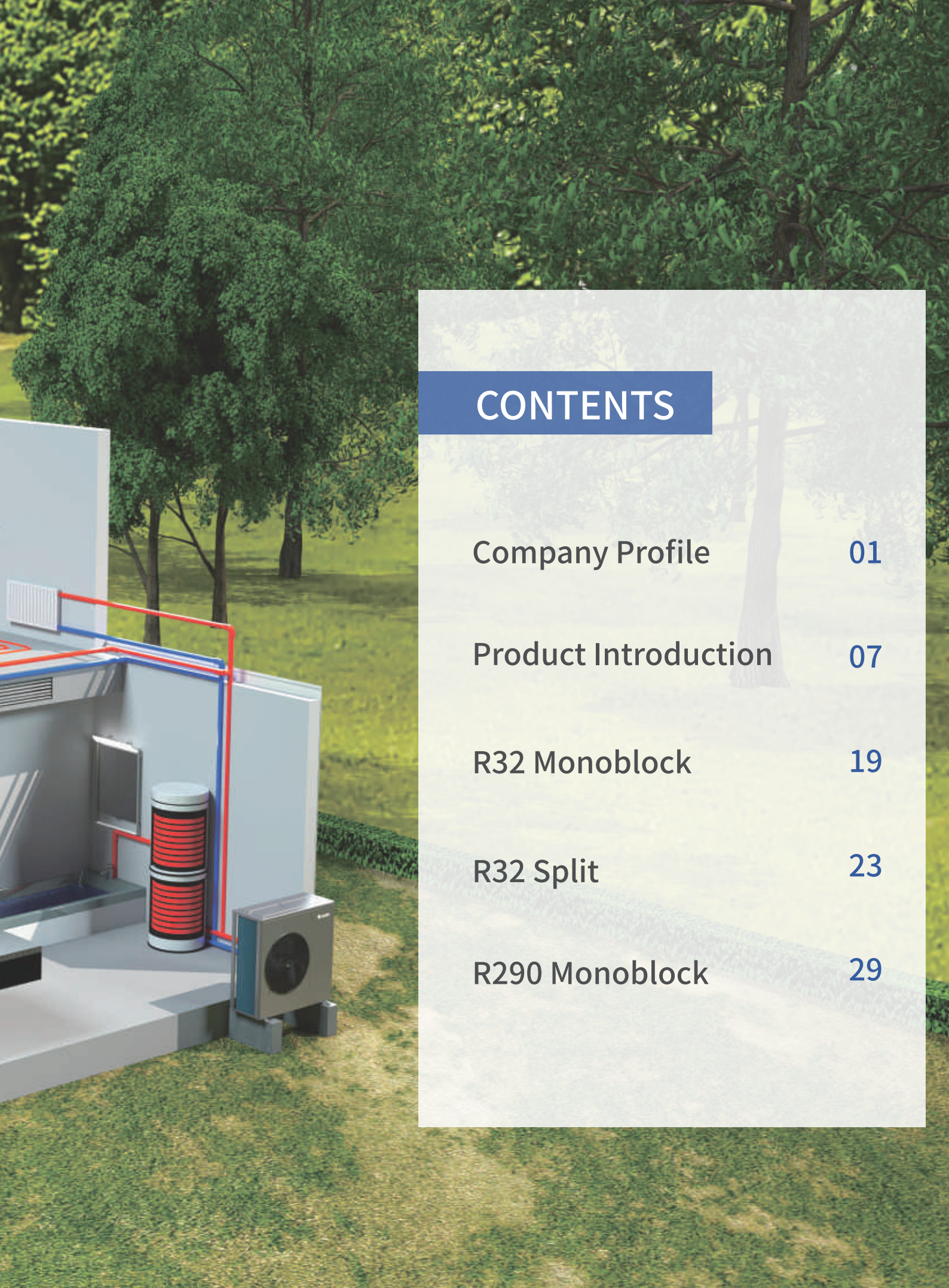
AIR TO WATER HEAT PUMP WITH DC INVERTER



CONTENTS

Company Profile 01

Product Introduction 07

R32 Monoblock 19

R32 Split 23

R290 Monoblock 29

COMPANY PROFILE

Established in 1995, Haiwu is dedicated to providing full cycle energy saving solutions for the digital world. Haiwu is an industry-leading international high-tech enterprise with business covering a wide range of products and service such as: Consulting; R&D; Manufacturing; Marketing and sales; After sales support; Mechanical and electrical general contracting; Products and installations testing and certification; Comprehensive maintenance; Optimization and upgrading of existing installations.

Haiwu is committed to provide innovative products and systems based on environmentally friendly, energy saving and sustainable technologies. The wide product range covers: Telecom and computer room air conditioners; Electrical, monitoring and clean energy products; Telecom and computer room solutions; Tailor-made full cycle and energy saving solutions for customers in telecom, government, energy, finance, education, medical care, transportation and other industrial applications.

Haiwu, with head office in Beijing and R&D and manufacturing industrial park in the Guangdong province, has its own consulting and research institute, 8 subsidiaries and 29 branches. It employs more than 5,000 certified technical service engineers, in more than 500 after-sales service outlets across the country, to provide its customers with high-quality after-sales service.

HISTORY

1995
Company Foundation

Provides refrigeration equipment and engineering services.

2002
Integrated/Turn-key Solutions

Focuses on offering integrated solutions to customers in government, industries, healthcare, education and finance.

2006
Wide Recognition

Approved supplier of China Mobile, China Unicom, China Telecom and of several Government Procurement Offices.

2011
Reaching Out

Establish a group, provincial and municipal three-level marketing system to get closer and enhance customer satisfaction.

2016
Haiwu Industrial Park

Improve core technology and expand production scale. Establish the Haiwu Industrial Park.

2021~
Digital transformation

Adopt full range of digital systems to enhance R&D, manufacturing and quality control system; lays digital foundation for future Haiwu Industrial 4.0.

HAIWU INDUSTRIAL PARK

Building Area

400,000m²

Production Capacity

$1.5 Billion

HAIWU INDUSTRIAL PARK

Products Assembly Workshop

Electric Board Workshop

Heat Exchanger Workshop

Sheet Metal Workshop

First industrial cluster in China for the development and manufacturing of products and systems for Digital Infrastructures and Green Energy.

ACCREDITED LABORATORY

Overview

Haiwu Test Center covers a total area of 215,200 square feet, and it is the base of all the company R&D, testing and quality assurance activities on products, components and raw materials. The Test Center has 5 laboratories to verify the products, components and materials performances at different and extreme ambient temperatures, 1 laboratory to test noise emissions of products at working conditions and 1 laboratory to test the performances of components and accessories.

NATIONAL ACCREDITED LABORATORY

O:CNAS L11799 Test center of Guangdong Haiwu Technology Co., Ltd

One of the best accredited laboratories in the industry, working in full compliance with GB and IEC Standard requirements for sound and performances management and testing systems.

Testing results are recognized by local authorities in 65 countries and regions.

LABORATORY

Temperature range:
-40℃~55℃

Sound pressure
≤16dB（A）

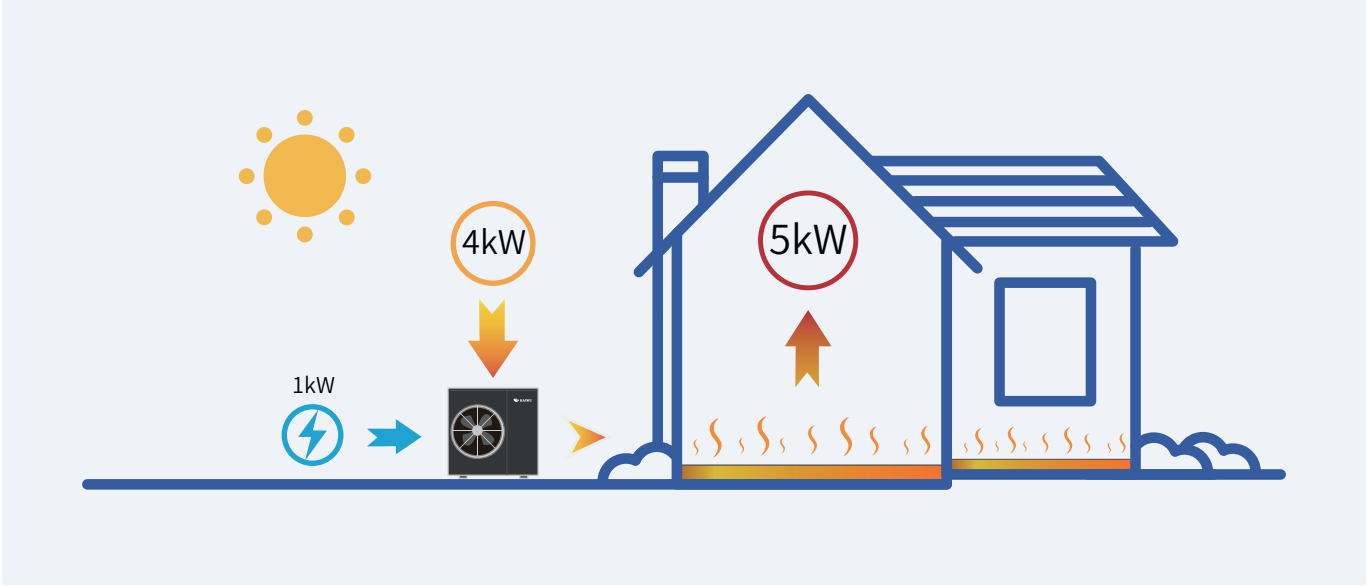
Air flow
300~50000m^3/h

ENVIRONMENTALLY FRIENDLY

Innovation through sustainable technology
Best practices for an environment friendly product
Eco-friendly by design

Minimal GWP (GWP: Global Warming Potential)
Zero impact on the ozone layer
Extremely low carbon emission

HIGH EFFICIENCY



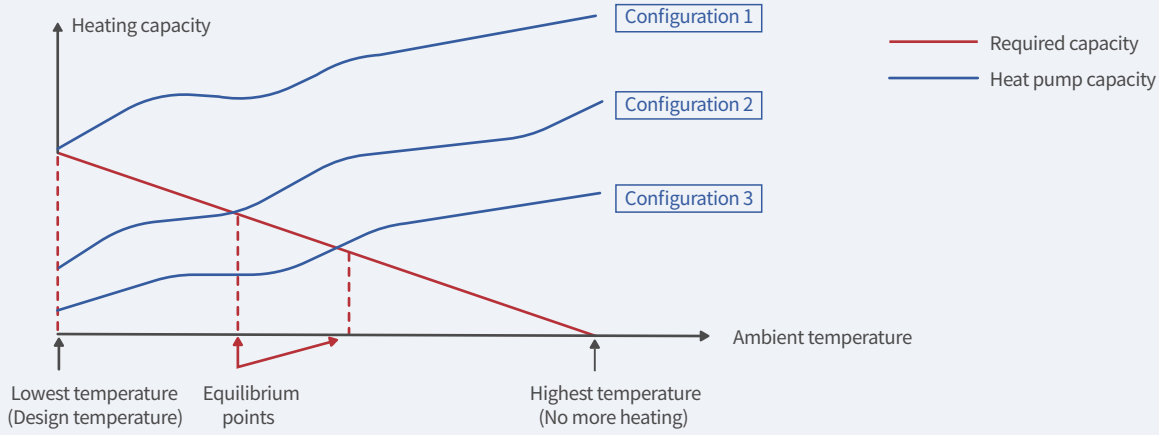
Compared to electric heating and wall mounted gas boiler heating, heating with heat pump has an absolute advantage in terms of energy saving. For each kW of electric energy used to drive its compressor the heat pump can deliver up to 5kW of heating capacity to the served space.

Thanks to the DC Inverter technology and the EVI (Enhanced Vapor Injection) technology, combined to the large size heat exchangers, HAIWU air to water heat pump achieves an energy efficiency rating of A+++ according to EU regulations.

Typical Applications

System Configurations

The HW HP systems can be configured to operate with the electric heater enabled or disabled and can also be used in combination with an auxiliary heat source such as a boiler.
The chosen configuration affects the size of the required heat pump. Three typical configurations are described below.



Configuration 1: Heat Pump Only

- The heat pump meets the required capacity without any need of additional heating capacity.
- This configuration requires the selection of larger capacity heat pump and implies higher initial investment.
- This configuration is ideal for new construction in projects where energy efficiency is paramount.

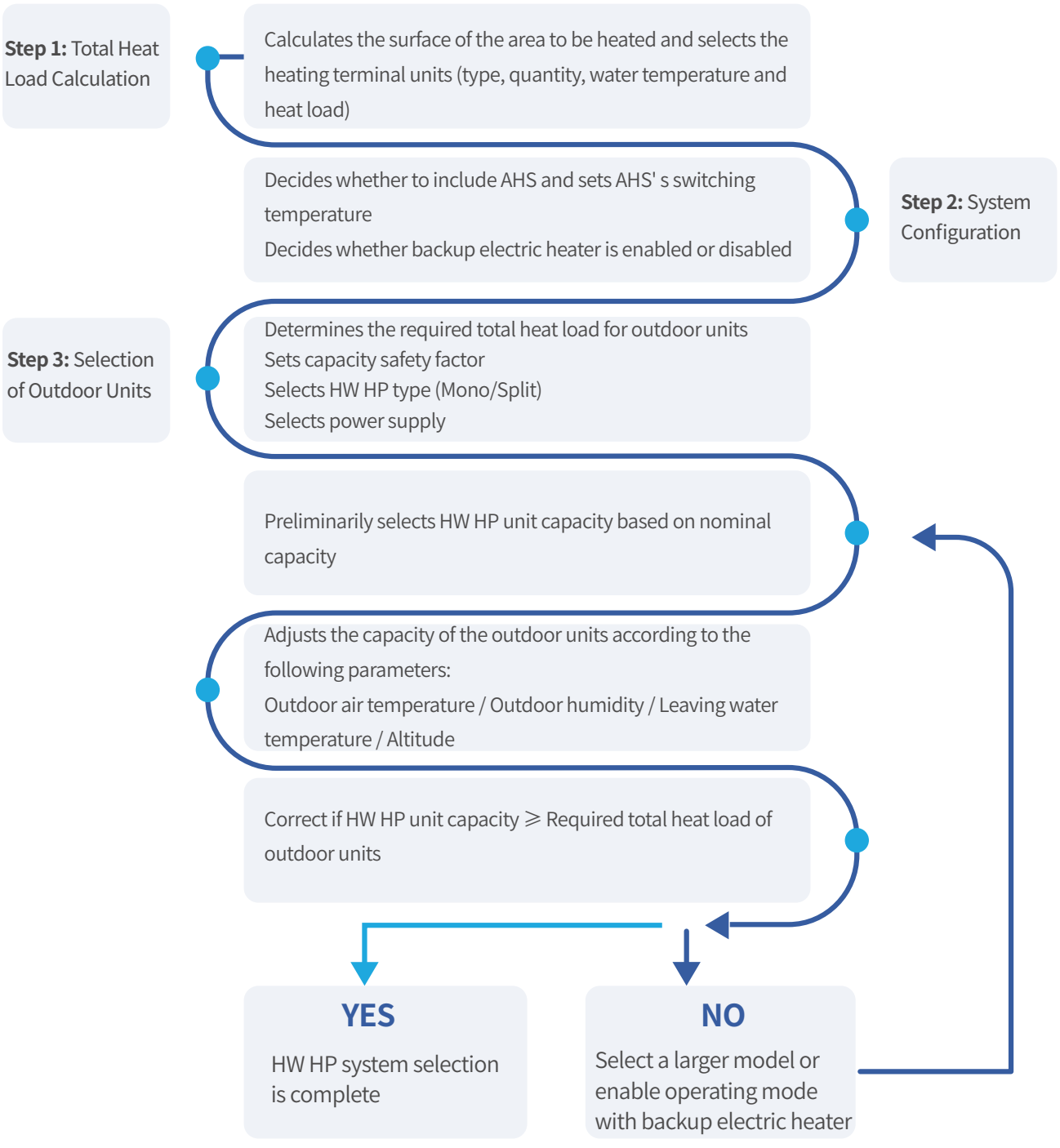
Configuration 2: Heat Pump and Backup Electric Heater

- The heat pump supplies the required capacity until the outdoor temperature drops below the point where the heat pump is no longer able to. When the outdoor temperature falls below this equilibrium point the backup electric heater provides the necessary additional heating capacity.
- This configuration offers the best balance between initial investment and operating costs to achieve the lowest possible life cycle cost.
- This configuration is ideal for new construction where return on investment is the primary issue.

Configuration 3: Heat Pump with Auxiliary Heat Source

- The heat pump supplies the required capacity until the outdoor temperature drops below the point where the heat pump is no longer able to. When the outdoor temperature falls below this equilibrium point, depending on the system settings, the auxiliary heat source provides the required additional heating capacity or fully covers the required capacity and the heat pump is not running.
- This configuration allows to select a heat pump with lower capacity.
- It is ideal for refurbishments and upgrades.

Selection Procedure



Leaving Water Temperature (LWT)

The recommended design LWT ranges for different types of heating terminals are:

- For floor heating: 30°C to 35°C
- For fan coil units: 40°C to 45°C
- For low temperature radiators: 40°C to 50°C

Compact Size

Smaller Dimensions

Allows for container-carrying capacity optimization
(For reference: 92 units within one 40HQ container)
Guarantees transportation cost savings

Lighter

Easier to be handled manually

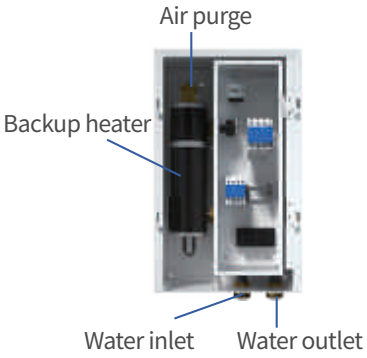
Smaller Footprint

Increases installation flexibility
Ideal for hotels, restaurants or replacement projects

External Backup Electric Heater Kit (Optional)

Features:

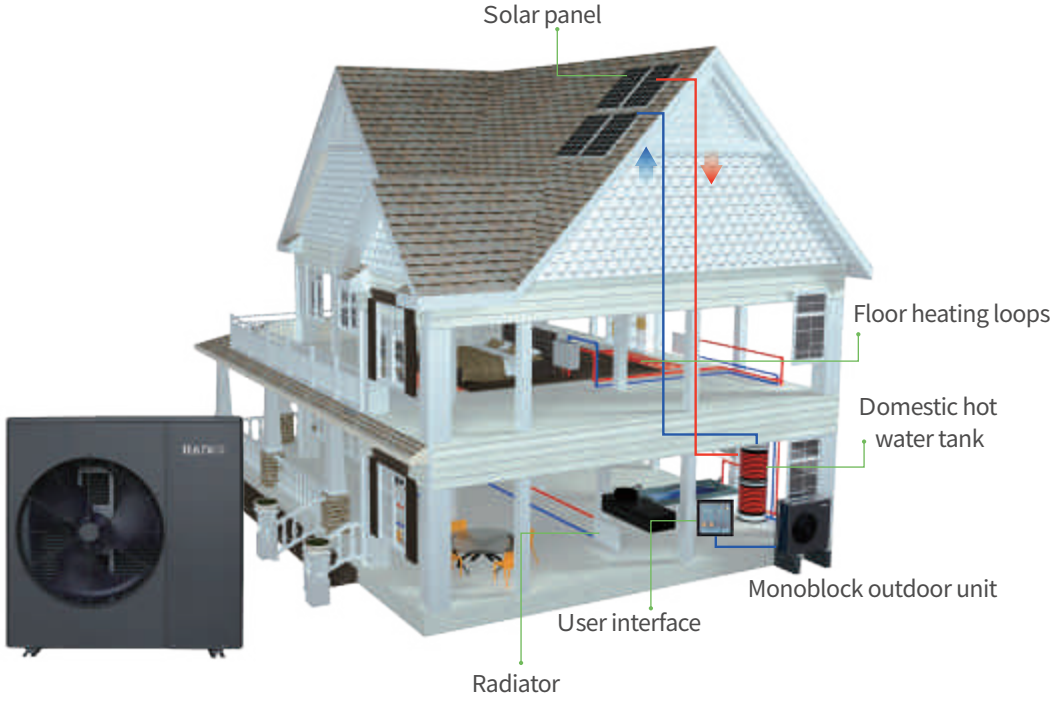
- Easy installation;
- Compact structure;
- Multiple specifications available;
- No fuel tubes and storage;
- Supply additional heating capacity;
- Complete isolation between water and electricity.



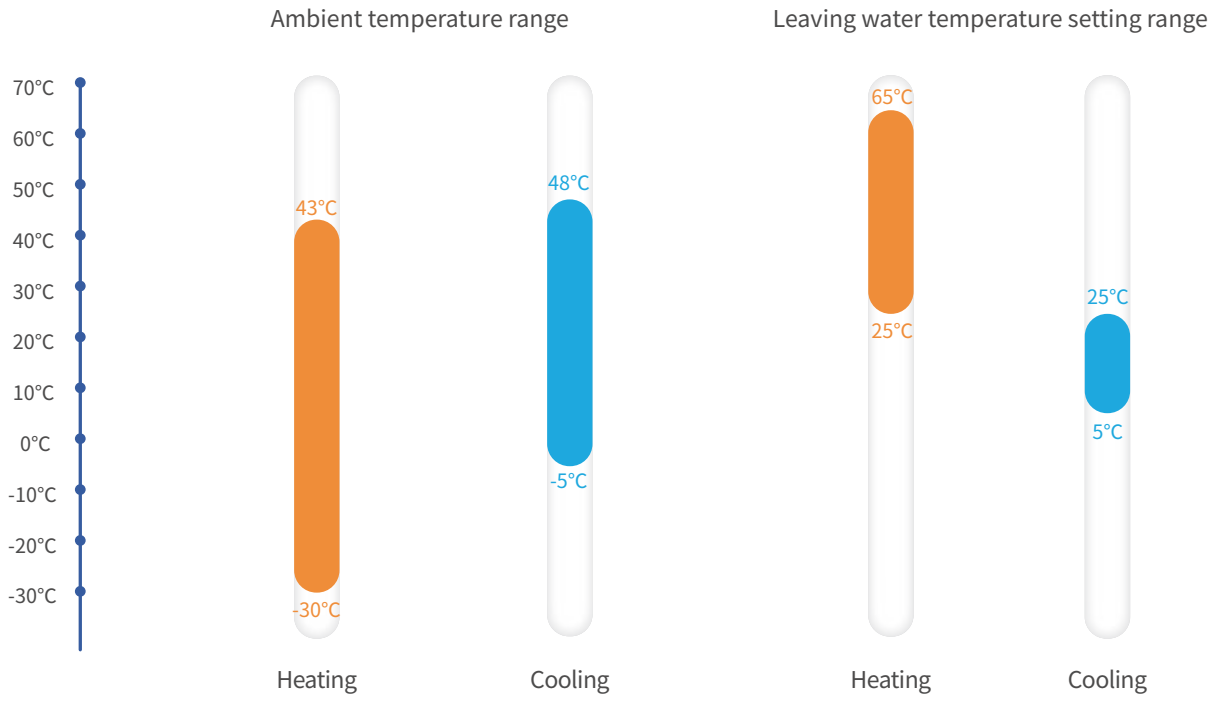
One-Stop Solution - Heating, Cooling and Domestic Hot Water All in One System

The HW HP is an integrated system which provides heating, cooling and domestic hot water, offering a complete all-year-round solution which can replace or work with existing traditional gas or oil-fired boilers. HW HP can be combined with floor heating loops, fan coil units, radiators and domestic water tanks. It can also be connected to solar collectors, gas stoves, boilers and other heat sources.

Smart Grid Certification indicates that the HW HP is designed to utilize electricity from different sources and at different price levels, which means that the electricity generated by photovoltaic systems as well as the one available at reduced tariffs in low demand periods, can be used to meet different working modes, with great benefits in terms of cost saving.



Wide Operation Range

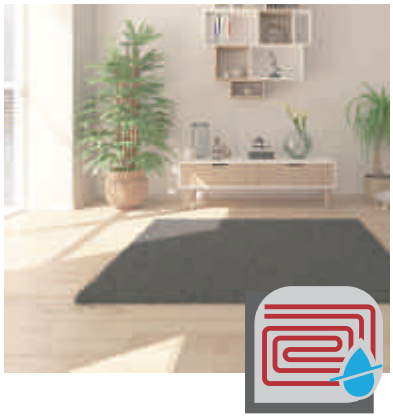


Automatic and Manual Defrost

The ice, generated during heating/DHW mode, covers the fins of the exchanger effecting the heating performances and efficiency. In order to restore a correct heating performance, the heat pump will automatically enter the Defrosting Mode by timely assessing the degree of frosting. Manual Defrost is also available for quick defrosting based on user demand.

Preheating and Drying-up Modes for Floor Heating Systems

If humidity and/or water is present in the floor, the activation of the floor heating system can cause the floor to warp or even crack. To avoid this problem, we provide the Drying-up Mode which is used after the initial installation of the floor loops, and the Preheating Mode for the first activation of the heating system each winter season. In both these modes the water temperature will be increased gradually to avoid any damage to the floor.

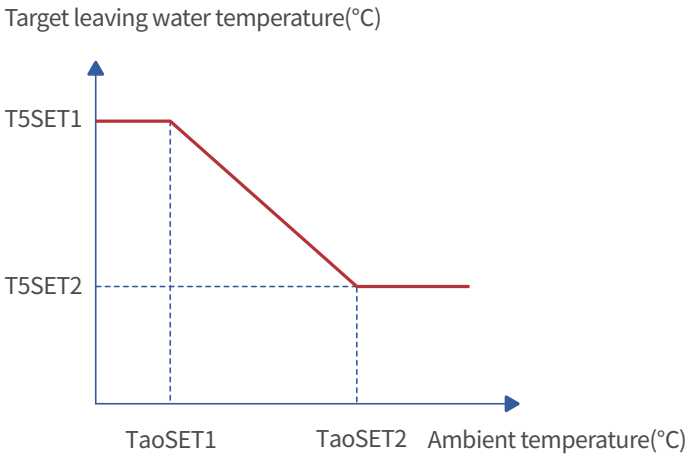


Power Limitation Function

The Power Limitation Function allows to use the machine with a variety of current supplies. The user can choose among 8 configurations according to the maximum allowable feeding current. The activation of this function is performed with an easy setting on the wired controller, in this way the machine is suitable for more applications.

Weather Temperature Curve Function

The Wheatear Temperature Curve Function automatically modify the water temperature according to the outside air temperature variations in order to maximize energy saving while granting selected comfort level. User can choose the curve more appropriate to his situation among the pre-set ones or create his own Temperature Curve for both cooling and heating modes.



Smart Grid

When connected to a Smart Grid the heat pump will adjusts its operating mode according to the different electrical signals received from the grid in order to maximize energy saving. When the electricity price is low or free, the DHW priority mode is activated to heat the water to a temperature higher than the set one in order to generate a heat storage. When the electric price is high, DHW Related Functions are limited. When the electric price is normal the heat pump operates according to the user requirements.

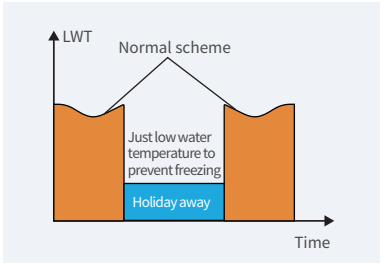
APP Control

Touch-key design
Colour LCD
Error code display
Operation parameter checking
Point check function
Multiple languages
Child lock function
Buzzer alarm
Built-in temperature sensor and WIFI module
Modbus protocol and network flexibility

Holiday Function

Holiday Away Function

The Holiday Away Function is a working mode specifically designed to save energy and to improve system reliability. In wintertime, during the period set on the Holiday Away Function, the unit operates in heating mode and/or DHW mode with low water temperature to save energy while preventing water from freezing due to negative outside temperatures. According to the holiday period set by the user, the system will run the disinfection mode one day before the end of the holiday to ensure that bacteria free domestic hot water is available when the user returns.



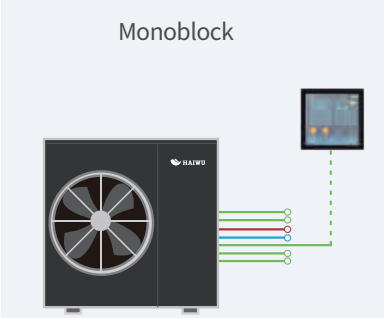
Holiday Home

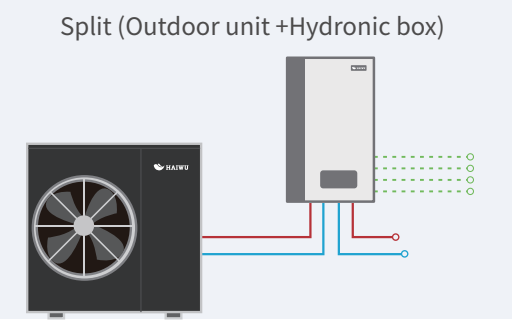
The Holiday Home Function is used to correct the daily heating settings without having to change them during holiday at home.

Silent Mode

The use of DC Inverter driven compressor and fan sensibly reduces the noise emission.
Several precautions are utilized to reduce the noise and vibrations generated by the compressor.
User can select "Silent mode" to obtain a more comfortable feeling.

Typical Application

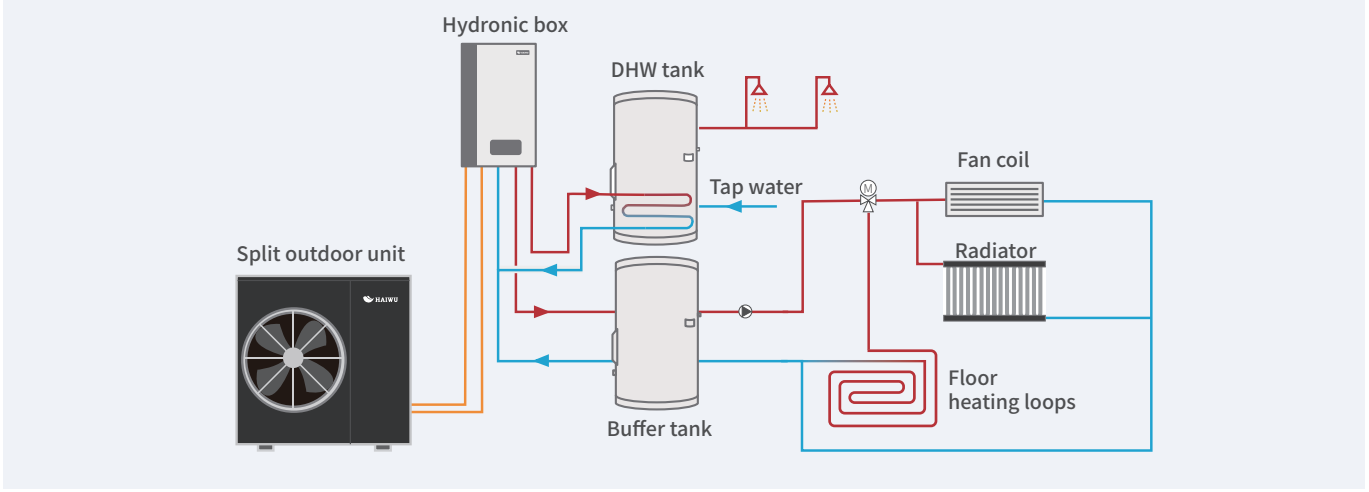




A number of practical applications are possible, including but not limited to the following ones. The application examples given below are for illustration only.

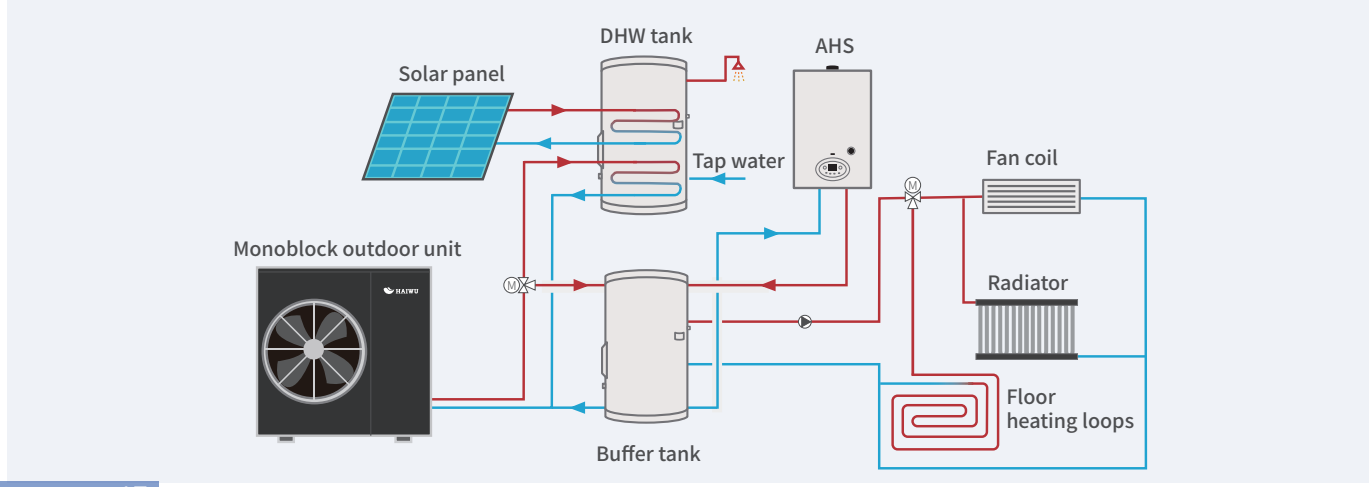
Heating, Cooling and DHW

Floor heating loops and radiators are used for room heating only while fan coil units are used for both room heating and cooling. The DHW tank is used for domestic hot water.The unit can switch between DHW and cooling/heating modes through the three-way valve built in the hydraulic box. This application covers users' demand for cooling, heating and domestic hot water throughout the year.



Heating, Cooling and DHW with AHS

AHS and solar panels provide additional heating to increase heating capacity and domestic hot water temperature. With these systems the required heating capacity of the heat pump is lower than that without AHS or solar panel. The working mode of AHS and solar panel is controlled by the unit.



Double Zones Control

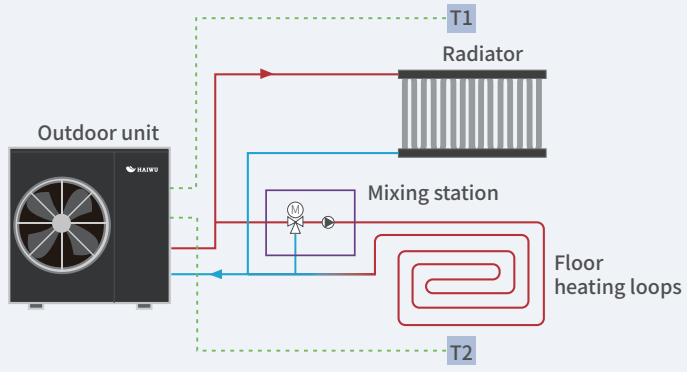
Double Zones Control is only available in heating mode. It can control different temperatures in different areas to meet the various needs of daily use.

1. Using wired controller only

The wired controller sets the mode, the temperature and the on/off status. Zone 1 control is based on the leaving water temperature. Zone 2 control is based on the leaving water temperature or on the built-in sensor integrated in the wired controller.

2. Using wired controller and thermostat.

The wired controller is used to set the mode and the water temperature while both Zone 1 and Zone 2 are controlled by the thermostat.

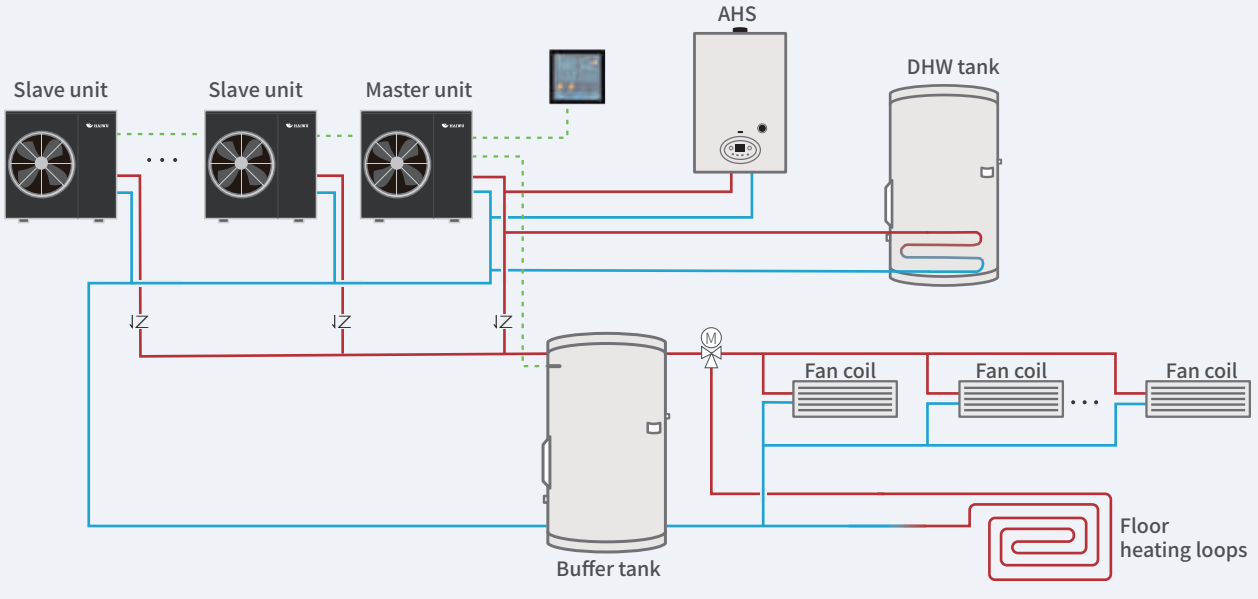


Cascade System

Cascade system design is an optimal solution to respond to the evolving demand of the cooling/heating needs of a building. One wired controller can manage up to 8 units as a group. The buffer tank temperature control makes water temperature more accurate.

The domestic hot water tank can only be connected to the master unit water circuit, through a three-way valve, and it is controlled by the master unit.

The AHS can only be connected to the master water circuit and it is controlled by the master unit.



HW Apollo Series Monoblock

A wider operational range with low noise

8~16kw

Product lineup

Apollo Monoblock

Capacity (KW)	8	10	12	14	16
Appearance					
220~240-1Ph	◎	◎	◎	◎	◎
380~415-3Ph			◎	◎	◎

- Heating, cooling and domestic hot water: one-stop solution.
- Extremely low noise operations for more comfortable living.
- A+++, the best efficiency level for the highest energy saving (water outlet temperature at 35°C)
- Smart Grid certification grants additional cost saving.
- Compatible with other heat sources such as solar panels and boilers.
- Wider operation range: heat pump maximum leaving water temperature up to 65°C, operational with outdoor temperature down to -30°C

-30°C 65°C R32 A+++

External Electric Heater (Optional)

A 3 to 9KW external electric heater increases heating capacity with extremely low outdoor temperatures (optional)

Capacity (KW)	3	4.5	6	9
Appearance				
220~240-1Ph	◎	◎		
380~415-3Ph		◎	◎	◎

Specifications

Apollo Monoblock

Outdoor unit model: HAWS			008B1E7A	010B1E7A	012B1E7A	014B1E7A	016B1E7A	012B2E7A	014B2E7A	016B2E7A
Power supply		V/Ph/Hz	220-240/1/50					380-415/3/50		
Heating[1]	Capacity	kW	8.5	10.0	12.2	14.2	16	12.2	14.2	16
	Rated power input	kW	1.79	2.13	2.46	3.02	3.52	2.46	3.02	3.52
	COP		4.75	4.69	4.96	4.70	4.55	4.96	4.70	4.55
Heating[2]	Capacity	kW	8.5	10.0	12.5	14.4	16.1	12.5	14.4	16.1
	Rated power input	kW	2.25	2.74	3.21	3.79	4.35	3.21	3.79	4.35
	COP		3.78	3.65	3.89	3.80	3.70	3.89	3.80	3.70
Heating[3]	Capacity	kW	8.5	9.5	12.0	14.0	16.0	12.0	14.0	16.0
	Rated power input	kW	2.74	3.11	3.75	4.52	5.33	3.75	4.52	5.33
	COP		3.10	3.05	3.20	3.10	3.00	3.20	3.10	3.00
Cooling[4]	Capacity	kW	8.0	10.0	12.2	14.0	15.5	12.2	14.0	15.5
	Rated power input	kW	1.9	2.56	2.91	3.54	4.19	2.91	3.54	4.19
	EER		4.21	3.91	4.19	3.95	3.70	4.19	3.95	3.70
Cooling[5]	Capacity	kW	8.0	9.1	12.0	13.5	14.0	12.0	13.5	14.0
	Rated power input	kW	2.58	3.08	4.14	5	5.28	4.14	5	5.28
	EER		3.10	2.95	2.90	2.70	2.65	2.90	2.70	2.65
Seasonal space heating energy efficiency class[6]	Outlet water 35°C	class	A+++							
	Outlet water 55°C	class	A++							
Sound power Level[7]		dB	66	67	68	69	70	68	69	70
Refrigerant	Type(GWP)		R32(675)							
	Charged volume	kg	1.5		2.2					
Net dimension (W×H×D)		mm	1020*1020*405							
Packing dimension (W×H×D)		mm	1120*1130*500							
Net/Gross weight		kg	100/110		120/130			120/130		
Water pump	Max. pump head	m	9							
Water piping connection		-	R 1-1/4							
Outdoor ambient temperature range	Cooling	°C	-5～48							
	Heating	°C	-30～43							
	DHW	°C	-30～43							
LWT setting range	Cooling	°C	5～25							
	Heating	°C	25～65							
	DHW	°C	20～60							
Backup E-heater[8] (Optional)	Standard installed	kW	/							
	Optional	kW	3/4.5/6/9							
	Capacity steps	-	1/3/3/3							
	Power supply (V/Ph/Hz)	3kW	220-240/1/50							
		4.5kW	220-240/1/50							
		4.5kW	380-415/3/50							
		6kW	380-415/3/50							
		9kW	380-415/3/50							

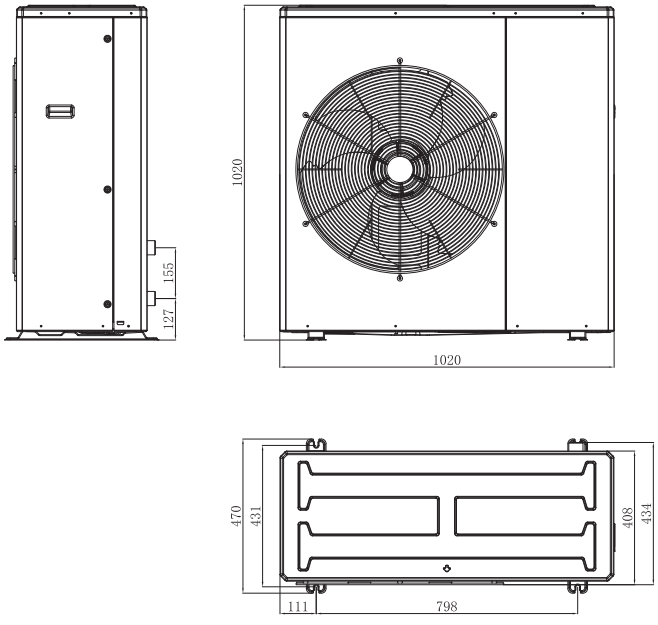
Notes:

1. Outdoor air temperature 7°C DB, 6°C WB; Inlet water 30°C, Outlet water 35°C.
2. Outdoor air temperature 7°C DB, 6°C WB; Inlet water 40°C, Outlet water 45°C.
3. Outdoor air temperature 7°C DB, 6°C WB; Inlet water 47°C, Outlet water 55°C.
4. Outdoor air temperature 35°C DB; Inlet water 23°C, Outlet water 18°C.
5. Outdoor air temperature 35°C DB; Inlet water 12°C, Outlet water 7°C.
6. Seasonal space heating energy efficiency class tested in average climate general conditions.
7. Testing standard: EN12102-1.
8. Backup E-heater is for external installation.
9. Relevant EU standards and legislation: EN14511; EN14825; EN50564; EN12102; (EU) No 811/2013; (EU) No 813/2013; OJ 2014/C 207/02:2014

Product Details (Apollo Monoblock) ▶

1. DC inverter fan
2. PCB board
3. Four way valve
4. Economizer
5. Expansion tank
6. Automatic air purge
7. Brazed plates heat exchanger
8. DC inverter compressor
9. Flow switch
10. DC inverter water pump
11. Relief valve

Dimension (Apollo Monoblock) ▶



*All dimensions in mm.

HW Apollo Series Split

Greater reliability in harsh conditions

8~16kw

Product lineup

Apollo Split

Capacity (KW)	8	10	12	14	16
Appearance					
220~240-1Ph	◎	◎	◎	◎	◎
380~415-3Ph			◎	◎	◎

- Split design avoids the risk of freezing in the outdoor water loop.
- Heating, cooling and domestic hot water in one-stop solution.
- A+++, the best efficiency level for the highest energy saving (water outlet temperature at 35°C)
- Smart Grid certification grants more cost saving.
- Compatible with other heat sources such as solar panels and boilers.
- Wider operation range: heat pump maximum leaving water temperature up to 65°C, operational with outdoor temperature down to -30°C

-30°C 65°C R32 A+++

Specifications

Apollo Split

Outdoor unit model: HAWS			008Y1E7A	010Y1E7A	012Y1E7A	014Y1E7A	016Y1E7A	012Y2E7A	014Y2E7A	016Y2E7A
Hydronicboxmodel:HAWS			010H1E7A		016H1E7A			016H2E7A		
Heating[1]	Capacity	kW	8.5	10.1	12.2	14.3	16	12.2	14.3	16
	Rated power input	kW	1.63	2.02	2.45	3.03	3.55	2.45	3.03	3.55
	COP		5.21	5.00	4.98	4.72	4.51	4.98	4.72	4.51
Heating[2]	Capacity	kW	8.3	10.1	12.4	14.3	16	12.4	14.3	16
	Rated power input	kW	2.12	2.66	3.26	3.92	4.43	3.26	3.92	4.43
	COP		3.92	3.80	3.80	3.65	3.61	3.80	3.65	3.61
Heating[3]	Capacity	kW	7.8	9.5	12.1	14.0	16.0	12.1	14.0	16.0
	Rated power input	kW	2.45	3.05	3.9	4.67	5.51	3.9	4.67	5.51
	COP		3.18	3.11	3.10	3.00	2.90	3.10	3.00	2.90
Cooling[4]	Capacity	kW	8.5	10.0	12.2	14.0	15.2	12.2	14.0	15.2
	Rated power input	kW	1.68	2.09	2.75	3.32	3.72	2.75	3.32	3.72
	EER		5.06	4.78	4.44	4.22	4.09	4.44	4.22	4.09
Cooling[5]	Capacity	kW	7.4	8.8	11.6	13.2	14.0	11.6	13.2	14.0
	Rated power input	kW	2.2	2.71	3.86	4.58	4.98	3.86	4.58	4.98
	EER		3.36	3.25	3.01	2.88	2.81	3.01	2.88	2.81
Seasonal space heating energy efficiency class[6]	Outlet water35°C	class	A+++							
	Outlet water55°C	class	A++							
Hydronic box sound power Level[7]		dB	42		43					

Notes:

1. Outdoor air temperature 7°C DB, 6°C WB; Inlet water 30°C, Outlet water 35°C.
2. Outdoor air temperature 7°C DB, 6°C WB; Inlet water 40°C, Outlet water 45°C.
3. Outdoor air temperature 7°C DB, 6°C WB; Inlet water 47°C, Outlet water 55°C.
4. Outdoor air temperature 35°C DB; Inlet water 23°C, Outlet water 18°C.
5. Outdoor air temperature 35°C DB; Inlet water 12°C, Outlet water 7°C.
6. Seasonal space heating energy efficiency class tested in average climate general conditions.
7. Testing standard: EN12102-1.
8. Relevant EU standards and legislation: EN14511; EN14825; EN50564; EN12102; (EU) No 811/2013; (EU) No 813/2013; OJ 2014/C 207/02:2014

Apollo Split

Outdoor unit model: HAWS			008Y1E7A	010Y1E7A	012Y1E7A	014Y1E7A	016Y1E7A	012Y2E7A	014Y2E7A	016Y2E7A
Power supply		V/Ph/Hz	220-240/1/50					380-415/3/50		
Refrigerant	Type(GWP)		R32(675)							
	Charged volume	kg	1.5		2.2					
Sound power Level[1]		dB	66	67	68	69	70	68	69	70
Net dimension (W×H×D)		mm	1020*1020*405							
Packing dimension (W×H×D)		mm	1120*1130*500							
Net/Gross weight		kg	95/105		115/125			115/125		
Pipe size O.D.	Liquid	mm	9.52							
	Gas	mm	15.88							
Connection method			Flare							
Between indoor and outdoor unit	Height difference	m	Max.20							
	Pipe length	m	2~30m							
Additional refrigerant	Charge	g/m	38							
	Max. piple length for no additional	m	15							
Outdoor ambient temperature range	Cooling	°C	-5~48							
	Heating	°C	-30~43							
	DHW	°C	-30~43							

1. Testing standard: EN12102-1.

Specifications

Apollo Split

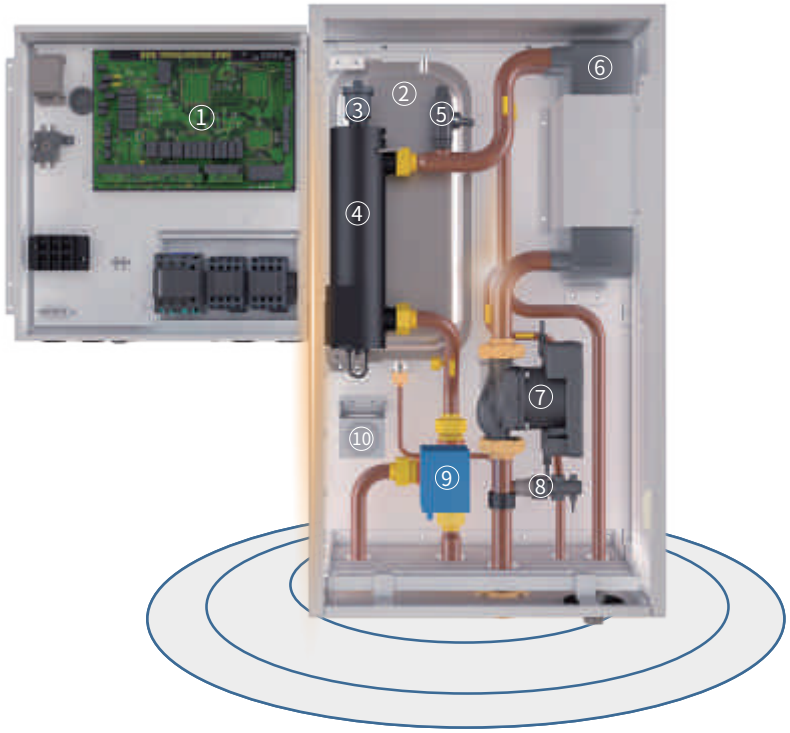
Hydronic box model: HAWS			010H1E7A	016H1E7A	016H2E7A
Power supply		V/Ph/Hz	220-240/1/50		380-415/3/50
Net dimension (W×H×D)		mm	460*830*270		
Packing dimension (W×H×D)		mm	550*910*340		
Net/Gross weight		kg	44/50	46/52	
Water pump	Max. pump head	m	9		
Connection	Waterside	-	R 1-1/4		
	Liquid	mm	9.52		
	Gas	mm	15.88		
Backup E-heater[1]	Standard installed	kW	4.5		9
	Capacity steps	-	3		
	Power supply	V/Ph/Hz	220-240/1/50		380-415/3/50
LWT setting range	Cooling	℃	5～25		
	Heating	℃	25～65		
	DHW	℃	20～60		

1、For three phase type backup electric heater, 3/6kW can be achieved by changing DIP switch when hydronic box is equipped with 9kW.

Product Details (Apollo Split)

Hydronic Box

1. PCB board
2. Expansion tank
3. Automatic air purge
4. Back-up E-heater
5. Relief valve
6. Brazed plates heat exchanger
7. DC inverter water pump
8. Flow switch
9. 3-way valve
10. Water pressure guage

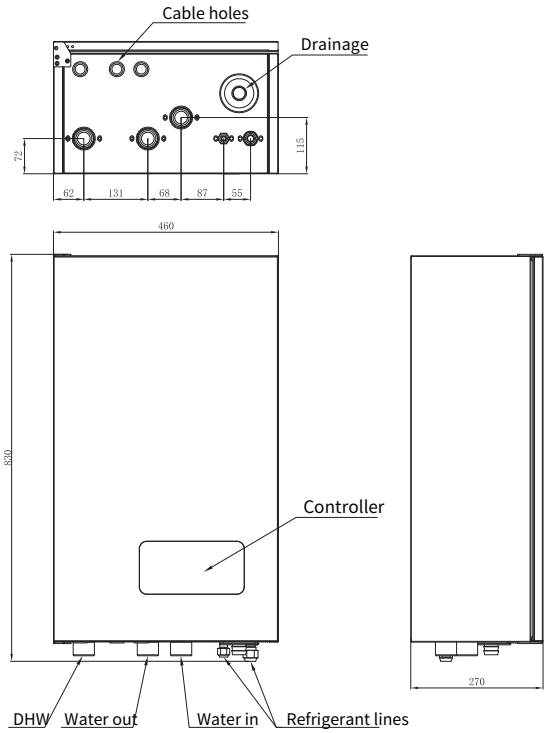


Outdoor Unit

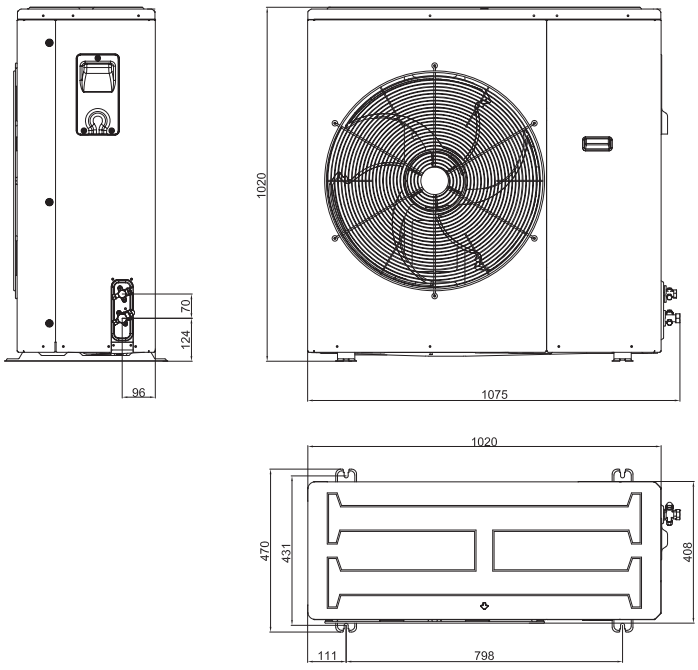
1. DC inverter fan
2. Four way valve
3. Economizer
4. EEV
5. Accumulator
6. DC inverter compressor

Dimension (Apollo Split)

Hydronic Box



Outdoor Unit



*All dimensions in mm.

HW Helios Series

The lineup with the lowest environmental impact

8~16kw

Product lineup

Helios Monoblock

Capacity (KW)	8	10	12	14	16
Appearance					
220~240-1Ph	◎	◎	◎	◎	◎
380~415-3Ph			◎	◎	◎

- ECO friendly refrigerant R290, lowest GWP of 3.3.
- Heating, cooling and domestic hot water: one-stop solution.
- So silent you can't feel it running.
- A+++, the best efficiency level for the highest energy saving (water outlet temperature at 35°C and 55°C)
- Smart Grid certification grants more cost saving.
- Compatible with other heat sources such as solar panels and boilers.
- Heat pump maximum leaving water temperature up to 75°C.

External electric heater (Optional)

-26°C 75°C R290 A+++

A 3 to 9KW external electric heater increases heating capacity with extremely low outdoor temperatures (optional)

Capacity (KW)	3	4.5	6	9
Appearance				
220~240-1Ph	◎	◎		
380~415-3Ph		◎	◎	◎

Specifications

Helios Monoblock

Outdoor unit model: HAWS			008B1H0A	010B1H0A	012B1H0A	014B1H0A	016B1H0A	012B2H0A	014B2H0A	016B2H0A
Power supply		V/Ph/Hz	220-240/1/50					380-415/3/50		
Heating[1]	Capacity	kW	8.5	10.1	12.2	14.2	15.5	12.2	14.2	15.5
	Rated power input	kW	1.64	2.03	2.45	3.01	3.41	2.45	3.01	3.41
	COP		5.18	4.98	4.98	4.72	4.55	4.98	4.72	4.55
Heating[2]	Capacity	kW	8.3	10.1	12.5	14.4	15.5	12.5	14.4	15.5
	Rated power input	kW	2.14	2.67	3.34	3.97	4.39	3.34	3.97	4.39
	COP		3.88	3.78	3.74	3.63	3.53	3.74	3.63	3.53
Heating[3]	Capacity	kW	8.2	9.5	12.0	14.0	15.5	12.0	14.0	15.5
	Rated power input	kW	2.55	3.02	3.91	4.69	5.37	3.91	4.69	5.37
	COP		3.22	3.15	3.07	2.99	2.89	3.07	2.99	2.89
Cooling[4]	Capacity	kW	8.3	10.0	12.2	14.0	15.5	12.2	14.0	15.5
	Rated power input	kW	1.64	2.27	2.64	3.17	3.68	2.64	3.17	3.68
	EER		5.06	4.41	4.62	4.42	4.21	4.62	4.42	4.21
Cooling[5]	Capacity	kW	7.45	9.1	11.6	13.5	14.0	11.6	13.5	14.0
	Rated power input	kW	2.32	3.08	3.73	4.59	4.81	3.73	4.59	4.81
	EER		3.21	2.95	3.11	2.94	2.91	3.11	2.94	2.91
Seasonal space heating energy efficiency class[6]	Outlet water35°C	class	A+++							
	Outlet water55°C	class	A+++							
Sound power Level[7]		dB	66	67	68	69	70	68	69	70
Refrigerant	Type(GWP)		R290（3.3）							
	Charged volume	kg	0.5		0.85					
Net dimension (W×H×D)		mm	1020*1020*405							
Packing dimension (W×H×D)		mm	1120*1130*500							
Net/Gross weight		kg	100/110		120/130			120/130		
Water pump	Max. pump head	m	9							
Water piping connection		-	R 1-1/4							
Outdoor ambient temperature range	Cooling	°C	-5～48							
	Heating	°C	-26～43							
	DHW	°C	-26～43							
LWT setting range	Cooling	°C	5～25							
	Heating	°C	25～75							
	DHW	°C	20～70							
Backup E-heater[8] (Optional)	Standard installed	kW	/							
	Optional	kW	3/4.5/6/9							
	Capacity steps	-	1/3/3/3							
	Power supply (V/Ph/Hz)	3kW	220-240/1/50							
		4.5kW	220-240/1/50							
		4.5kW	380-415/3/50							
		6kW	380-415/3/50							
		9kW	380-415/3/50							

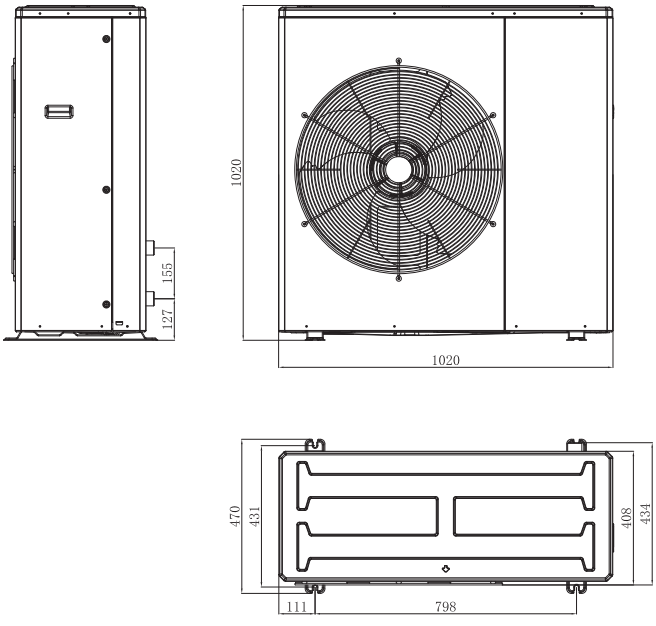
Notes:

1. Outdoor air temperature 7°C DB, 6°C WB; Inlet water 30°C, Outlet water 35°C.
2. Outdoor air temperature 7°C DB, 6°C WB; Inlet water 40°C, Outlet water 45°C.
3. Outdoor air temperature 7°C DB, 6°C WB; Inlet water 47°C, Outlet water 55°C.
4. Outdoor air temperature 35°C DB; Inlet water 23°C, Outlet water18°C.
5. Outdoor air temperature 35°C DB; Inlet water 12°C, Outlet water 7°C.
6. Seasonal space heating energy efficiency class tested in average climate general conditions.
7. Testing standard: EN12102-1.
8. Backup E-heater is for external installation.
9. Relevant EU standards and legislation: EN14511; EN14825; EN50564; EN12102; (EU) No 811/2013; (EU) No 813/2013; OJ 2014/C 207/02:2014

Product Details (Helios Monoblock) ▶

1. DC inverter fan
2. PCB board
3. Four way valve
4. Economizer
5. Expansion tank
6. Automatic air purge
7. Brazed plates heat exchanger
8. DC inverter compressor
9. Flow switch
10. DC inverter water pump
11. Relief valve

Dimension (Helios Monoblock) ▶



*All dimensions in mm.

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