

AIR SOURCE HIGH TEMPERATURE HEAT PUMP WATER HEATER



ABOUT MAMMOTH

Since 1935, Mammoth has been producing and installing air conditioning units with the most innovative technologies. Our solutions are found in some of the world's most important buildings for its unparalleled flexibility and efficiency. When performance and energy efficiency are important factors to a project, our products are often chosen as the final solution.



Established in Minneapolis, USA - 1935



Since 1988, Mammoth has been providing energy saving products to projects in China. In 2002, Mammoth invested US\$10 million to establish its manufacturing facility in Anji, China's #1 Ecological County, and its national sales headquarter in Shanghai to provide custom engineered air conditioning systems for projects in China and abroad.

Energy Saving & Innovation



Mammoth produces air conditioning equipment that leverages energy saving and innovative technologies. Our products include, but not limited to, geothermal & water source heat pumps, air & water cooled commercial air conditioning units, fan coils, AHU, VAV box, screw chillers, and energy recovery units.

Customization & Energy Saving is Our Standard



Mammoth has been recognized as a leader in providing custom designed Total Energy Solution HVAC Systems. Our solutions can fit any design applications from WSHP systems to geothermal systems, from hybrid systems to various energy saving systems. Based on the needs of our customers, our recommendations help our customers assess the economic benefits of Mammoth solutions over alternative systems.

Outstanding Achievement



Mammoth has also brought its innovative design concepts to the industry. We have printed numerous technical design manuals and books to facilitate engineers in the design of Renewable Energy HVAC Systems. Together with industry associations and the commercial section of the US Embassy and Consulate General Offices, we have frequently conducted technical seminars in major cities in China and abroad. We have supplied our solutions to projects that amount to almost 10 million sq. m., and have been continuously recognized as the leader in Renewable Energy products in China.

APPLICATION



Pharma & Chemical Industry



Catering Disinfection



Food Processing



Metal Processing



Safety

No risk of electric shock, gas leakage, or explosion – addressing the safety challenges of traditional steam boilers.



Eliminates

The problem of pollution and lack of environmental protection associated with traditional steam boilers.



Energy Saving

Solving the problems of high energy loss and operating costs associated with traditional steam boilers.



Convenience

No need for approval, annual inspections, or dedicated personnel – solving operational challenges.

THE “DUAL CARBON” TREND IS IRREVERSIBLE.

If your company operates in any of the following industries, you should strongly consider energy-saving and eco-friendly heat pump steam systems:

Textiles, energy, building materials, wood, chemicals, metallurgy, transportation, pharmaceuticals, paper, food, and other industrial sectors.



Applied Chemical Industry



District Heating



Garment Drying



Paper Manufacturing



Building Steam Curing



Agricultural Breeding



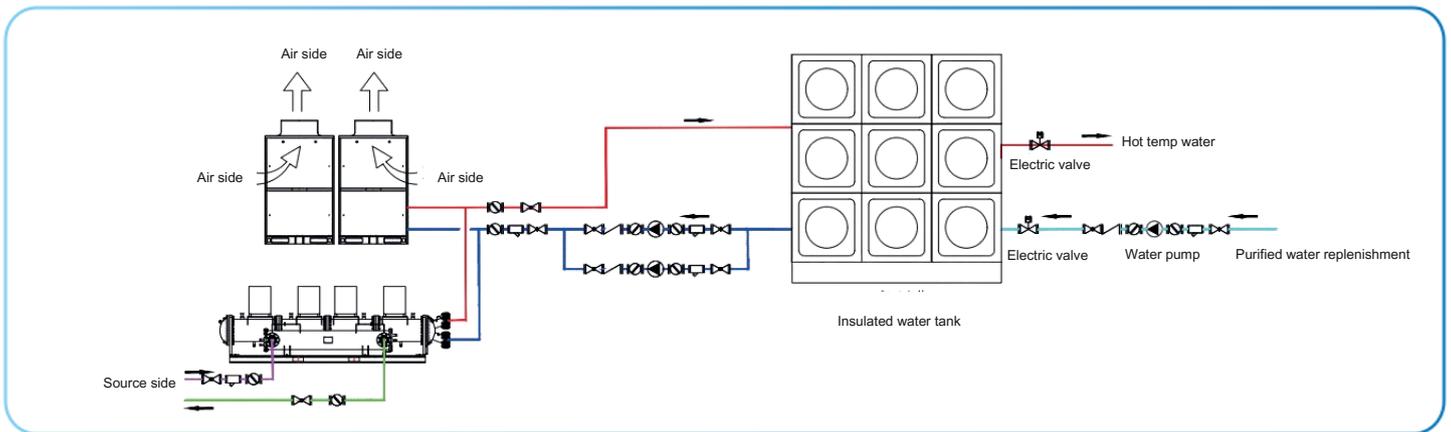
Wine Distillation



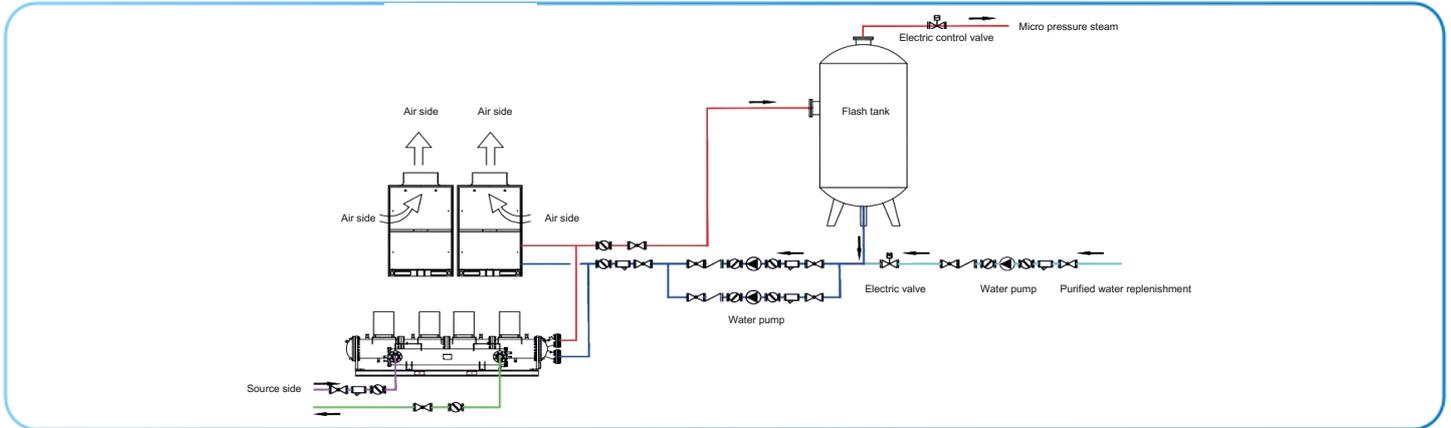
Wood Processing

SYSTEM SCHEMATIC DIAGRAM

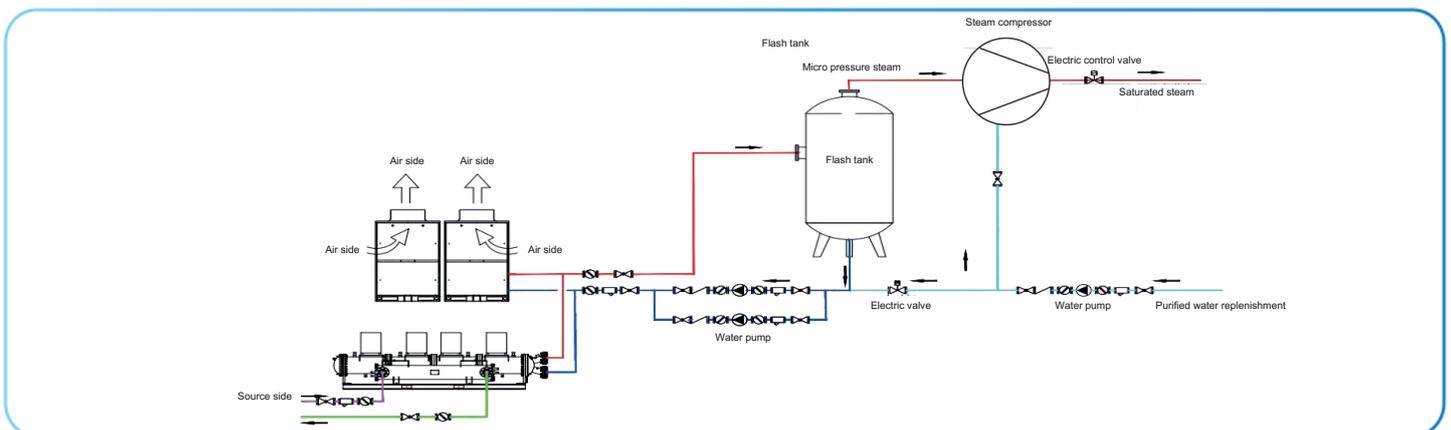
Air source/waste heat source heat pump high temperature hot water system



Air source/waste heat source heat pump micro-pressure steam system



Air source/waste heat source heat pump high pressure steam system



AIR SOURCE HIGH TEMP HEAT PUMP WATER HEATER

85°C

01

High Reliability of Components

Built for industrial and harsh environments, with high-temperature components like electronic expansion valves and pressure sensors. Withstands 30°C more than standard parts, ensuring 15 years of safe, reliable operation.

02

Variable Frequency Technology

Reliable even in extreme temperatures, with a 1Hz DC inverter compressor ensuring safe operation from -30°C to 43°C. Ideal for year-round industrial energy needs.

03

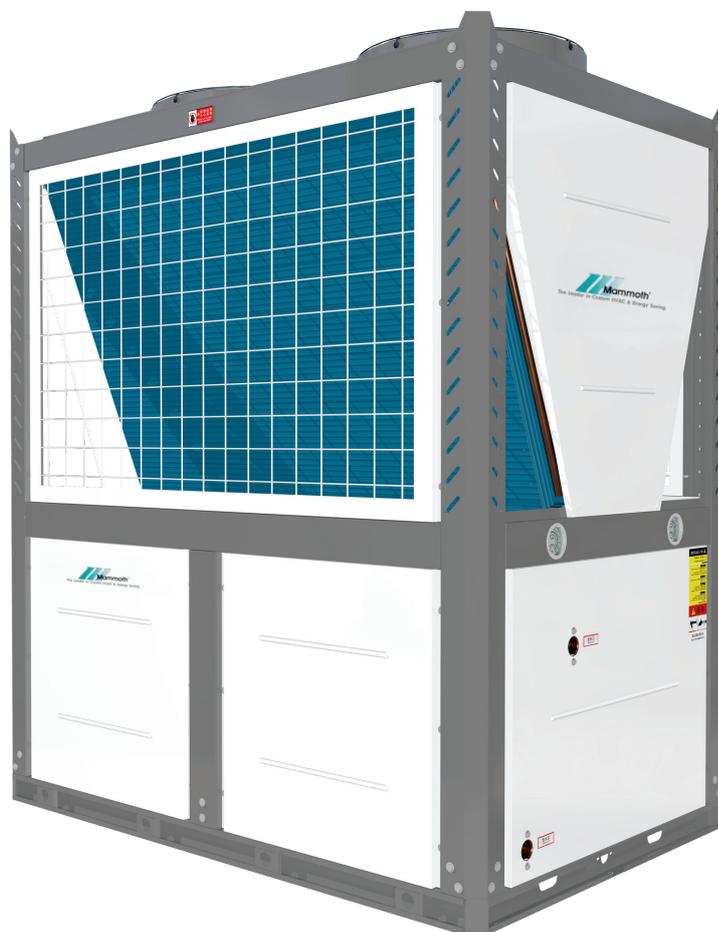
Special Coating for Enhanced Durability

Durable design with anti-corrosion coating and stainless/Dacromet fasteners, ideal for harsh environments like electroplating and electrophoresis.

04

Dual-Stage Refrigerant Coupling for Higher Efficiency

Enhanced heat exchanger enables direct refrigerant coupling, reducing energy loss and boosting efficiency by 10% compared to water-coupled systems.



TECHNICAL SPECIFICATION

Model Name		M-AS-50FGBW	M-AS-100FGBW	M-AS-160FGBW	M-AS-190FGBW	M-AS-370FGBW	
Description		Air Source Heat Pump Cascade Water Heater					
Rated Heating	Heating Capacity	kW	49.5	99.7	160	186	370
	Water Flow	m ³ /h	4.3	8.6	13.8	16	31.8
Condition	Input Power	kW	18.3	37.2	60.4	68.9	139.6
	COP	W/W	2.7	2.68	2.65	2.7	2.65
Power Supply		380V/3N~50Hz					
Max. Input Power	kW	25	48	75	89	188	
Max. Input Current	A	47	91	142	169	357	
Ambient Temperature	°C	-35~45					
Max. Outlet Temperature	°C	85					
Refrigerant		R410A/R134a					
Compressor		DC-inverter (Low-temperature)&Dedicated High-temperature (High-temperature)					
Air Side Heat Exchanger		Efficient Copper Tube Fin					
Water Side Heat Exchanger		Tube-in-tube					
Water System	Pipe Diameter	DN40(Female)	DN50(Flange)	DN65(Flange)	DN65(Flange)	DN80(Flange)	
	Pressure Drop	kPa	≤80				
Dimension (L*W*H)	mm	1700*1160*2050	2300*1270*2120	2300*2300*2250	3000*1400*2350	3000*2800*2350	
Sound Power	dB(A)	≤65	≤70	≤75	≤75	≤78	
Weight	kg	850	1100	1800	2000	3700	

1) Rated Heating Condition: Dry bulb temperature 20°C, wet bulb temperature 15°C, inlet water temperature 60°C, outlet water temperature 70°C;

2) Reference standards: GB/T 21362-2023, GB/T 25127.1-2020;

3) Refrigerants can be replaced according to users' environmentally friendly needs;

4) Specifications are subjected to change with product improvements. No prior notice will be given. Please refer to the actual product for final specifications.

AIR SOURCE HIGH TEMP HEAT PUMP WATER HEATER

100°C

01

Hot Water up to 95°C – Meeting Diverse Industrial Needs

Uses eco-friendly R515B refrigerant to deliver water up to 95°C—15°C hotter than standard systems—ideal for industries like dairy, beverages, semiconductors, and CCUS.

02

Stable Performance

Reliable in extreme temperatures, with vapor-injected DC inverter compressor operating from -30°C to 43°C—ideal for year-round industrial energy needs.

03

Safe and Reliable Components

High-temperature components built for industrial use, withstanding 30°C more than standard parts, ensuring 15-year lifespan and reliable, safe operation.

04

Dual-Stage Refrigerant Coupling for Higher Efficiency

Enhanced heat exchanger enables direct refrigerant coupling, reducing energy loss and boosting efficiency by 10% compared to water-coupled systems.



TECHNICAL SPECIFICATION

Model Name			M-AS-40FTBW	M-AS-80FTBW	M-AS-140FTBW	M-AS-280FGBW
Description			Air Source Heat Pump Cascade Water Heater			
Rated Heating Condition	Heating Capacity	kW	40.5	81.5	137	273
	Water Flow	m ³ /h	3.5	7	11.8	23.5
	Input Power	kW	17.9	36.2	61.7	123.5
	COP	W/W	2.26	2.25	2.22	2.21
Power Supply			380V/3N~50Hz			
Max. Input Power	kW	23	45	80	160	
Max. Input Current	A	45	85	155	310	
Ambient Temperature	°C	-35~45				
Max. Outlet Temperature	°C	100				
Refrigerant		R410A/R515B				
Compressor		DC-inverter (Low-temperature)&Dedicated High-temperature (High-temperature)				
Air Side Heat Exchanger		Efficient Copper Tube Fin				
Water Side Heat Exchanger		Tube-in-tube				
Water System	Pipe Diameter		DN40(Female)	DN50(Flange)	DN65(Flange)	DN80(Flange)
	Pressure Drop	kPa	≤80			
Dimension (L*W*H)	mm	1700*1160*2050	2300*1270*2120	3000*1400*2350	3000*2800*2350	
Sound Power	dB(A)	≤65	≤70	≤75	≤78	
Weight	kg	900	1200	2000	3900	

1) Rated Heating Condition: Dry bulb temperature 20°C, wet bulb temperature 15°C, inlet water temperature 70°C, outlet water temperature 80°C;

2) Reference standards: GB/T 21362-2023, GB/T 25127.1-2020;

3) Refrigerants can be replaced according to users' environmentally friendly needs;

4) Specifications are subjected to change with product improvements. No prior notice will be given. Please refer to the actual product for final specifications.

AIR SOURCE HIGH TEMP HEAT PUMP WATER HEATER

125°C

01

High-Temperature Output up to 130°C

Rated water outlet at 120°C and maximum steam outlet up to 130°C (for direct steam models), making it ideal for industrial applications requiring high-temperature water or low-pressure steam, such as brewing, food processing, and electronics.

02

Complete Copeland Solution – Safe and Reliable Operation

Equipped with the ZW650 ultra-high-temperature compressor and original Copeland high-temp electronic expansion valve, paired with a professional control system to ensure the safety and reliability of the steam heat pump—ideal for industrial retrofitting applications.

03

Patented Defrost Technology

Patented defrosting minimizes temperature fluctuation, requires no external heat storage, and only activates when frost is present—ensuring efficient, stable operation.

04

Smart Control for Greater Comfort

Smart control with mobile/PC access, real-time monitoring, fault alerts, scheduling, and a 7-inch touchscreen for easy, fully Chinese interface adjustments.



TECHNICAL SPECIFICATION

Model Name			M-AS-60FTBW	M-AS-120FTBW	M-AS-140FTBW
Description			Air Source Heat Pump Cascade Water Heater		
Rated Heating Condition	Heating Capacity	kW	59.5	118	236
	Water Flow	m ³ /h	10.2	20.3	40.6
	Input Power	kW	28.3	56.2	112.4
	COP	W/W	2.1	2.1	2.1
Power Supply			380V/3N~50Hz		
Max. Input Power	kW		45	90	180
Max. Input Current	A		88	176	350
Ambient Temperature	°C		-25~45		
Max. Outlet Temperature	°C		125		
Refrigerant			R410A/R245fa		
Compressor			DC-inverter (Low-temperature)&Dedicated High-temperature (High-temperature)		
Air Side Heat Exchanger			Efficient Copper Tube Fin		
Water Side Heat Exchanger			Efficient Tank/Plate		
Water System	Pipe Diameter		DN65(Flange)	DN80(Flange)	DN100(Flange)
	Pressure Drop	kPa	≤50		
Dimension (L*W*H)	mm		1700*1160*2050	2300*1350*2350	2300*2800*2200
Sound Power	dB(A)		≤65	≤70	≤75
Weight	kg		1050	1300	3300

1) Rated Heating Condition: Dry bulb temperature 20°C, wet bulb temperature 15°C, inlet water temperature 95°C, outlet water temperature 100°C;

2) Reference standards: GB/T 21362-2023, GB/T 25127.1-2020;

3) Refrigerants can be replaced according to users' environmentally friendly needs;

4) Specifications are subjected to change with product improvements. No prior notice will be given. Please refer to the actual product for final specifications.

