



Water-Source Heat Pumps

WV SERIES



Features:

- ½ to 30 ton Vertical Configuration
- Left or Right Return
- Top Discharge
- High Efficiency PSC or ECM Supply Fan Motor
- Reliable Scroll or Rotary Compressors
- Complete and Easy Service Access
- Option Flexibility including Disconnect, High Efficiency Filtration, Hot Gas Reheat Dehumidification, and Waterside Economizer
- All Aluminum Cabinet with Neoprene Foam Rubber Insulation
- Aluminum Microchannel Air Coil
- 5 Year Parts Warranty



Vertical Configuration Water-Source Heat Pumps

○ *Designed in Quality*

○ *Easy Service Access*

○ *Aluminum Cabinet Construction*

○ *Replacement Ready Size*

WSHP | WV series

AAON 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 production methodology that integrates mass production with mass customization and allows production of hundreds of units per day.

Applications

- Vertical Configuration Water-Source Heat Pumps, from ½ to 30 tons
- Standard efficiency level significantly exceeding ASHRAE Standards at AHRI conditions.

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 and reduced unit weight.
- Copper Coaxial Refrigerant-to-Water Heat Exchanger for reliable operation.
- High Efficiency Direct Drive Forward Curved Supply Fans available with Permanent Split Capacitor (PSC) motors or Electronically Commutated Motors (ECM).
- High Condensate Level Sensor for indicating a higher than normal condensate level in the drain pan to prevent overflows.
- AAON Pioneer Silver Controller with terminal block for connection to a standard heat pump thermostat containing the following terminals:

G = Blower

Y = Compressor

O = Reversing Valve

R = 24V Supply

COM = Common

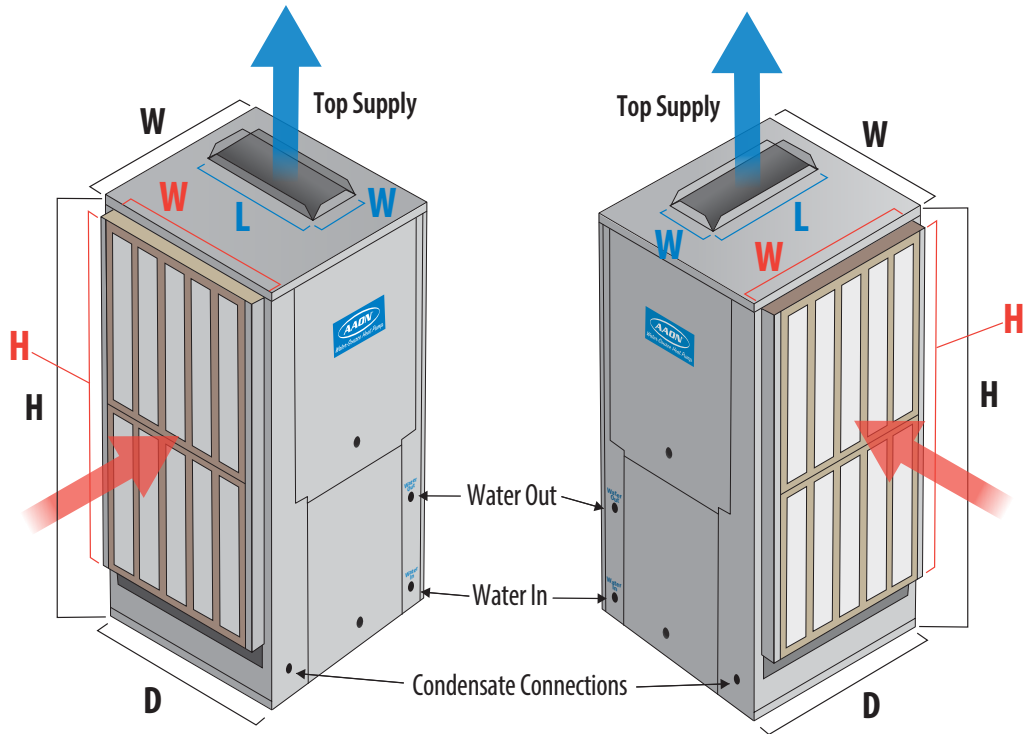
Construction

- Replacement Ready size matches with conventional water-source heat pumps.
- All Aluminum Cabinet results in significantly less weight and superior corrosion resistance.
- Hem Bends reduce sharp edges and improve serviceability.
- Left or Right Hand Return
- Top Discharge
- Closed Cell Neoprene Foam Cabinet Insulation Eliminates Fiber in the Air Stream.
- Sloped Stainless Steel Drain Pan includes Automated TIG and Induction Welding.
- Integrated internal condensate p-trap within the cabinet eliminates need for housekeeping pad.
- Induction Brazed Copper Piping Connections
- Sellable or Recyclable Sheet Metal Pallet - Standard!
- 5 Year Parts Warranty - Standard!

Factory Installed Options

- Corrosion Resistant Cupronickel Coaxial Refrigerant-to-Water Heat Exchanger
- Factory Installed Non-Fused Disconnect Switch
- Low Sound Package reduce fan and compressor sound
- 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
- ECM Fan with Optional Dehumidification Mode Fan Speed Control
- Hot Gas Reheat Dehumidification
- Factory Installed Waterside Economizer with Three-Way Motorized Valve
- Ground/Ground Water Loop Insulation for Geothermal application
- AAON Pioneer Gold controller for stand alone control with space sensor with BACnet IP/MSTP and Modbus network capabilities.
- Two-Step Compressors (2-5 tons) for improved humidity control and part load efficiency.

Vertical Configuration Airflow



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	15	19	52 1/2	4 7/8	11 7/8	15 1/2	24 1/2	1/2	1/2	85	26
WV-009										85	28		
WV-012										85	30		
WV-015	B		21	19	40	9 1/2	7 7/8	15 1/2	24 1/2	1/2	1/2	90	32
WV-018										90	38		
WV-016	B Short		21	19	40	9 1/2	7 7/8	15 1/2	24 1/2	1/2	1/2	90	32
WV-019										90	38		
WV-024	C		21 1/2	21 1/2	44	11 3/8	10 3/4	19 5/8	35	1/2	1/2	98	42
WV-030										3/4	3/4	105	44
WV-036	D		21 1/2	25 1/2	48	11 1/2	10 3/4	23 1/2	39	3/4	3/4	115	48
WV-042		121								62			
WV-048	E	24	29	60	11 1/2	10 3/4	27 1/8	47	3/4	3/4	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													

Future

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

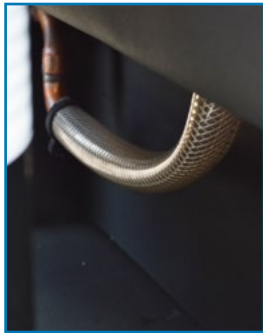


Control Panel Service Access

Panels provide service access to the controls, compressor, filters, and supply fan. Hinged control panel opens for fan access.

Pioneer Silver Controls

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



Internal P-Trap

Sloped Stainless Steel Drain Pan includes integrated condensate p-trap within the cabinet that eliminates need for a housekeeping pad. Condensate drain and water in/out connections are flush mounted.

Copper Coaxial Refrigerant-to-Water Heat Exchanger

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

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.

Right return with top discharge

Interior of Supply Fan Section



**High Efficiency Fan
(Top Discharge)**

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



Insulated Service Access Panel

**Closed Cell Neoprene
Foam Cabinet Insulation**

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



Water
Out

Water
In



Interior of Compressor and Refrigeration Components Section

**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 1/2 through 1 1/2 tons. Compressors are mounted with rubber-in-shear on an isolation plate that is rubber-in-shear isolated in the cabinet for reduced vibration.

WV Series Performance Data with PSC Fan

WV Model (MBH)	Airflow (cfm)	Fluid Flow (gpm)	Voltage	Water Loop (Ratings at AHRI Cooling Tower/Boiler Conditions as in accordance with ISO Standard 13256-1)				Ground Water (Ratings at AHRI Cooling Tower/Boiler Conditions as in accordance with ISO Standard 13256-1)				Ground Loop (Ratings at AHRI Cooling Tower/Boiler Conditions as in accordance with ISO Standard 13256-1)			
				Cooling EWT 86F		Heating EWT 68F		Cooling EWT 59F		Heating EWT 50F		Cooling EWT 77F		Heating EWT 32F	
				Btu/HR	EER	Btu/hr	COP	Btu/HR	EER	Btu/hr	COP	Btu/HR	EER	Btu/hr	COP
WV-015	530	3.75	208/230V-60Hz-1ph 265V-60Hz-1ph	13,700	15.10	18,000	4.60	16,300	23.80	14,700	3.90	14,500	17.20	10,500	3.10
WV-016	530	3.75		13,700	16.20	18,400	4.80	16,900	24.00	14,800	3.90	14,800	18.00	10,600	3.10
WV-018	640	4.50		17,700	14.50	22,300	4.60	20,700	22.00	18,200	3.70	18,700	16.40	13,000	3.10
WV-019	640	4.50		18,100	15.60	21,100	4.80	21,100	25.10	17,000	3.80	19,100	18.50	12,200	3.10
WV-024	800	6.00	208/230V-60Hz-1ph 265V-60Hz-1ph 208/230V-60Hz-3ph 460V-60Hz-3ph	22,600	14.60	27,500	4.30	24,700	21.90	21,700	3.80	22,500	16.30	15,600	3.10
WV-030	1,000	7.50		27,400	14.60	34,200	4.70	28,600	20.00	26,400	4.00	26,800	14.60	18,800	3.30
WV-036	1,200	9.00		36,800	15.00	45,000	4.70	39,500	21.00	35,100	4.00	35,600	15.80	25,600	3.20
WV-042	1,400	10.50		42,000	14.80	53,500	5.00	46,100	21.60	42,300	3.70	41,200	16.40	31,700	3.10
WV-048	1,550	12.00		46,100	13.60	64,100	4.60	52,200	20.20	53,300	4.00	48,000	15.60	40,400	3.40
WV-060	1,950	15.00		57,500	13.90	73,800	4.70	65,700	20.50	60,800	4.20	61,100	16.10	46,800	3.90

All Aluminum Construction

AAON Water-Source Heat Pumps feature all aluminum cabinet construction with a unit weight significantly less than a conventional water-source heat pump galvanized steel unit. Additional construction features include hem bends on exposed edges, integrated hanging brackets with rubber vibration isolation.

Microchannel Coils

AAON Water-Source Heat Pumps feature an aluminum microchannel indoor DX coil with a larger face 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.

All Metal Pallet

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

Replacement Ready

AAON Water-Source Heat Pumps are stocked and ready to ship. Contact your local AAON representative for availability. Replacement units match the size of conventional water-source heat pump units. Stocked vertical units include 1/2 to 5 ton capacities, all voltages, with left or right return.

Pioneer Controls

AAON Pioneer Silver and Pioneer Gold water-source heat pump controllers are designed, engineered, and supported by AAON. All of the energy saving features and options available on AAON WH and WV Series water-source pumps can be controlled with these systems. Pioneer Silver is designed for use with a standard heat pump thermostat. Pioneer Gold is designed for stand alone control with space sensor with BACnet IP/MSTP and Modbus network capabilities.



Pioneer Gold



Pioneer Silver

WV Series Performance Data with High Efficiency ECM Fan

WV Model (MBH)	Airflow (cfm)	Fluid Flow (gpm)	Voltage	Water Loop (Ratings at AHRI Cooling Tower/Boiler Conditions as in accordance with ISO Standard 13256-1)				Ground Water (Ratings at AHRI Cooling Tower/Boiler Conditions as in accordance with ISO Standard 13256-1)				Ground Loop (Ratings at AHRI Cooling Tower/Boiler Conditions as in accordance with ISO Standard 13256-1)			
				Cooling EWT 86F		Heating EWT 68F		Cooling EWT 59F		Heating EWT 50F		Cooling EWT 77F		Heating EWT 32F	
				Btu/HR	EER	Btu/hr	COP	Btu/HR	EER	Btu/hr	COP	Btu/HR	EER	Btu/hr	COP
WV-006	250	2.00	208/230V-60Hz-1ph 115V-60Hz-1ph 265V-60Hz-1ph	5,900	15.30	8,500	6.00	6,900	24.20	7,000	5.10	6,300	18.20	5,200	4.10
WV-009	330	2.25		9,100	15.40	12,000	5.40	11,200	25.30	10,300	4.70	9,800	18.00	7,800	3.90
WV-012	440	3.00		13,100	15.20	17,800	5.10	15,100	22.90	14,400	4.40	13,500	17.10	11,200	3.70
WV-015	530	3.75	208/230V-60Hz-1ph 265V-60Hz-1ph	14,000	16.20	18,000	4.90	16,600	25.70	14,700	4.20	14,800	19.00	11,300	3.40
WV-016	530	3.75		14,000	17.50	18,400	5.10	17,200	27.10	14,800	4.20	15,100	20.00	11,400	3.40
WV-018	640	4.50		18,000	15.50	22,300	4.90	21,000	23.40	18,200	4.00	19,000	17.80	14,100	3.30
WV-019	640	4.50		18,400	16.80	21,100	5.10	21,400	27.00	17,000	4.10	19,400	19.90	13,100	3.40
WV-024	800	6.00		22,900	15.30	27,400	4.60	24,900	23.40	22,200	4.10	23,200	17.40	17,200	3.40
WV-030	1,000	7.50		27,800	15.10	34,000	4.90	29,600	21.80	28,400	4.20	27,400	16.60	21,800	3.60
WV-036	1,200	9.00	208/230V-60Hz-1ph 265V-60Hz-1ph	35,700	15.50	43,400	4.90	40,400	23.00	35,600	4.30	36,600	17.30	27,400	3.60
WV-042	1,400	10.50	208/230V-60Hz-3ph 460V-60Hz-3ph	42,000	15.30	52,700	5.10	47,600	23.40	43,900	4.20	41,800	17.30	34,200	3.20
WV-048	1,550	12.00		48,500	16.40	63,900	5.10	55,100	25.40	52,200	4.50	50,500	19.00	40,100	3.70
WV-060	2,100	15.00		59,000	15.00	72,900	5.00	65,800	21.80	53,700	4.20	62,000	17.30	51,000	4.50

Advanced Testing Technology

All AAON Water-Source Heat Pump designs 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 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 13256-1.



▲ High Tech Water-Source Heat Pump Testing Laboratory



▲ Advanced Test Chamber Provides Detailed Testing Results

AHRI Certified

AAON water-source heat pumps are AHRI performance certified and tested in accordance with ISO Standard 132256-1. Certificates can be downloaded directly from the AHRI Certified Directory, www.ahridirectory.org.





AAON Environmentally Friendly HVAC Product Family

<p>ROOFTOP UNITS (2-240 tons)</p> <p>RN SERIES RQ SERIES RZ/RL SERIES</p>	<p>WATER-SOURCE HEAT PUMPS (½ - 230 tons)</p> <p>RQ SERIES RZ/RL SERIES RN SERIES M2 SERIES SA SERIES SB SERIES VERTICAL & HORIZONTAL WSHP</p>	<p>PACKAGED OUTDOOR MECHANICAL ROOMS (4-540 tons)</p> <p>BOILER MECHANICAL ROOM LF SERIES LN SERIES FLUID COOLER LZ SERIES</p>
<p>INDOOR AIR HANDLING UNITS (800 - 100,000 + cfm)</p> <p>F1 SERIES H3 SERIES V3 SERIES SA SERIES M2 SERIES M3 SERIES</p>	<p>SELF-CONTAINED UNITS (3-70 tons)</p> <p>SB SERIES SA SERIES M2 SERIES</p>	<p>CONDENSING UNITS (2-230 tons)</p> <p>CB SERIES CF SERIES CN SERIES CL SERIES</p>
<p>OUTDOOR AIR HANDLING UNITS (800 - 100,000 + cfm)</p> <p>RZ/RL SERIES RN SERIES RQ SERIES</p>	<p>COILS BOOSTER, HYDRONIC, & DX</p>	<p>CONTROLS (WSHP, RTU, SELF-CONTAINED, & SPLIT SYSTEM)</p> <p>Touchscreen Controller Pioneer Gold Pioneer Silver VCC-X</p>

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

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