectifier) electric heat control for reduced power consumption, longer heater life, and improved occupant comfort.
- Modulating gas heat with stainless steel heat exchanger provides greater fuel efficiency, longer heater life, and improved occupancy comfort.
- Hot water or steam heating coils allow unit to tie into a boiler system.
- Water valve control with two-way valve allows for variable flow condenser water operation, head pressure control, and operation with lower entering water temperature.
- Factory installed total or sensible AAONAIRE energy recovery wheels. Polymer or aluminum wheel options.
- VFD controlled and ECM driven supply, exhaust, and return fans for precise airflow control, building pressure control, and reduced power consumption.
- Power exhaust and power return fans with economizer for application flexibility.
- Cupronickel coaxial or SMO 254 brazed plate corrosion resistant refrigerant-to-water heat exchangers are available for additional chloride corrosion resistance.
- Factory installed or customer provided controls options with Constant Volume, VAV, Single Zone VAV, and Makeup Air configurations.
- Multiple methods of humidity control including: High Capacity Cooling Coils, Return Air Bypass, and Modulating Humidity Control which provides efficient dehumidification, even with low sensible heat loads, without the temperature swings common with on/off reheat systems.
- Factory installed, sensible or enthalpy, gear driven economizer allows for free cooling. AMCA certified and labeled low leakage gear driven dampers are standard. AAON low leakage dampers meet the California Title 24 damper air leakage requirement.
- Multiple high efficiency filtration options with up to a MERV 14 efficiency rating.

RQ Series Physical Data

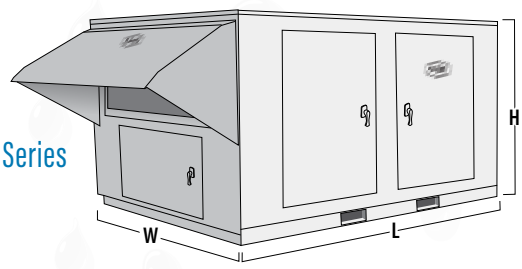
RQ Model (tons)	Cabinet	Cabinet Size			Supply Duct		Return Duct		Water Connections (Sweat)		Weights (lbs.)
		Width W	Height H	Length L	W	L	W	L	In	Out	
002	-	44	43	82	24	17 ½	33	9	¾	¾	771
003									1	1	786
004											803
005											834
006											876

RN Series Physical Data

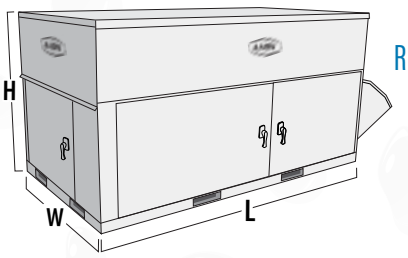
RN Model (tons)	Cabinet	Cabinet Size			Supply Duct		Return Duct		Water Connections		Weights (lbs.)
		Width W	Height H	Length L	W	L	W	L	In	Out	
006	A	58	44	82	21 ⅝	24 ⅞	32	13	1 NPT	1 NPT	1,070
007											1,105
008									1 ½ NPT	1 ½ NPT	1,109
010											1,176
009	B	73	59	110	36	24 ½	44 ½	13 ½	1 ½ NPT	1 ½ NPT	1,642
011											1,680
013											1,741
015											1,739
016	C	78	59	110	38 ¾	32	50	21	1 ½ NPT	1 ½ NPT	2,418
018											2,498
020											2,520
025									2 NPT	2 NPT	2,553
030											2,568
026	D	100	95	155	65	46	90 ½	25	2 ½ Grooved Pipe	2 ½ Grooved Pipe	5,444
031											5,532
040											5,727
050									3 Grooved Pipe	3 Grooved Pipe	6,350
060											6,502
070											6,528
055	E	142	105	294	110	63 ½	125	25	3 Grooved Pipe	3″ Grooved Pipe	11,763
065									4 Grooved Pipe	4 Grooved Pipe	11,766
075											11,969
090											13,034
105											13,234
120									5 Grooved Pipe	5 Grooved Pipe	14,715
130											14,745
140											14,935

All dimensions are in inches. Dimensions and weight may vary depending on options selected.

RN Series



RQ Series



RQ Series (2-6 tons)

▲ RQ Series Water-Source Heat Pump Rooftop Units include hinged service access doors to all airside components, compressor, controls, and waterside components. Coaxial refrigerant-to-water heat exchanger and waterside components are in a rigid polyurethane foam insulated service compartment.

◀ RQ Series Water-Source Heat Pump

▲ Direct Drive Backward Curved Plenum Fan

Variable Capacity Compressors

Water-source heat pump rooftop units with variable capacity compressors improve occupant comfort and system efficiency by varying the capacity of the system to match the instantaneous heating and cooling load of the conditioned space. Variable capacity compressors continuously adjust capacity to precisely match the supply air temperature setpoint. During much of the heating and cooling season, the compressor operates at a reduced energy level, saving you operating costs. By pairing variable capacity compressors with variable air volume fans, in a heat pump configuration energy efficiency is maximized and operating costs are drastically reduced.

RN Series (6-15 tons)

▲ RN Series Water-Source Heat Pump Rooftop units include brazed plate refrigerant-to-water heat exchanger and waterside components in a rigid polyurethane foam insulated service compartment. Heat pump refrigeration components are also accessible from this compartment.

▲ Dimpled heat exchanger provides energy efficient heat transfer and has no internal turbulator, which can corrode over time.

▲ Standard AMCA Certified AAON Low Leakage Damper

Ease of Service

AAON equipment is designed from concept to completion with minimum service time as a primary factor. Readily accessible compressors and control components allow timely evaluation of service issues without delay. Color-coded wiring diagrams allow fast connection identification and analysis and thus a reduction in down time and cost. Individual components and wires are also labeled for quick circuit evaluation. The result of this AAON standard procedure is low service cost and greater unit run time.

Dehumidification

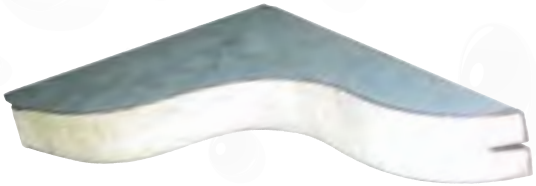
AAON offers many humidity control options. High capacity cooling coils are available which allow for more dehumidification versus standard cooling coils. Return air bypass and mixed air bypass are available on RN Series units for single coil humidity control. Modulating humidity control is available to provide energy efficient dehumidification, even with low sensible heat loads, without the temperature swings common with on/off reheat systems.

RN Series (16-30 tons)

▲ RN Series 25 ton Water-Source Heat Pump

R-13 Double Wall Rigid Polyurethane Foam Panel Construction

Water-source heat pump rooftop units are premium efficiency products and should be constructed using a premium cabinet design. AAON double wall rigid polyurethane foam insulated cabinets save cooling and heating energy through improved insulation and air seals. This reduces the energy lost to the environment and increases the building owner's savings. Not only does it have several times the insulating R-value, it creates a far more rigid and stronger assembly with less air leakage than fiberglass insulated panels. Saved energy is saved money. Heating and cooling energy lost through poor insulation and poor air seals results in significant monetary losses to building owners. AAON rigid polyurethane foam cabinets reduce these monetary losses through improved thermal resistance, thermal breaks and quality air seals.



▲ Double wall rigid polyurethane foam panel construction increases thermal resistance, reduces air leakage and attenuates radiated noise.

RN Series Horizontal Configuration (11-30 tons)

Horizontal Configuration

Horizontal cabinet configuration is available for RQ Series units (2-6 tons) and RN Series units (11, 13, 16-30 tons). This configuration provides a solution for applications that require horizontal ductwork; it does not require special horizontal supply/return curbs. All of the premier features and options currently available for the RQ and RN units are available with this configuration. High efficiency final filtration configuration is available on the RN Series units for health care and other applications that require it.

70 ton Packaged Water-Source Heat Pump Rooftop Unit with Energy Recovery

RN Series (26-70 tons)

Energy Recovery

AAONAIRE energy recovery wheels, total or sensible, provide energy savings by recycling energy instead of losing energy through exhaust air streams. AAONAIRE systems also enhance indoor air quality by allowing larger amounts of outside air to be provided to the space and through improved humidity control.

Makeup Air Capability

AAON water-source heat pump rooftop units have makeup air capability and can be specified with up to 100% outside air. AAONAIRE energy recovery wheels are available on makeup air units to increase the unit's energy efficiency and pre-heat or pre-cooling outside air. Modulating gas heat and SCR electric heat are available to provide energy efficient, consistent supply air temperature heating. Modulating hot gas reheat humidity control is available to provide dehumidification without over-cooling. Variable capacity scroll compressors are available to provide energy efficient consistent supply air temperature.

Variable Air Volume Capability

AAON water-source heat pump rooftop units with variable capacity compressors and variable speed fans can be applied to Variable Air Volume (VAV) systems with VAV boxes and to Single Zone VAV systems. These systems combine the energy saving benefits of a water-source heat pump configuration with the variable airflow energy savings of a VAV system. Variable capacity scroll compressors provide energy efficient consistent supply air temperature.

Refrigerant-to-Water Heat Exchanger with fully modulating water control valve.

RN Series (55-140 tons)

▲ RN Series with Walk-In Water-Cooled Condenser and Controls Service Access.

Walk-In Service Vestibule

The walk-in service vestibule provides shelter for maintenance and service personnel while periodic maintenance is performed on the unit. A light fixture is furnished in the compartment, controlled by a light switch at the door, and the vestibule can be heated and/or cooled for comfort. Double pane viewing windows can be installed in all doors where viewing of operating equipment or interior cabinet is needed.

Optional Exhaust and Return Fans

The axial flow and plenum power exhaust and return fans are directly driven by the motor.

RL/RZ Series (up to 230 tons)

▲ Large commercial water-source heat pump rooftop units include walk-in service access with lockable hinged access doors throughout the cabinet. Unit can be configured to meet nearly any application requirements.

Variable Speed Compressors

Available with variable capacity compressors which allow the unit to be able to provide a consistent supply air temperature at all operating conditions. Variable capacity and VFD driven variable speed R-410A scroll compressors are available for load matching cooling capabilities and increased part load efficiency. Variable capacity R-134a centrifugal Turbocor compressors provide load matching cooling capabilities, with quiet energy efficient operation. During part load operation, reducing compressor capacity saves system operating costs.

Spring Isolated Fans

Spring isolators provide sound attenuation for the main blower section.

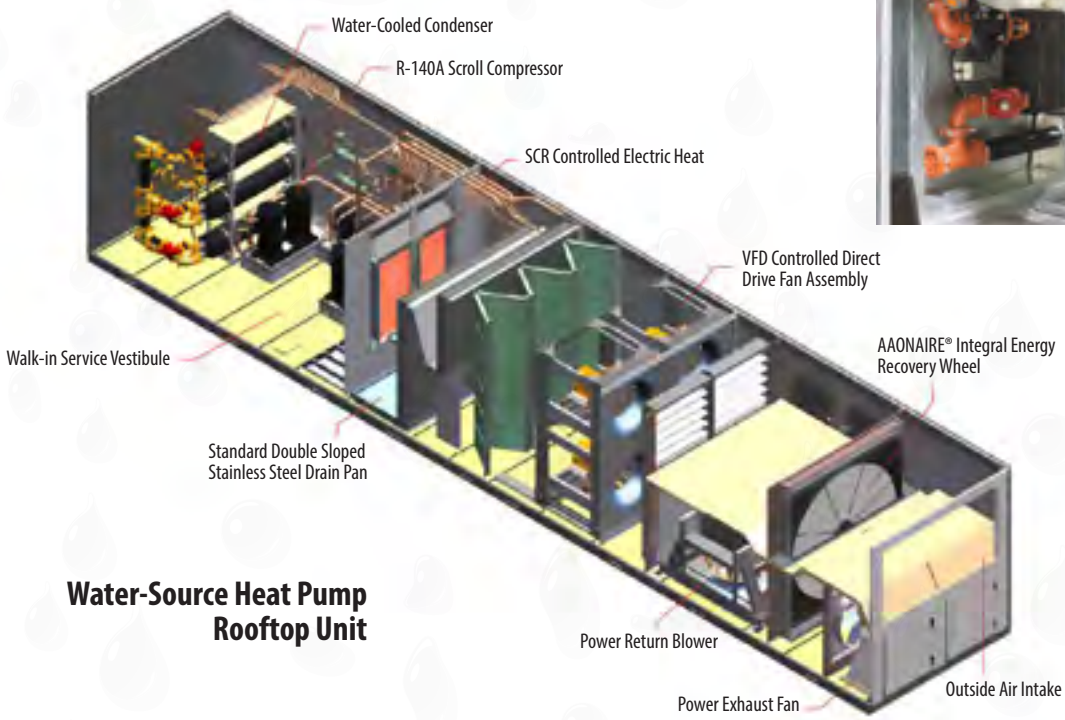
Variable Speed Fans

VFD controlled supply fans for precise airflow control, building pressure control, and reduced power consumption.

Walk-In Vestibule

The walk-in service vestibule provides shelter for the maintenance and service personnel while periodic maintenance is performed on the unit. A fluorescent light fixture is furnished in the compartment, controlled by a light switch at the door, and the vestibule can be heated and/or cooled for comfort.

▶ Refrigerant-to-Water Heat Exchanger Walk-In Service Access is available on units 45 tons and larger.



Water-Source Heat Pump Rooftop Unit

RQ Series Performance Data (2-6 tons)

RQ Model (tons)	Supply Fan			Fluid Flow (gpm)	Water Loop (Ratings at AHRI Cooling Tower/Boiler Conditions as in accordance with ISO Standard 13256-1)							Electrical		
					Cooling EWT 86°F				Heating EWT 68°F					
	Airflow (cfm)	HP	Fan Size		Total Cap. (btu/hr)	Sensible Cap. (btu/hr)	EER	Ht of Rejection	Capacity (btu/hr)	COP	Ht. of Absorption	Voltage	Minimum Circuit Amps	Maximum Overcurrent Protection
RQ-002	850	½ (ECM)	19" BC Plenum	5.80	23,200	21,760	14.0	31,834	27,100	5.87	27,405	230V-60Hz-1ph	20	30
												230V-60Hz-3ph	13	15
												460V-60Hz-3ph	7	15
												208V-60Hz-1ph	20	30
												208V-60Hz-3ph	13	15
												380V-50Hz-3ph	127	225
RQ-003	1,200			9.40	37,600	27,640	14.2	45,189	45,900	4.87	38,402	230V-60Hz-1ph	24	35
												230V-60Hz-3ph	20	30
												460V-60Hz-3ph	10	15
												208V-60Hz-1ph	7	15
												208V-60Hz-3ph	24	35
												380V-50Hz-3ph	20	30
												380V-50Hz-3ph	129	225
RQ-004	1,600			11.80	47,100	38,470	14.7	61,046	56,400	5.27	51,476	230V-60Hz-1ph	32	50
												230V-60Hz-3ph	23	35
												460V-60Hz-3ph	11	15
												575V-60Hz-3ph	8	15
												208V-60Hz-1ph	32	50
												208V-60Hz-3ph	23	35
												380V-50Hz-3ph	130	225
RQ-005	2,000	1 (ECM)		13.70	54,800	44,980	14.8	71,759	65,300	4.96	60,089	230V-60Hz-1ph	43	70
												230V-60Hz-3ph	29	45
												460V-60Hz-3ph	13	20
												575V-60Hz-3ph	9	15
												208V-60Hz-1ph	43	70
												208V-60Hz-3ph	29	45
												380V-50Hz-3ph	131	225
RQ-006	2,400	2 (ECM)		16.50	66,100	49,810	13.8	85,322	84,300	4.42	69,914	230V-60Hz-3ph	31	50
												460V-60Hz-3ph	16	25
												575V-60Hz-3ph	12	20
												208V-60Hz-3ph	32	50
												380V-50Hz-3ph	13	20

Rated at AHRI Cooling Tower/Boiler conditions in Accordance with ISO Standard 13256-1. Only one basic configuration of unit shown, with two-stage compressor. Actual performance will vary depending on unit configuration and application conditions. Contact your local AAON representative for AAON ECat calculated performance at your application conditions.

RN Series Performance Data (6-10 tons)

RN Model (tons)	Supply Fan			Fluid Flow (gpm)	Water Loop (Ratings at AHRI Cooling Tower/Boiler Conditions as in accordance with ISO Standard 13256-1)							Electrical		
					Cooling EWT 86°F				Heating EWT 68°F					
	Airflow (cfm)	HP	Fan Size		Total Cap. (btu/hr)	Sensible Cap. (btu/hr)	EER	Ht of Rejection	Capacity (btu/hr)	COP	Ht. of Absorption	Voltage	Minimum Circuit Amps	Maximum Overcurrent Protection
RN-006	2,100	1 (VFD)	18.5" BC Plenum	14.80	59,000	47,230	14.4	75,965	78,300	5.00	67,626	230V-60Hz-3ph	25	40
												460V-60Hz-3ph	12	20
												575V-60Hz-3ph	9	15
												208V-60Hz-3ph	26	40
												380V-50Hz-3ph	12	15
RN-007	2,450	1 (VFD)	18.5" BC Plenum	18.80	75,200	58,910	14.7	91,201	96,200	5.30	79,080	230V-60Hz-3ph	32	50
												460V-60Hz-3ph	16	25
												575V-60Hz-3ph	12	15
												208V-60Hz-3ph	33	50
												380V-50Hz-3ph	16	25
RN-008	2,800	2 (VFD)	18.5" BC Plenum	21.70	86,700	68,910	13.0	115,455	115,000	4.70	97,464	230V-60Hz-3ph	37	60
												460V-60Hz-3ph	19	30
												575V-60Hz-3ph	15	20
												208V-60Hz-3ph	38	60
												380V-50Hz-3ph	20	30
RN-010	3,600	2 (VFD)	18.5" BC Plenum	25.20	100,600	87,850	16.6	145,411	125,500	6.00	123,003	230V-60Hz-3ph	44	70
												460V-60Hz-3ph	24	40
												575V-60Hz-3ph	18	30
												208V-60Hz-3ph	45	70
												380V-50Hz-3ph	25	40

Rated at AHRI Cooling Tower/Boiler conditions in Accordance with ISO Standard 13256-1. Only one basic configuration of unit shown, with 10-100% variable capacity compressor for Single Zone VAV, VAV or MUA supply air temperature control. Actual performance will differ depending on unit configuration and application conditions. Contact your local AAON representative for AAON ECat calculated performance at your application conditions.

RN Series Performance Data (9 -15 tons)

RN Model (tons)	Supply Fan			Fluid Flow (gpm)	Water Loop (Ratings at AHRI Cooling Tower/Boiler Conditions as in accordance with ISO Standard 13256-1)							Electrical		
					Cooling EWT 86°F				Heating EWT 68°F					
	Airflow (cfm)	HP	Fan Size		Total Cap. (btu/hr)	Sensible Cap. (btu/hr)	EER	Ht of Rejection	Capacity (btu/hr)	COP	Ht. of Absorption	Voltage	Minimum Circuit Amps	Maximum Overcurrent Protection
RN-009	4,000	1 (VFD)	22" BC Plenum	27.30	109,000	73,120	13.1	117,571	142,800	5.00	105,255	230V-60Hz-1ph	56	70
												230V-60Hz-3ph	44	70
												460V-60Hz-3ph	18	25
												575V-60Hz-3ph	13	15
												208V-60Hz-1ph	57	70
												208V-60Hz-3ph	38	50
												380V-50Hz-3ph	18	25
RN-011	4,400	2 (VFD)	22" BC Plenum	30.20	120,900	94,180	15.2	153,850	153,900	5.30	137,411	230V-60Hz-1ph	72	90
												230V-60Hz-3ph	44	60
												460V-60Hz-3ph	21	25
												575V-60Hz-3ph	16	20
												208V-60Hz-1ph	72	90
												22" BC Plenum	44	60
												380V-50Hz-3ph	21	25
RN-013	3,600	1 (VFD)	22" BC Plenum	38.50	149,930	100,970	16.2	183,721	198,600	5.15	164,556	230V-60Hz-3ph	55	70
												460V-60Hz-3ph	26	35
												575V-60Hz-3ph	20	25
												208V-60Hz-3ph	56	70
												380V-50Hz-3ph	27	35
RN-015	4,200	2 (VFD)	22" BC Plenum	46.00	177,130	125,110	14.6	225,228	241,600	4.22	189,657	230V-60Hz-3ph	62	80
												460V-60Hz-3ph	31	40
												575V-60Hz-3ph	24	30
												208V-60Hz-3ph	63	80
												380V-50Hz-3ph	32	40

Rated at AHRI Cooling Tower/Boiler conditions in Accordance with ISO Standard 13256-1. Only one basic configuration of unit shown, with 10-100% variable capacity compressor for Single Zone VAV, VAV or MUA supply air temperature control. Actual performance will differ depending on unit configuration and application conditions.
Contact your local AAON representative for AAON ECat calculated performance at your application conditions.

RN Series Performance Data (16-30 tons)

RN Model (tons)	Supply Fan			Fluid Flow (gpm)	Water Loop (Ratings at AHRI Cooling Tower/Boiler Conditions as in accordance with ISO Standard 13256-1)							Electrical		
					Cooling EWT 86°F				Heating EWT 68°F					
	Airflow (cfm)	HP	Fan Size		Total Cap. (btu/hr)	Sensible Cap. (btu/hr)	EER	Ht of Rejection	Capacity (btu/hr)	COP	Ht. of Absorption	Voltage	Minimum Circuit Amps	Maximum Overcurrent Protection
RN-016	6,400	3 (VFD)	27" BC Plenum	43.20	187,780	151,740	15.7	238,464	254,300	4.93	208,345	230V-60Hz-3ph	65	90
												460V-60Hz-3ph	33	45
												575V-60Hz-3ph	25	35
												208V-60Hz-3ph	66	90
												380V-50Hz-3ph	34	45
RN-018	6,800			48.60	213,140	171,800	15.9	262,978	282,000	6.01	241,267	230V-60Hz-3ph	72	90
												460V-60Hz-3ph	34	45
												575V-60Hz-3ph	26	35
												208V-60Hz-3ph	73	100
												380V-50Hz-3ph	35	45
RN-020	7,000			54.00	236,220	182,120	15.5	296,046	313,100	5.00	259,599	230V-60Hz-3ph	84	110
												460V-60Hz-3ph	46	60
												575V-60Hz-3ph	34	45
												208V-60Hz-3ph	84	110
												380V-50Hz-3ph	47	60
RN-025	9,000	5 (VFD)		67.50	298,840	228,390	13	378,146	409,600	4.71	335,180	230V-60Hz-3ph	125	150
												460V-60Hz-3ph	50	60
												575V-60Hz-3ph	39	50
												208V-60Hz-3ph	125	150
												380V-50Hz-3ph	51	60
RN-030	10,500	10 (VFD)		81.00	330,740	255,540	12.1	426,473	463,000	4.51	377,759	230V-60Hz-3ph	143	175
												460V-60Hz-3ph	66	80
												575V-60Hz-3ph	56	70
												208V-60Hz-3ph	146	175
												380V-50Hz-3ph	66	80

Rated at AHRI Cooling Tower/Boiler conditions in Accordance with ISO Standard 13256-1. Only one basic configuration of unit shown, with 10-100% variable capacity compressor for Single Zone VAV, VAV or MUA supply air temperature control. Actual performance will differ depending on unit configuration and application conditions.
Contact your local AAON representative for AAON ECat calculated performance at your application conditions.

RN Series Performance Data (26 -70 tons)

RN Model (tons)	Supply Fan			Fluid Flow (gpm)	Water Loop (Ratings at AHRI Cooling Tower/Boiler Conditions as in accordance with ISO Standard 13256-1)							Electrical		
					Cooling EWT 86°F				Heating EWT 68°F					
	Airflow (cfm)	HP	Fan Size		Total Cap. (btu/hr)	Sensible Cap. (btu/hr)	EER	Ht of Rejection	Capacity (btu/hr)	COP	Ht. of Absorption	Voltage	Minimum Circuit Amps	Maximum Overcurrent Protection
RN-026	10,000	3 (VFD)	27"BC Plenum (2 Qty)	70.20	297,640	237,910	13.6	373,790	401,200	4.98	332,559	230V-60Hz-3ph	111	125
												460V-60Hz-3ph	53	60
												575V-60Hz-3ph	40	45
												208V-60Hz-3ph	112	125
												380V-50Hz-3ph	55	60
RN-031	12,400	5 (VFD)		83.70	376,530	303,710	12.8	480,662	505,100	4.86	417,828	230V-60Hz-3ph	137	150
												460V-60Hz-3ph	69	80
												575V-60Hz-3ph	52	60
												208V-60Hz-3ph	138	150
												380V-50Hz-3ph	71	80
RN-040	16,000	7 ½ (VFD)		108.00	461,850	374,320	12.5	590,550	626,900	4.81	523,563	230V-60Hz-3ph	172	200
												460V-60Hz-3ph	93	100
												575V-60Hz-3ph	70	80
												208V-60Hz-3ph	176	200
												380V-50Hz-3ph	98	110
RN-050	20,000	7 ½ (VFD)	30"BC Plenum (2 Qty)	135.00	619,790	501,630	12.9	785,146	833,300	5.03	698,012	230V-60Hz-3ph	248	250
												460V-60Hz-3ph	101	110
												575V-60Hz-3ph	80	90
												208V-60Hz-3ph	253	300
												380V-50Hz-3ph	106	110
RN-060	23,000	7 ½ (VFD)	30"BC Plenum (2 Qty)	162.00	688,990	561,800	12.2	882,027	946,400	4.80	786,967	230V-60Hz-3ph	262	300
												460V-60Hz-3ph	120	125
												575V-60Hz-3ph	103	110
												208V-60Hz-3ph	266	300
												380V-50Hz-3ph	119	125
RN-070	25,000	15 (VFD)		189.00	816,010	640,380	12.1	1,049,461	1,100,400	4.73	911,711	230V-60Hz-3ph	321	350
												460V-60Hz-3ph	156	175
												575V-60Hz-3ph	135	150
												208V-60Hz-3ph	330	350
												380V-50Hz-3ph	157	175

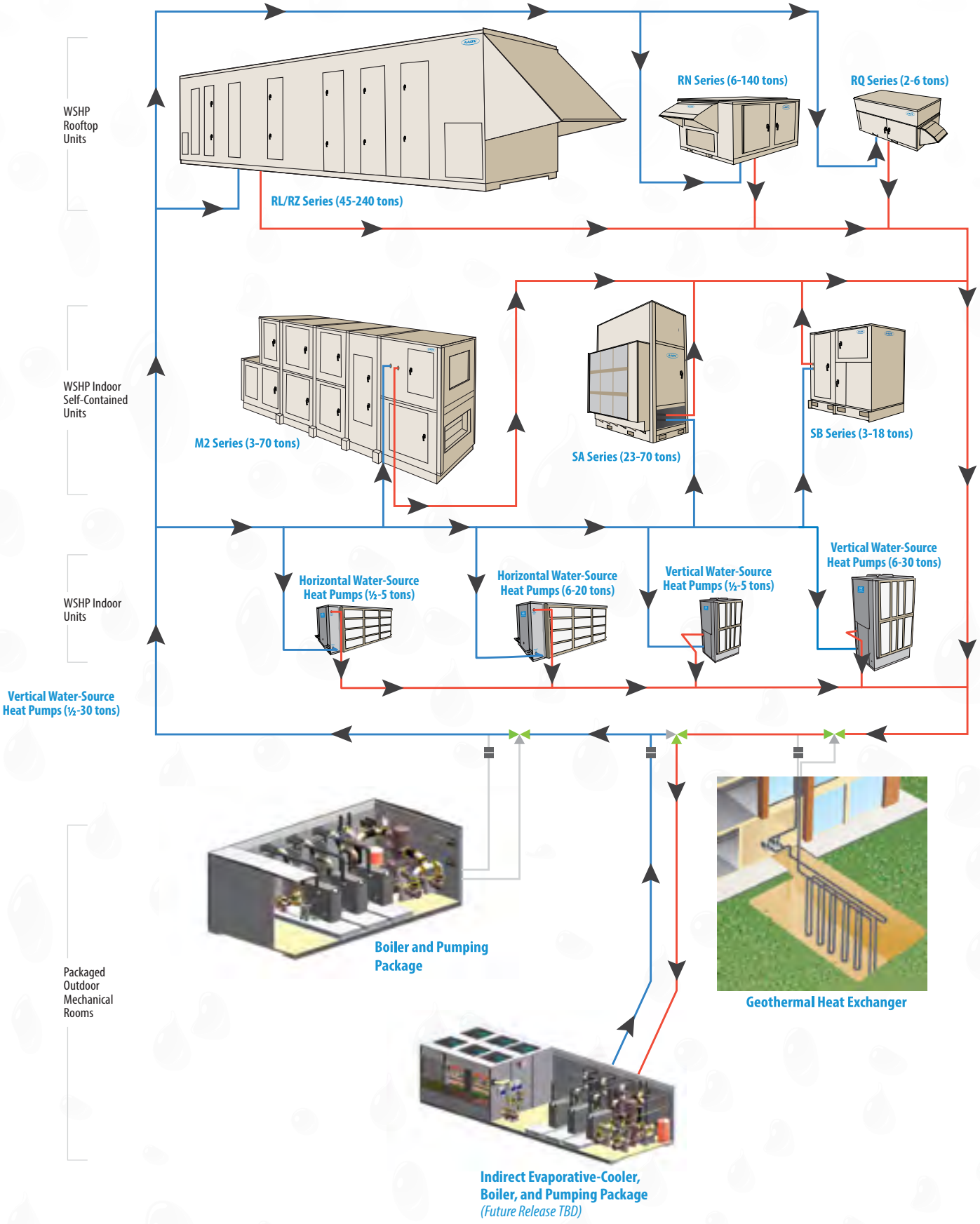
Rated at AHRI Cooling Tower/Boiler conditions in Accordance with ISO Standard 13256-1. Only one basic configuration of unit shown, with staged compressors. Actual performance will differ depending on unit configuration and application conditions. Contact your local AAON representative for AAON ECat calculated performance at your application conditions.

RN Series Performance Data (55 -140 tons)

RN Model (tons)	Supply Fan			Fluid Flow (gpm)	Water Loop (Ratings at AHRI Cooling Tower/Boiler Conditions as in accordance with ISO Standard 13256-1)							Electrical		
					Cooling EWT 86°F				Heating EWT 68°F					
	Airflow (cfm)	HP	Fan Size		Total Cap. (btu/hr)	Sensible Cap. (btu/hr)	EER	Ht of Rejection	Capacity (btu/hr)	COP	Ht. of Absorption	Voltage	Minimum Circuit Amps	Maximum Overcurrent Protection
RN-055	23,000	10 (VFD)	36.5" BC Plenum (Qty 2)	141.50	643,730	540,130	13.3	812,249	832,200	5.15	703,726	230V-60Hz-3ph	248	250
												460V-60Hz-3ph	126	150
												575V-60Hz-3ph	93	100
												208V-60Hz-3ph	252	300
												380V-50Hz-3ph	131	150
RN-065	25,000	15 (VFD)	42.5" BC Plenum (Qty 2)	182.80	733,180	595,800	13.3	799,535	963,600	4.98	718,473	230V-60Hz-3ph	276	300
												460V-60Hz-3ph	135	150
												575V-60Hz-3ph	109	125
												208V-60Hz-3ph	280	300
												380V-50Hz-3ph	140	150
RN-075	29,000	15 (VFD)	42.5" BC Plenum (Qty 2)	182.80	764,140	647,060	12.6	977,308	1,014,700	4.96	858,706	230V-60Hz-3ph	311	350
												460V-60Hz-3ph	152	175
												575V-60Hz-3ph	117	125
												208V-60Hz-3ph	319	350
												380V-50Hz-3ph	160	175
RN-090	37,000	20 (VFD)	42.5" BC Plenum (Qty 2)	223.40	973,920	857,960	12.6	1,239,701	1,266,900	5.11	1,084,014	230V-60Hz-3ph	383	450
												460V-60Hz-3ph	189	200
												575V-60Hz-3ph	150	175
												208V-60Hz-3ph	394	450
												380V-50Hz-3ph	197	225
RN-105	40,000	20 (VFD)	42.5" BC Plenum (Qty 2)	223.40	1,078,470	932,070	11.8	1,395,625	1,416,300	4.83	1,199,146	230V-60Hz-3ph	415	450
												460V-60Hz-3ph	202	225
												575V-60Hz-3ph	160	175
												208V-60Hz-3ph	426	500
												380V-50Hz-3ph	211	250
RN-120	40,000	20 (VFD)	42.5" BC Plenum (Qty 2)	342.00	1,274,740	1,007,460	11.8	1,651,982	1,676,900	4.46	1,376,956	230V-60Hz-3ph	498	500
												460V-60Hz-3ph	241	250
												575V-60Hz-3ph	193	225
												208V-60Hz-3ph	511	600
												380V-50Hz-3ph	238	250
RN-130	40,000	25 (VFD)	42.5" BC Plenum (Qty 2)	459.50	1,485,930	1,096,820	12.5	1,897,268	1,950,000	4.44	1,590,348	230V-60Hz-3ph	545	600
												460V-60Hz-3ph	269	300
												575V-60Hz-3ph	215	250
												208V-60Hz-3ph	559	600
												380V-50Hz-3ph	266	300
RN-140	43,000	25 (VFD)	42.5" BC Plenum (Qty 2)	459.50	1,623,470	1,184,070	12	2,094,742	2,144,600	4.28	1,737,812	230V-60Hz-3ph	587	600
												460V-60Hz-3ph	294	300
												575V-60Hz-3ph	235	250
												208V-60Hz-3ph	601	700
												380V-50Hz-3ph	308	350
RL/RZ Units (up to 230 tons) = Contact your local AAON Representative for Performance														

Rated at AHRI Cooling Tower/Boiler conditions in Accordance with ISO Standard 13256-1. Only one basic configuration of unit shown, with staged compressors. Actual performance will differ depending on unit configuration and application conditions. Contact your local AAON representative for AAON ECat calculated performance at your application conditions.

AAON® Water-Source/Geothermal Heat Pump System



WSHP Rooftop Units

RL/RZ Series (45-240 tons)
- Constant Volume, Variable Air Volume, Single Zone VAV, and Makeup Air Units
- Staged and VFD Controlled Variable Speed Compressors
- VFD Controlled Variable Speed Direct Drive Backward Curved Plenum Fans
- Double Wall Rigid Polyurethane Foam Panel Construction

RN Series (6-140 tons)
- Constant Volume, Variable Air Volume, Single Zone VAV, and Makeup Air Units
- Staged and 10-100% Variable Capacity Compressors (6-70 tons)
- Staged and VFD Controlled Variable Speed Compressors (55-140 tons)
- VFD Controlled Variable Speed Direct Drive Backward Curved Plenum Fans
- Double Wall Rigid Polyurethane Foam Panel Construction

RQ Series (2-6 tons)
- Constant Volume, Variable Air Volume, Single Zone VAV, and Makeup Air Units
- Staged, Two-Step, and 10-100% Variable Capacity Compressors
- VFD Controlled Variable Speed Compressors
- VFD Controlled and ECM Driven Variable Speed Direct Drive Backward Curved Plenum Fans
- Double Wall Rigid Polyurethane Foam Panel Construction

WSHP Indoor Self-Contained Units

M2 Series (3-70 tons)
- Constant Volume, Variable Air Volume, Single Zone VAV, and Makeup Air Units
- Staged, Two-Step, and 10-100% Variable Capacity Compressors
- VFD Controlled and ECM Driven Variable Speed Direct Drive Backward Curved Plenum Fans
- Double Wall Rigid Polyurethane Foam Panel Construction
- Modular cabinet construction can be configured to meet the application

SA Series (23-70 tons)
- Constant Volume, Variable Air Volume, Single Zone VAV, and Makeup Air Units
- Staged and 10-100% Variable Capacity Compressors
- VFD Controlled Variable Speed Direct Drive Backward Curved Plenum Fans
- Double Wall Rigid Polyurethane Foam Panel Construction
- Vertical self-contained unit cabinet construction can be configured to meet the application

SB Series (3-18 tons)
- Constant Volume, Variable Air Volume, Single Zone VAV, and Makeup Air Units
- Staged and 10-100% Variable Capacity Compressors
- ECM Controlled Variable Speed Direct Drive Backward Curved Plenum Fans
- Double Wall Rigid Polyurethane Foam Panel Construction
- Vertical self-contained unit cabinet construction can be configured to meet the application

WSHP Indoor Units

Horizontal Water-Source Heat Pumps (½ -5 tons)
- Replacement Ready Stocked Units
- Staged Scroll or Rotary Compressors
- High Efficiency PSC or ECM Fans
- Microchannel Indoor DX Coil
- Easy Service Access
- All Aluminum Construction

Horizontal Water-Source Heat Pumps (6 -20 tons)
- Staged Scroll Compressors
- High Efficiency ECM Fans
- Microchannel Indoor DX Coil
- Easy Service Access
- All Aluminum Construction

Vertical Water-Source Heat Pumps (½ -5 tons)
- Replacement Ready Stocked Units
- Staged Scroll or Rotary Compressors
- High Efficiency PSC or ECM Fans
- Microchannel Indoor DX Coil
- Easy Service Access
- All Aluminum Construction

Vertical Water-Source Heat Pumps (6-30 tons)
- Staged Scroll Compressors
- High Efficiency ECM Fans
- Microchannel Indoor DX Coil
- Easy Service Access
- All Aluminum Construction

Options
- Waterside Economizer with Three-Way Control Valve
- Hot Gas Reheat Humidity Control
- Factory Wired Disconnect
- Four Inch High Efficiency Filtration
- Corrosion Resistant Cupronickel Heat Exchanger

Packaged Outdoor Mechanical Rooms

Boiler and Pumping Package
- Packaged Boiler Outdoor Mechanical Room
- 98% Thermal Efficiency Condensing Room
- VFD Controlled Variable Flow Pumping Package
- Boilers heat the water in the system during the heating season
- Used when additional heating is needed beyond the capacity of the Geothermal Exchanger

Indirect Evaporative-Cooler, Boiler and Pumping Package *(Future)*
- Packaged Evaporative-Cooler and Boiler Outdoor Mechanical Room
- VFD Controlled Variable Flow Pumping Package
- Evaporative-cooler cools the water in the system during the cooling season
- Used when additional cooling is needed beyond the capacity of the Geothermal Exchanger
- Optional complete Packaged System with Evaporative-Cooler and Boiler

Geothermal Heat Exchanger
- Transfers heat from the ground to the water or glycol loop during the heating season
- Transfers heat to the ground from the water or glycol loop during the cooling season
- Energy efficient first stage of the water or glycol loop heat exchange

Environmentally Friendly HVAC Product Family

ROOFTOP UNITS (2-240 tons)


RN SERIES


RQ SERIES


RZ/RL SERIES

WATER-SOURCE HEAT PUMPS (½ - 230 tons)


VERTICAL & HORIZONTAL WSHP


RQ SERIES


RZ/RL SERIES


RN SERIES


M2 SERIES


SA SERIES


SB SERIES

PACKAGED OUTDOOR MECHANICAL ROOMS (4-540 tons)


BOILER MECHANICAL ROOM


LF SERIES


LN SERIES


FLUID COOLER


LZ SERIES

INDOOR AIR HANDLING UNITS (800 - 100,000 + cfm)


F1 SERIES


H3 SERIES


V3 SERIES


SA SERIES


M2 SERIES


M3 SERIES

SELF-CONTAINED UNITS (3-70 tons)


SB SERIES


SA SERIES


M2 SERIES

CONDENSING UNITS (2-230 tons)


CB SERIES


CF SERIES


CN SERIES


CL SERIES

OUTDOOR AIR HANDLING UNITS (800 - 100,000 + cfm)


RZ/RL SERIES


RN SERIES


RQ SERIES

COILS BOOSTER, HYDRONIC, & DX

CONTROLS (WSHP, RTU, SELF-CONTAINED, & SPLIT SYSTEM)


Touchscreen Controller


Pioneer Gold


Pioneer Silver


AAON/WattMaster

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- Convenience Stores
- Health Clubs
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