Technical & Service Manual

R32 Split

Air to Water Heat Pump

ACHP-H04/4R3HA

ACHP-H06/4R3HA

ACHP-H08/4R3HB

ACHP-H10/4R3HB

ACHP-H08/4R3HA

ACHP-H10/4R3HA

ACHP-H12/5R3HA

ACHP-H14/5R3HA

ACHP-H16/5R3HA

Version 2

2022-01-05

Contents

Part1 General information

1. Nomenclature

Outdoor Unit

1	2	3	4		5	6	7		8	9	10	11	12		13
A	C	H	P	-	H	0	4	/	4	R	3	H	A	-	O

NOTE:

1、A: AUX

2、C:chiller

3、H: heat

4、P: pump

5、H: cooling and heating

6-7、capacity：04:4kW; 06:6kW; 08:8kW; 10:10kW; 12:12kW; 14:14kW; 16:16kW;

8、power supply：4：220V-240V-1-50Hz；5：380V-415V-3-50Hz

9-10、R3：R32

11、H：high efficiency

12、A: design number

13、O：outdoor unit

Hydronic Box

1	2	3	4		5	6	7		8	9	10	11	12		13
A	C	H	P	-	H	0	4	/	4	R	3	H	A	-	O

NOTE:

1、A: AUX ACHP-H04/4R3HA-I

2、C: :chiller

3、H: heat

4、P: pump

5、H: cooling and heating

6-7、capacity：04:4kW; 06:6kW; 08:8kW; 10:10kW; 12:12kW; 14:14kW; 16:16kW;

8、power supply：4：220V-240V-1-50Hz；5：380V-415V-3-50Hz

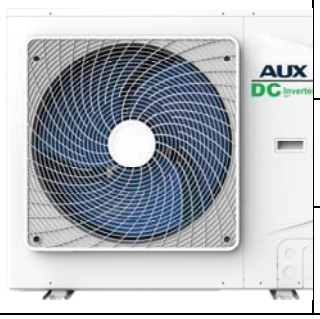
9-10、R3：R32

11、H：high efficiency

12、A: design number

13、I：indoor unit

2. Unit appearance

Capacity	Outdoor unit		Hydronic box	
	Model	Appearance	Model	Appearance
4kW	ACHP-H04/4R3HA-O		ACHP-H04/4R3HA-I	
6kW	ACHP-H06/4R3HA-O		ACHP-H06/4R3HA-I	
8kW	ACHP-H08/4R3HA-O		ACHP-H08/5R3HA-I	
10kW	ACHP-H10/4R3HA-O		ACHP-H10/5R3HA-I	
12kW	ACHP-H12/5R3HA-O		ACHP-H12/5R3HA-I	
14kW	ACHP-H14/5R3HA-O		ACHP-H14/5R3HA-I	
16kW	ACHP-H16/5R3HA-O		ACHP-H16/5R3HA-I	

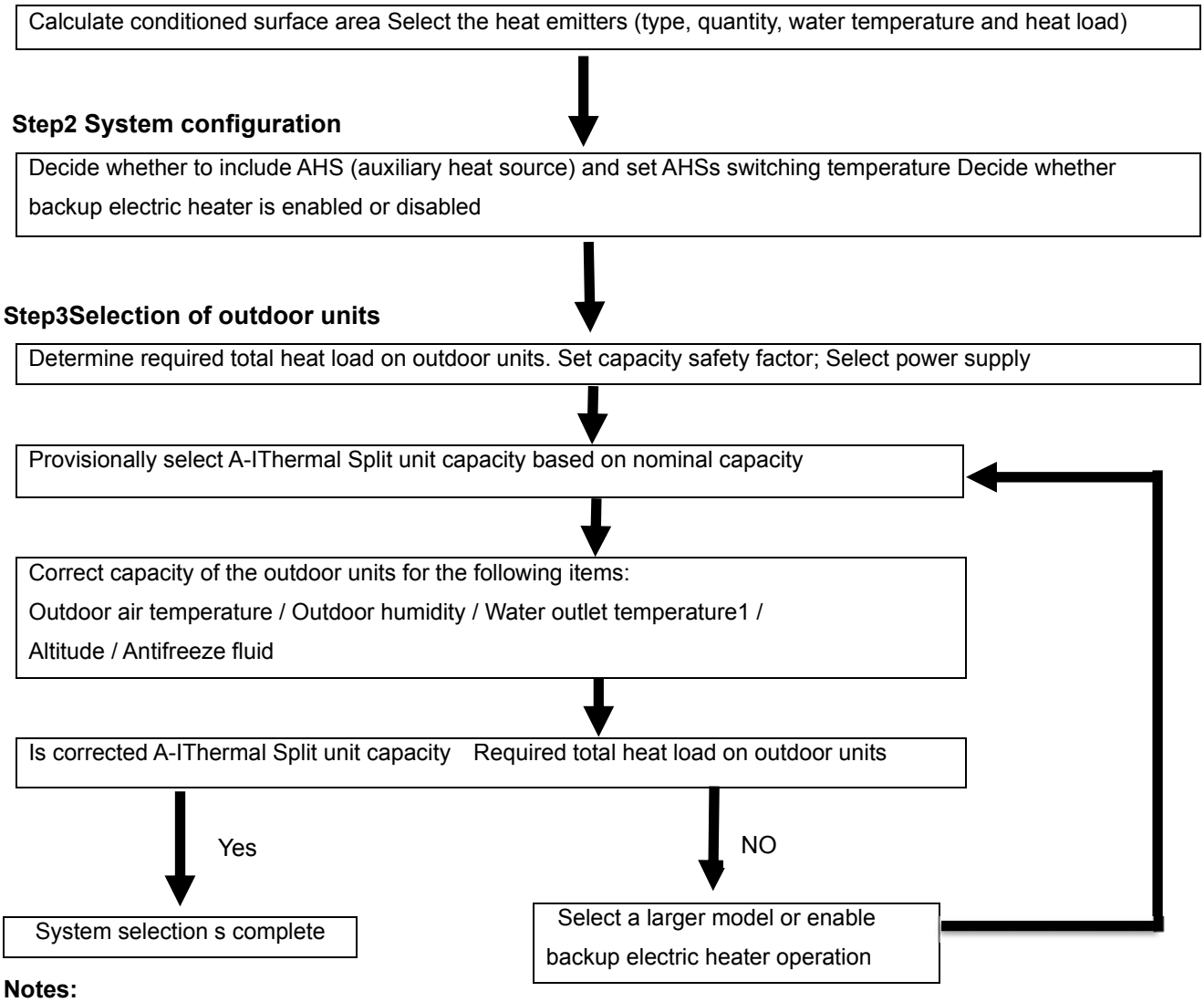
3.Product line

Capacity	Heat pump Model	Hydronic box	Outdoor	Power supply（V）
4KW	ACHP-H04/4R3HA	ACHP-H04/4R3HA-I	ACHP-H04/4R3HA-O	220
6KW	ACHP-H06/4R3HA	ACHP-H06/4R3HA-I	ACHP-H06/4R3HA-O	220
8KW	ACHP-H08/4R3HB	ACHP-H04/4R3HA-I	ACHP-H08/4R3HA-O	220
10KW	ACHP-H10/4R3HB	ACHP-H06/4R3HA-I	ACHP-H10/4R3HA-O	220
8KW	ACHP-H08/4R3HA	ACHP-H08/5R3HA-I	ACHP-H08/4R3HA-O	ODU:220 Hydronic box :380
10KW	ACHP-H10/4R3HA	ACHP-H10/5R3HA-I	ACHP-H10/4R3HA-O	ODU:220 Hydronic box :380
12KW	ACHP-H12/5R3HA	ACHP-H12/5R3HA-I	ACHP-H12/5R3HA-O	380
14KW	ACHP-H14/5R3HA	ACHP-H14/5R3HA-I	ACHP-H14/5R3HA-O	380
16KW	ACHP-H16/5R3HA	ACHP-H16/5R3HA-I	ACHP-H16/5R3HA-O	380

3. Selection and System Design

3.1 Selection procedure

Step1Total heat load calculation



Notes:

1. If the required water temperatures of the heat emitters are not all the same, the A-IThermal Splits outlet water temperature setting should be set at the highest of the heat emitter required water temperatures. If the water outlet design temperature falls between two temperatures listed in the outdoor unit's capacity table, calculate the corrected capacity by interpolation.
2. If the outdoor unit selection is to be based on total heating load and total cooling load, select Split units which satisfy not only the total heating load requirements but also the total cooling load requirements.

3.2 Leaving Water Temperature (LWT) Selection

The recommended design LTW ranges for different types of heat emitter are::

- For floor heating: 30 to 35℃
- For fan coil units: 30 to 45℃
- For radiators: 40 to 50℃

The recommended design LTW ranges for different type of cooling emitter are

- For fan coil units: 7 to 18℃
- For floor cooling18 to 25℃

The recommended design water tank temperature for domestic hot water

- Water tank: 50 to 55℃

3.3 Selection of water tank（Procured locally by customers）

Capacity(kW)	4-6kW	8-10kW	12~16kW
Water Tank Volume (L)	100~250	150~300	200~500
Minimum heat exchange area of Stainless steel coil (m^2)	1.4	1.4	1.6
Minimum heat exchange area of enamel coil (m^2)	2.0	2.0	2.5

3.4 Selection of water pump（Procured locally by customers）

Type	Recommended Brand	Recommended model
External circulation pump	grundfos	UPMM25-95
	wilo	Para25/9
Floor heating mixing water pump	grundfos	UPMM25-95
	wilo	Para25/9
DHW water pump	wilo	RS15/6
solar water pump	wilo	Para25/8

3.5 Match table of ODU and Hydronic Box

ODU	Hydronic Box
ACHP-H04/4R3HA-O	AHM-P24R2/C9D3A
ACHP-H06/4R3HA-O	AHM-P24R2/C9D3A
ACHP-H08/4R3HA-O	AHM-P24R2/C9D3A
	AHM-P36R25/C9D9A
ACHP-H10/4R3HA-O	AHM-P24R2/C9D3A
	AHM-P36R25/C9D9A
ACSHC-H42A5/ASR2DI	AHM-P60R25/C9D9A
ACSHC-H48A5/ASR2DI	AHM-P60R25/C9D9A
ACSHC-H60A5/ASR2DI	AHM-P60R25/C9D9A

3.6 Optimizing System Design

To get the most comfort with the lowest energy consumption with A-IThermal, it is important to take account of the following considerations:

- Choose heat emitters that allow the heat pump system to operate at as low a hot water temperature as possible whilst still providing sufficient heating.
- Make sure the correct weather dependency curve is selected to match the installation environment (building structure, climate) as well as ender users demands.
- Connecting room thermostats (field supplied) to the hydronic system helps prevent excessive space heating by stopping the outdoor unit and circulator pump when the room temperature is above the thermostat set point

Part2 Features

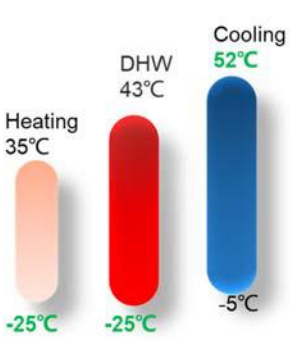
1. Heating + Cooling +Demostic hot water

2. DC Inverter Technology, High Energy Efficient

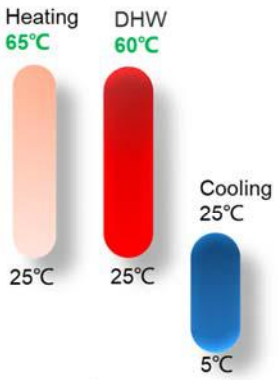
The compressor speed is controlled according to the indoor heating demand, and the output is completely on demand, more comfortable enjoyment: In any case, it can maintain a stable indoor temperature

Full DC inverter system, inverter compressor + DC external fan + inverter water pump. Leading in the energy efficiency industry, the highest SCOP=5.2(A+++), far exceeding the EU energy efficiency standard by 14.4%

3. Wide ambient temperature and water temperature operation ranges



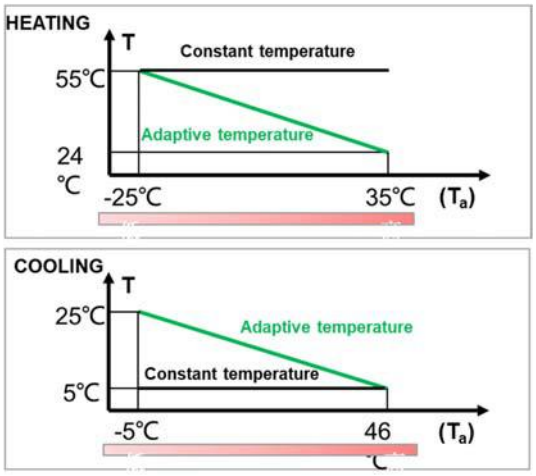
Ambient temperature operating range



Water temperature operating range

4. Floating water temperature control more comfort

Changes in outdoor air temperature, changes in heat required indoors, But fix water temperature, provide constant heat, overheating, waste



5. Long piping length

Maximum piping length for outdoor unit and hydronic box -- 50m, see amend table below

Minimum piping length for outdoor unit and hydronic box -- 3m

Maximum piping height difference for outdoor unit and hydronic box -- 20m

When the water tank is connected,

Maximum length between the 3-way valve and hydronic box -- 3m

Maximum length between the water tank and hydronic box -- 10m

single connection pipe(m)			amend factor									
			5	10	15	20	25	30	35	40	45	50
height difference between the hydronic box and ODU	hydronic box above the ODU	0m	1	0.98	0.96	0.94	0.92	0.9	0.88	0.86	0.84	0.82
		5m	-	0.97	0.95	0.93	0.91	0.89	0.87	0.85	0.83	0.81
		10m	-	-	0.94	0.92	0.9	0.88	0.86	0.84	0.82	0.8
		15m	-	-	-	0.91	0.89	0.87	0.85	0.83	0.81	0.79
		20m	-	-	-	-	0.88	0.86	0.84	0.82	0.8	0.78
	hydronic box under the ODU	0m	1	0.98	0.96	0.94	0.92	0.9	0.88	0.86	0.84	0.82
		5m	-	0.98	0.96	0.94	0.92	0.9	0.88	0.86	0.84	0.82
		10m	-	-	0.96	0.94	0.92	0.9	0.88	0.86	0.84	0.82
		15m	-	-	-	0.94	0.92	0.9	0.88	0.86	0.84	0.82
		20m	-	-	-	-	0.92	0.9	0.88	0.86	0.84	0.82

Note:

1) It is recommended that the single pipe length of the connecting pipe should not exceed 30m. If it exceeds 30m, additional refrigerant needs to be charged, which may cause the total refrigerant charge to exceed the standard requirements;
2) When the single pipe length of the connecting pipe exceeds 30m, it may affect the performance of the unit.so It is not recommended that the single pipe length exceeds 30m.

6. Backup electric heating, More economical and more comfortable

Function: As a supplement to the capacity of the heat pump when the outdoor temperature is low

Turn on : Only when the heat pump capacity is slightly insufficient (that is, the outdoor temperature is below the equilibrium temperature). But the opening rate is very low throughout the heating season

7. Sterilization function

With sterilization function, the use of domestic hot water is healthier.

Sterilization temperature: about 65

Duration: Suggest 10 minutes, refers to the time that can be maintained in high temperature water, .

Operating time: once a week

8. User interface

New type touch key wired controller

Real-time check of operating parameters

Built-in temperature sensor

Built-in wifi module

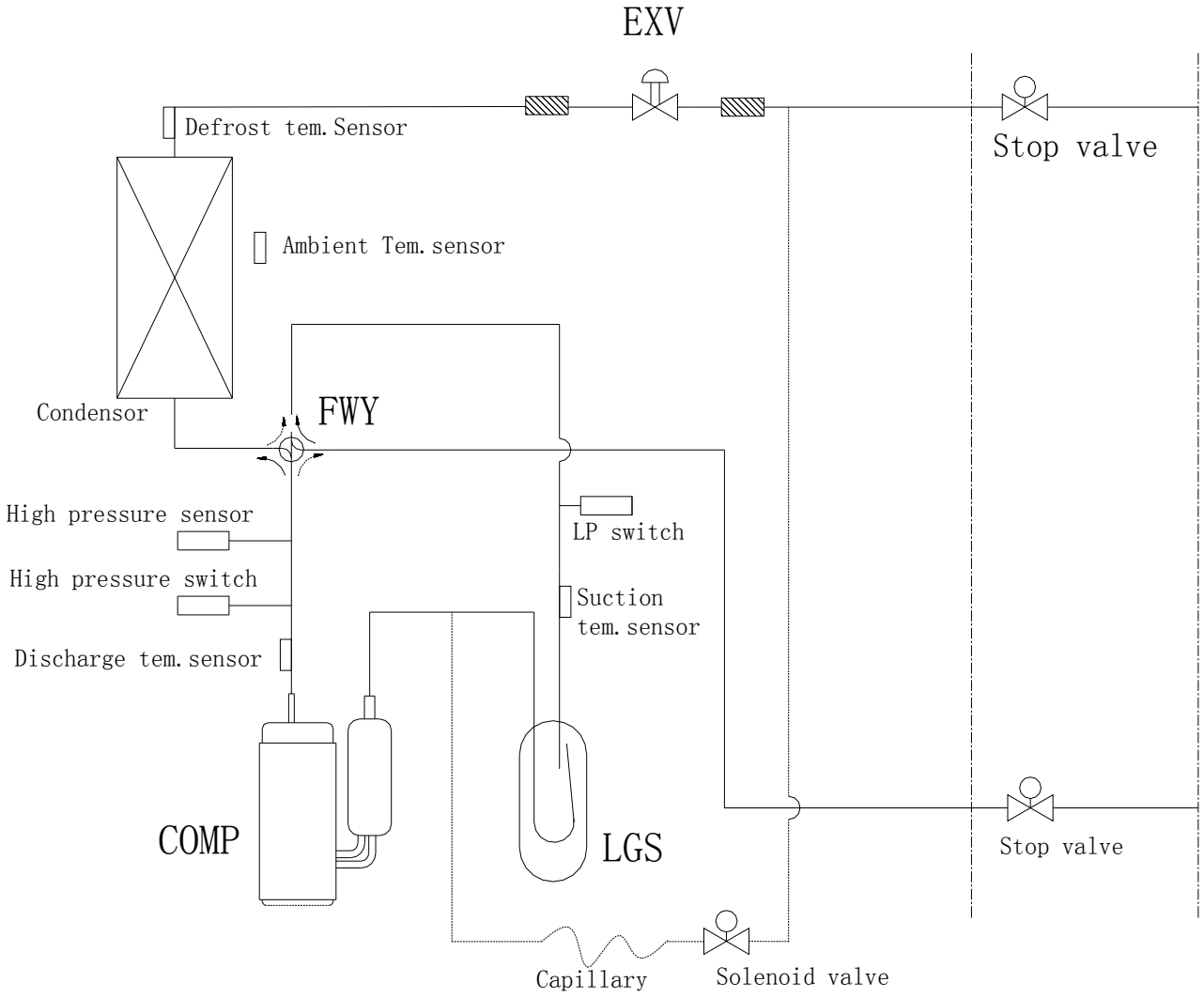
Multiple languages

Modbus protocol and network flexibility, etc.

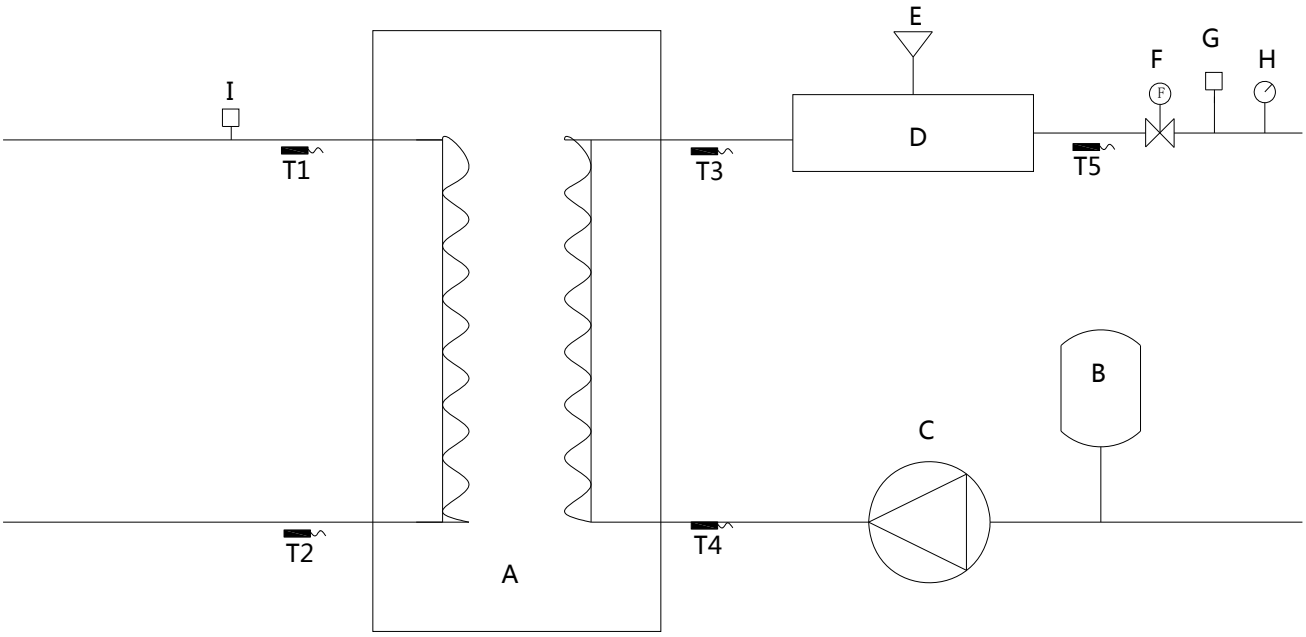
Part3 Piping System

1. Piping diagram

1.1 Outdoor Unit

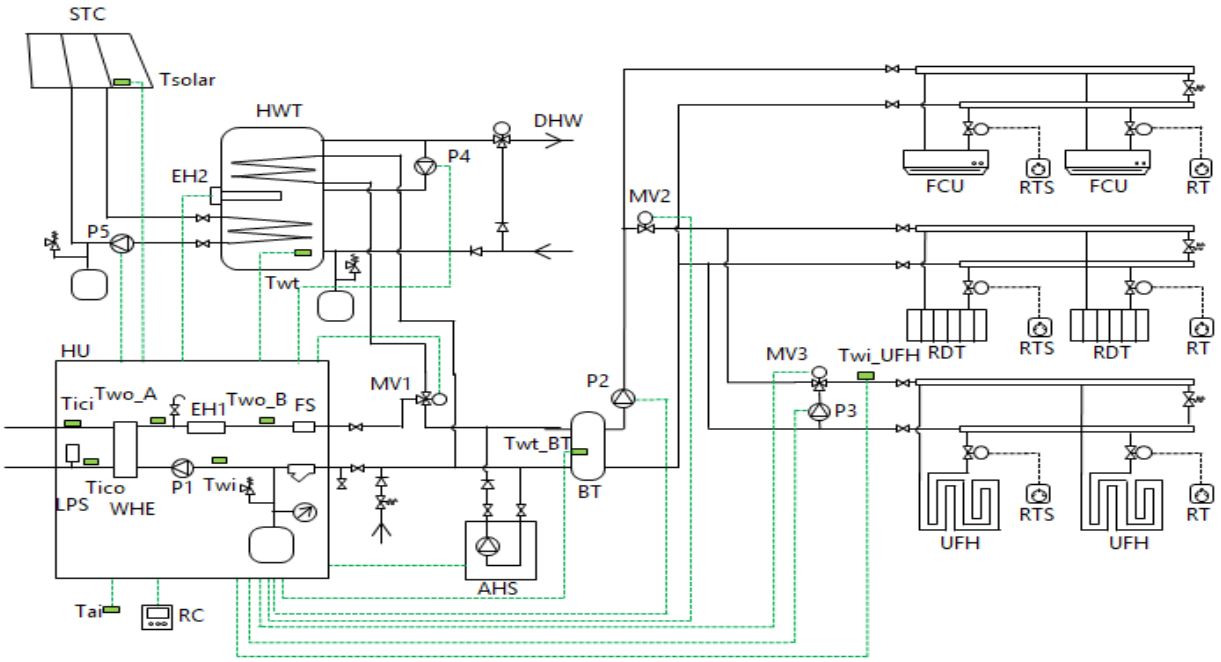


1.2 Hydronic Box



A	Plate heat exchanger(PHE)	H	Pressure gauge
B	Expansion tank	T1	Gas pipe Temp.sensor
C	Inverter water pump	T2	Liquid pipe Temp.sensor
D	E-heater	T3	PHE outlet Temp.sensor
E	Discharge valve	T4	PHE inlet Temp.sensor
F	Flow switch	T5	Hydronic box outlet Temp.sensor
G	Safty valve	I	Anti-freeze pressure switch

1.2 Air to water heat pump



Tsolar	Solar panel temp. sensor
Twt	Temperature of domestic hot water tank
Tici	Plate heater liquid temp. sensor
Tico	Plate heater gas temp. sensor
Tai	Room temp. sensor
Two_A	Plate heater outlet temp. sensor
Two_B	Hydronic box outlet temp. sensor
Twi	Hydronic box inlet temp. sensor
Twt_BT	Balance tank temp. sensor
Twi_UFH	Floor heating inlet temp. sensor
P1	Water pump for hydronic box
P2	Water pump for outside
P3	Water pump for floor heating
P4	Water pump for hot water tank
P5	Water pump for Solar
MV1	Three way valve
MV2	Two way valve

MV3	Three-way valve
EH1	E-heater in hydronic box
EH2	E-heater in tank
LPS	Anti-frezze low pressure switch
FS	Float switch
RC	Wired controller
HU	Hydronic box
WHE	Plate heater exchanger
HWT	Domestic hot water tank
STC	Solar panels
AHS	auxiliary heat source (Gas boiler)
BT	Balance tank
UFH	Floor heating
RDT	Heating radiator
FCU	Fan coil unit
RT	Room thermostat

R32 Split Type Air Source heat pump unit is an integrated airtowater system which can supply heating, cooling and domestic hot water. The outdoor heat pump system extracts heat from the outdoor air and transfers this heat through refrigerant piping to the plate heat exchanger in the hydronic box. The heated water in the hydronic box circulates to low temperature heat emitters (underfloor heating loops or low temperature radiators) to provide heating, and to the domestic hot water tank to provide domestic hot water. The 4way valve in the outdoor unit can reverse the refrigerant cycle so that the hydronic box can provide chilled water for cooling using fan coil units

The heating capacity decreases under low ambient temperature. Backup electric heater is optional to provide additional heating capacity for user during extremely cold weather when the heat pump capacity is insufficient.

2. System Configurations

R32 Split Type Air Source heat pump unit can be configured to run with the electric heater either enabled or disabled and can also be used in conjunction with an auxiliary heat source such as a boiler.

The chosen configuration affects the size of heat pump that is required. Three typical configurations are described below.

Configuration 1: Heat pump only

- The heat pump covers the required capacity and no extra heating capacity is necessary.
- Requires selection of larger capacity heat pump and implies higher initial investment.
- Ideal for new construction in projects where energy efficiency is paramount

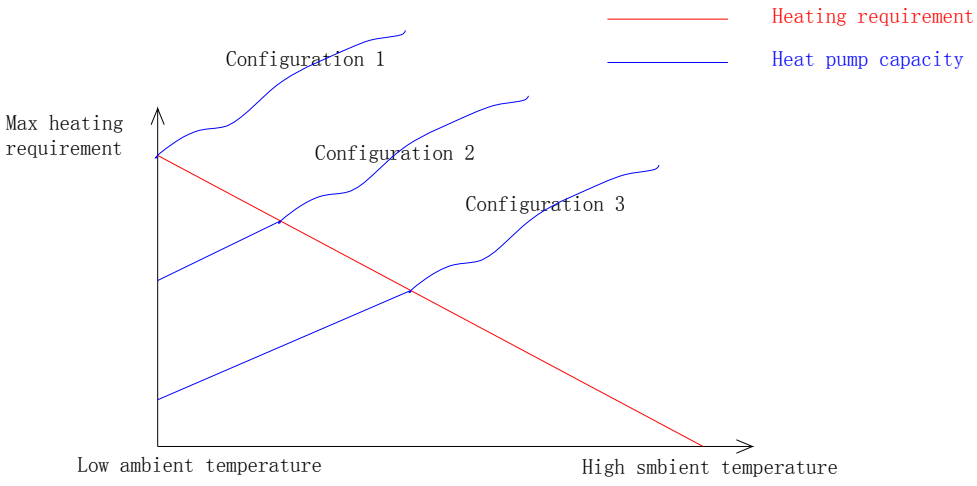
Configuration 2: Heat pump and backup electric heater

- Heat pump covers the required capacity until the ambient temperature drops below the point at which the heat pump is able to provide sufficient capacity. When the ambient temperature is below this equilibrium point, the backup electric heater supplies the required additional heating capacity
- Best balance between initial investment and running costs, results in lowest lifecycle cost
- Ideal for new construction.

Configuration 3:Heat pump conjunction with auxiliary heat source

- Heat pump covers the required capacity until the ambient temperature drops below the point at which the heat pump is able to provide sufficient capacity. When the ambient temperature is below this equilibrium point, depending on the system settings, either the auxiliary heat source supplies the required additional heating capacity or the heat pump does not run and the auxiliary heat source covers the required capacity.
- Enables selection of lower capacity heat pump.
- Ideal for refurbishments and upgrades.

System configurations

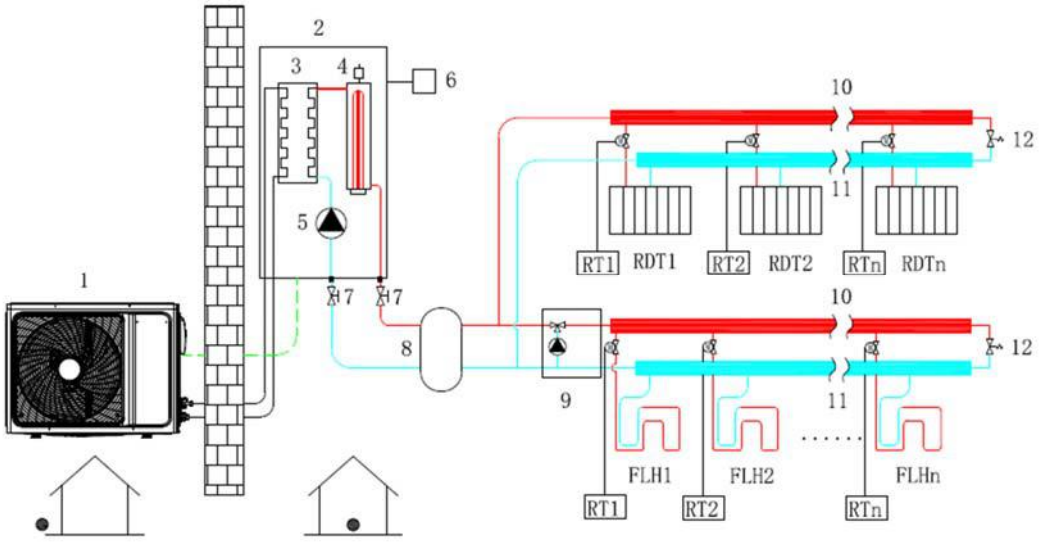


3. Typical Applications

3.1 Space Heating Only

The room thermostat is used as a switch. When there is a heating request from the room thermostat, the unit operates to achieve the target water temperature set on the Wired controller. When the room temperature reaches the thermostats set temperature, the unit stops.

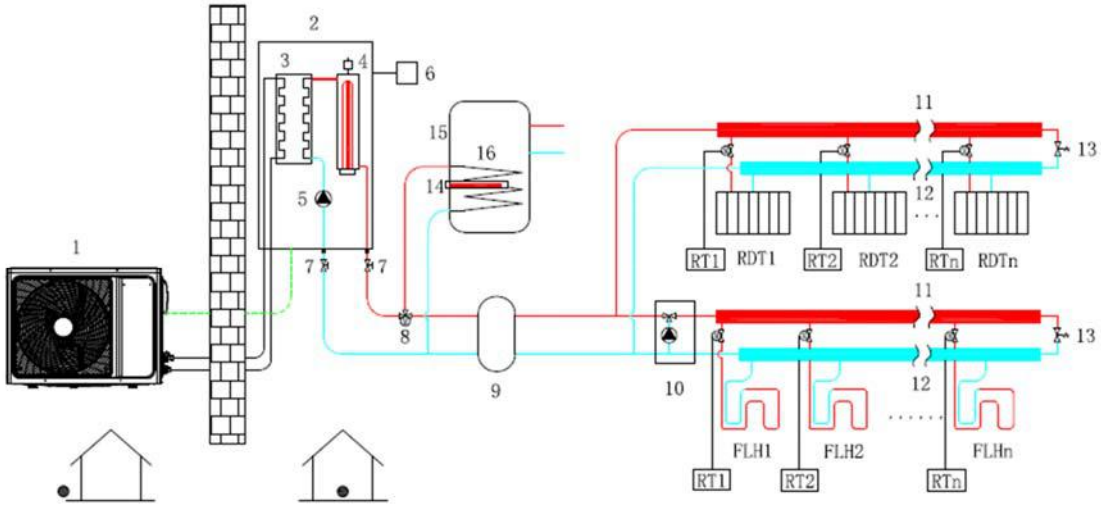
When the heating terminal uses floor heating and Heating radiator at the same time, the two ends of the floor heating and low temperature radiator require different working water temperatures. In order to meet these two different working water temperatures at the same time, it is necessary to install a mixing valve and a mixing water pump at the inlet and outlet of the floor heating , The outlet water temperature of the unit is set to the water temperature required by the heating radiator, and the water mixing valve and water mixing pump are set to reduce the inlet water temperature of the floor heating.



REMARK			
1	Outdoor unit	9	Mixing valve and mixing water pump
2	Hydronic box	10	Distributor
3	Plate heat exchanger	11	Collector
4	Backup electric heater(optional)	12	Bypass valve
5	Internal circulator pump	RDT	Heating radiator
6	Wired controller	FLH	Floor heating loops
7	Stop valve (locol)	RT	Room thermostats
8	Balance water tank		

3.2 Space Heating and Domestic Hot Water

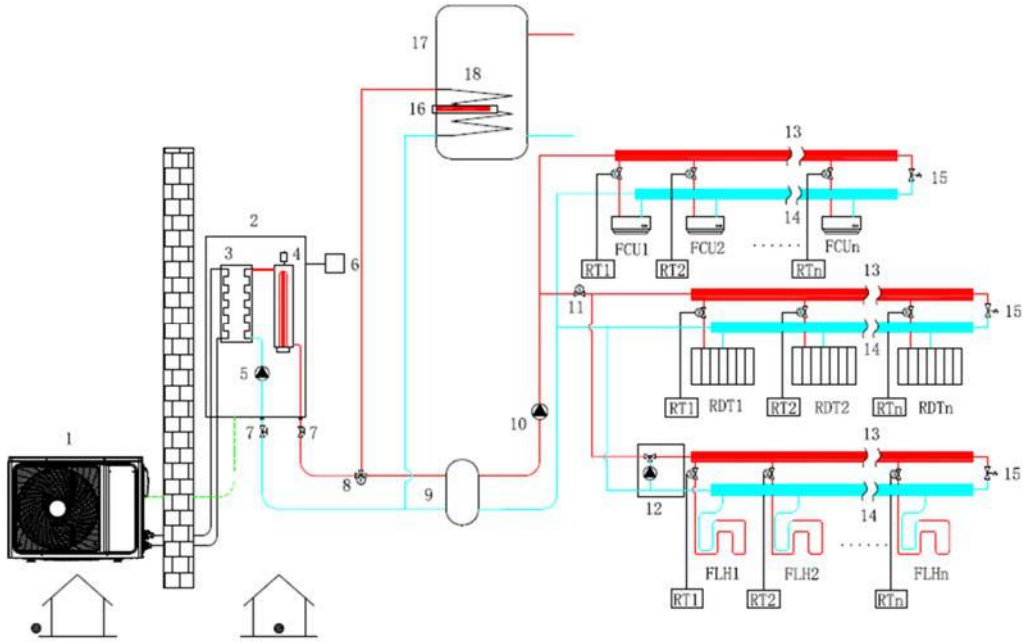
The room thermostats also can connect to a motorized valve. Each rooms temperature is regulated by the motorized valve on its water circuit. Domestic hot water is supplied from the domestic hot water tank connected to the hydronic box. The water tank should built in a temperature sensor which connect to the hydronic box. A bypass valve is required



REMARK			
1	Outdoor unit	11	Distributor
2	Hydronic box	12	Collector
3	Plate heat exchanger	13	Bypass valve
4	Backup electric heater	14	Electric heating
5	Internal circulator pump	15	Domestic hot water tank
6	Wired controller	16	Coil in the water tank
7	Stop valve (field supplied)	RDT	Heating Radiator
8	Motorized 3way valve	FLH	Floor heating loops
9	Balance water tank	RT	Room thermostats
10	Mixing valve and mixing water pump		

3.3 Space Heating, Space Cooling and Domestic Hot Water

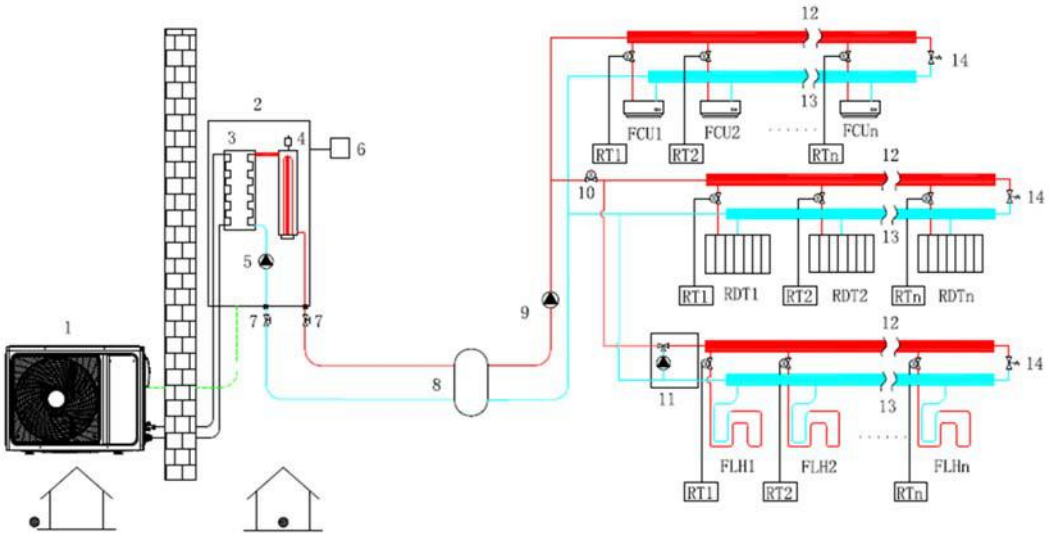
Floor heating loops & Heating radiator & Fan coil units are used for space heating , fan coil units are used for space cooling. Domestic hot water is supplied from the domestic hot water tank connected to the hydronic box. The unit switches to heating or cooling mode according to the temperature detected by the room thermostat. In space cooling mode, the 2way valve is closed to prevent cold water entering the floor heating loops & Heating radiator.



REMARK			
1	Outdoor unit	12	Mixing valve and mixing water pump
2	Hydronic box	13	Distributor
3	Plate heat exchanger	14	Distributor
4	Backup electric heater(optional)	15	Bypass valve
5	Internal circulator pump	16	Electric heating
6	Wired controller	17	Domestic hot water tank
7	Stop valve	18	Coil in the water tank
8	Motorized 3way valve	RDT	Heating Radiator
9	Balance water tank	FLH	Floor heating loops
10	External circulation pump	FCU	Fan coil units
11	Twoway valve	RT	Room thermostats

3.4 Space Heating and Space Cooling

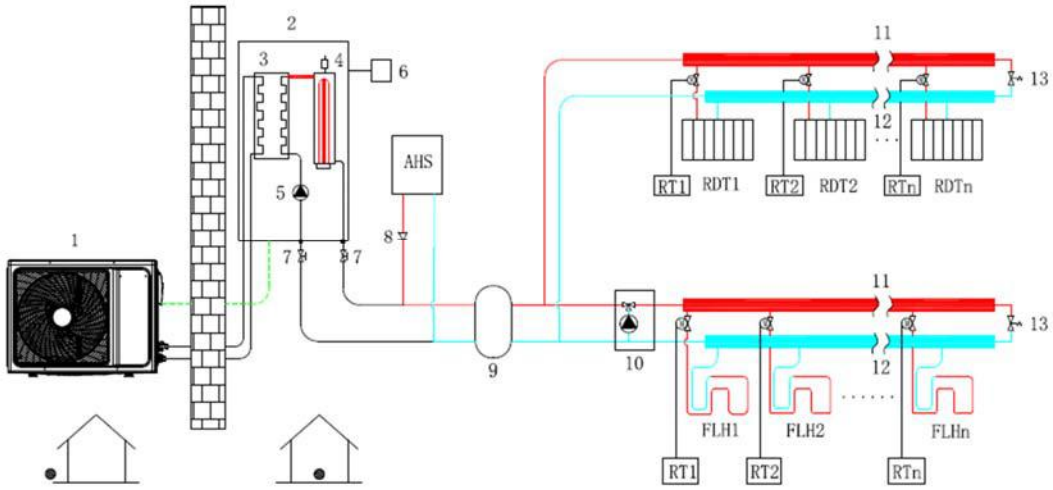
Floor heating loops & Heating radiator & fan coil units are used for space heating , fan coil units are used for space cooling. In space cooling mode, the 2way valve is closed to prevent cold water entering the floor heating loops & Heating radiator.



Remark			
1	Outdoor unit	10	Twoway valve
2	Hydronic box	11	Mixing valve and mixing water pump
3	Plate heat exchanger	12	Distributor
4	Backup electric heater(optional)	13	Distributor
5	Internal circulator pump	14	Bypass valve
6	Wired controller	RDT	Radiator
7	Stop valve	FLH1n	Floor heating loops
8	Balance water tank	FCU	**Fan coil units**
9	External circulation pump	RT	Room thermostats

3.5 Auxiliary heat source provides space heating only

Users can also use only gas water heaters for heating



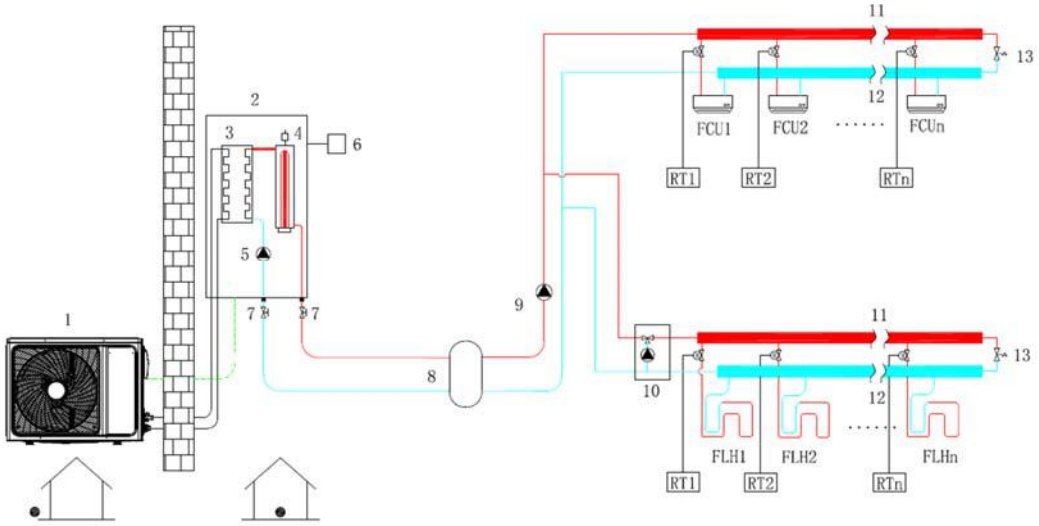
REMARK			
1	Outdoor unit	10	Mixing valve and mixing water pump
2	Hydronic box	11	Distributor
3	Plate heat exchanger	12	Water collector
4	Backup electric heater(optional)	13	Bypass valve
5	Internal circulator pump	RDT	Heating Radiator
6	Wired controller	FLH	Floor heating loops
7	Stop valve	AHS	Auxiliary heating source
8	oneway valve	RT	Room thermostats
9	Balance water tank		

3.6 Space Heating Through Floor Heating Loops and Fan Coil Units

The floor heating loops and fan coil units require different operating water temperatures. To achieve these two set points, a mixing station is required. Room thermostats for each zone are optional.

The outlet water temperature of the unit is set to the water temperature required by the fan coil unit, and the mixing valve and mixing pump are set to reduce the inlet water temperature of the floor heating

Figure 3.6: Space heating through floor heating loops and fan coil units

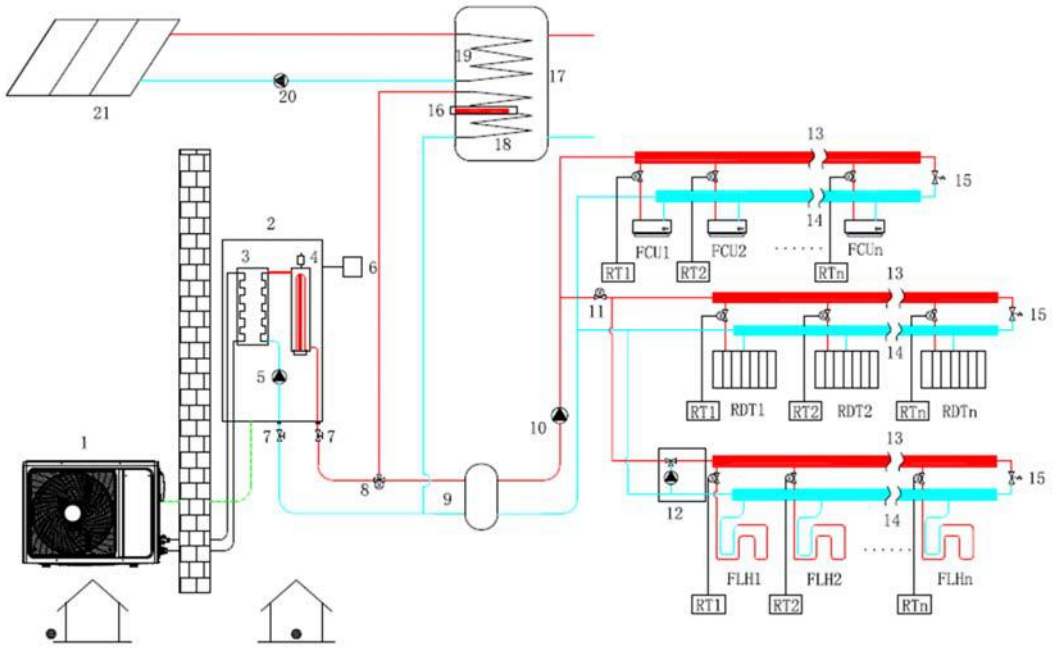


REMARK			
1	Outdoor unit	9	External circulation pump
2	Hydronic box	10	Mixing valve and mixing water pump
3	Plate heat exchanger	11	Distributor
4	Backup electric heater(optional)	12	Distributor
5	Internal circulator pump	13	Bypass valve
6	Wired controller	FCU	Fan coil units
7	Stop valve	FLH	Floor heating loops
8	Balance water tank	RT	Room thermostats

3.7 Space Heating, Space Cooling and Domestic Hot Water Compatible with Solar Water Heater

Floor heating loops & Heating Radiator &fan coil units are used for space heating, and fan coil units are used for space cooling. The temperature in the domestic hot water tank is controlled by the hydronic box. A temperature sensor needs to be placed in the domestic hot water tank and connected to the hydronic box. When it is detected that the temperature of the domestic hot water tank is lower than the set temperature and meets the requirements for solar hot water activation When conditions are met, turn on the solar water pump to realize the solar hot water function.

Figure 3.7 Space heating, space cooling and domestic hot water compatible with solar water heater

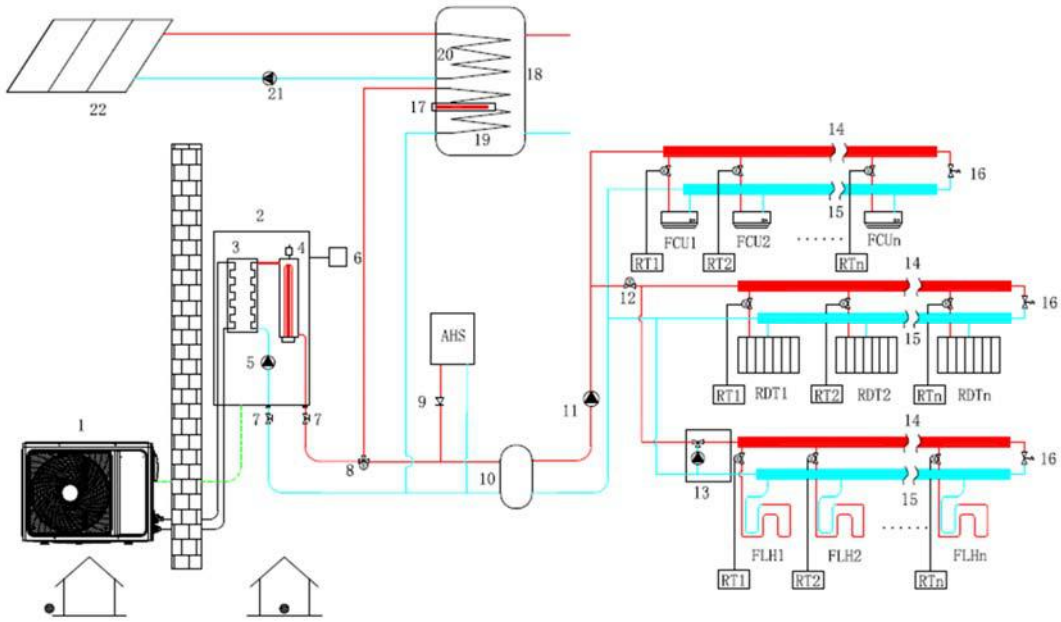


REMARK			
1	Outdoor unit	14	Water collector
2	Hydronic box	15	Bypass valve
3	Plate heat exchanger	16	Electric heating
4	Backup electric heater(optional)	17	Domestic hot water tank
5	Internal circulator pump	18	Coil 1 in the water tank
6	Wired controller	19	Coil 2 in the water tank
7	Stop valve	20	solar water pump
8	Motorized 3way valve	21	Solar panel
9	Balance water tank	RDT	Heating Radiator
10	External circulation pump	FLH	Floor heating loops
11	Twoway valve	FCU	Fan coil units
12	Mixing valve and mixing water pump	RT	Room thermostats
13	Distributor		

3.8 Space Heating with heat pump and AHS, space cooling with heat pump and solar for hot water

When the heating insufficient, the gas boiler (AHS) is used as an additional heat source, and floor heating or fan coils or low temperature radiators are used for space heating (also can be used in combination with various types of terminals), The fan coil is used for space cooling. The temperature in the domestic hot water tank is controlled by the hydronic box. A temperature sensor needs to be placed in the domestic hot water tank and connected to the hydronic box. When it is detected that the temperature of the domestic hot water tank is lower than the set temperature and meets the requirements for solar hot water activation When conditions are met, turn on the solar water pump to realize the solar hot water function.

Figure 3.8Space Heating with heat pump and AHS, space cooling with heat pump and solar for hot water



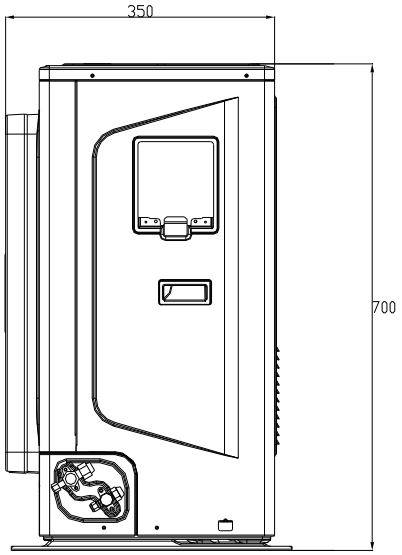
REMARK			
1	Outdoor unit	14	Distributor
2	Hydronic box	15	Water collector
3	Plate heat exchanger	16	Bypass valve
4	Backup electric heater(optional)	17	Electric heating
5	Internal circulator pump	18	Domestic hot water tank
6	Wired controller	19	Coil 1 in the water tank
7	Stop valve	20	Coil 2 in the water tank
8	Motorized 3way valve	21	solar water pump
9	oneway valve	22	Solar panel
10	Balance water tank	RDT	Radiator
11	External circulation pump	FLH	Floor heating loops
12	oneway valve	FCU	Fan coil units
13	Mixing valve and mixing water pump	RT	Room thermostats

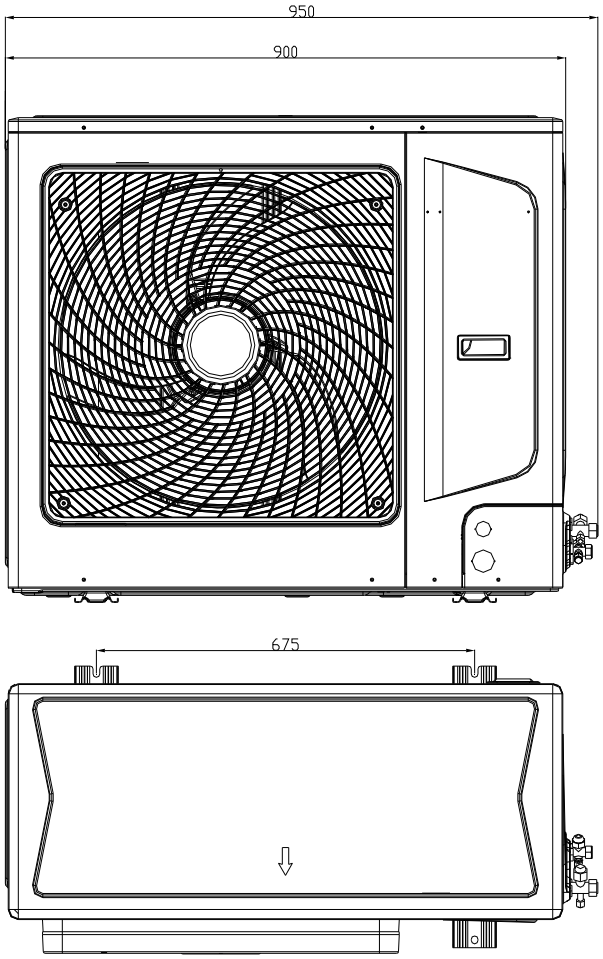
Part4 Dimension

1. Outdoor Unit

4kW, 6kW

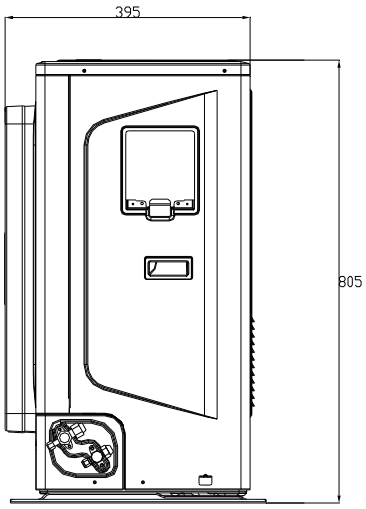
ACHP-H04/4R3HA-O / ACHP-H06/4R3HA-O

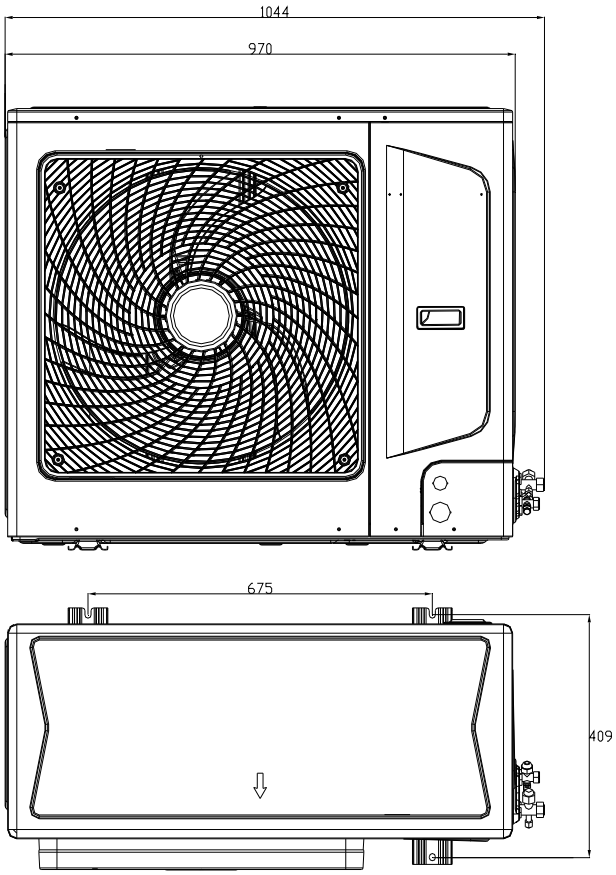




8kW, 10kW

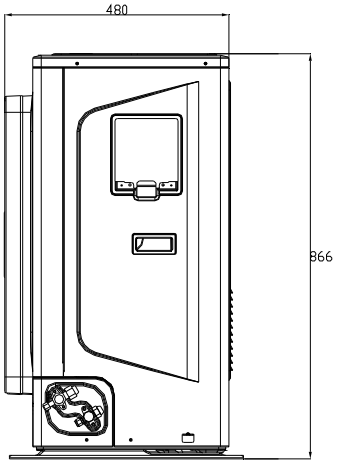
ACHP-H08/4R3HA-O / ACHP-H10/4R3HA-O

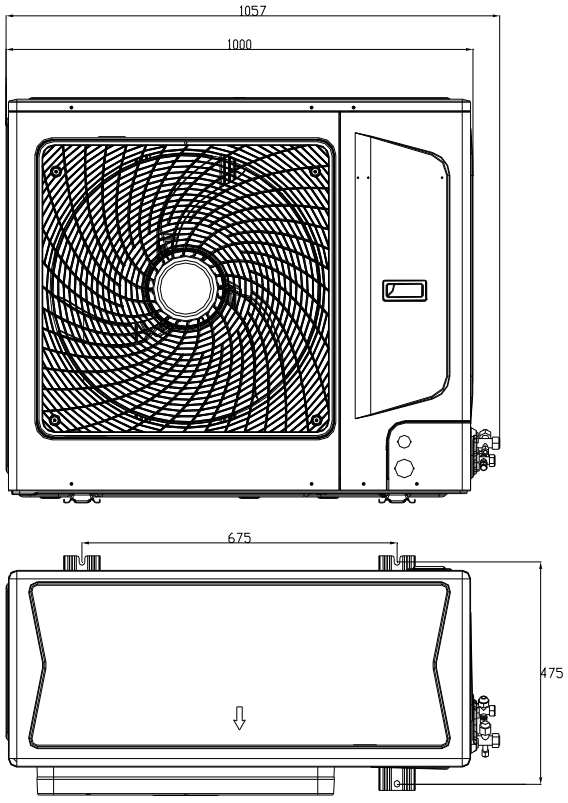




12kW, 14kW, 16kW

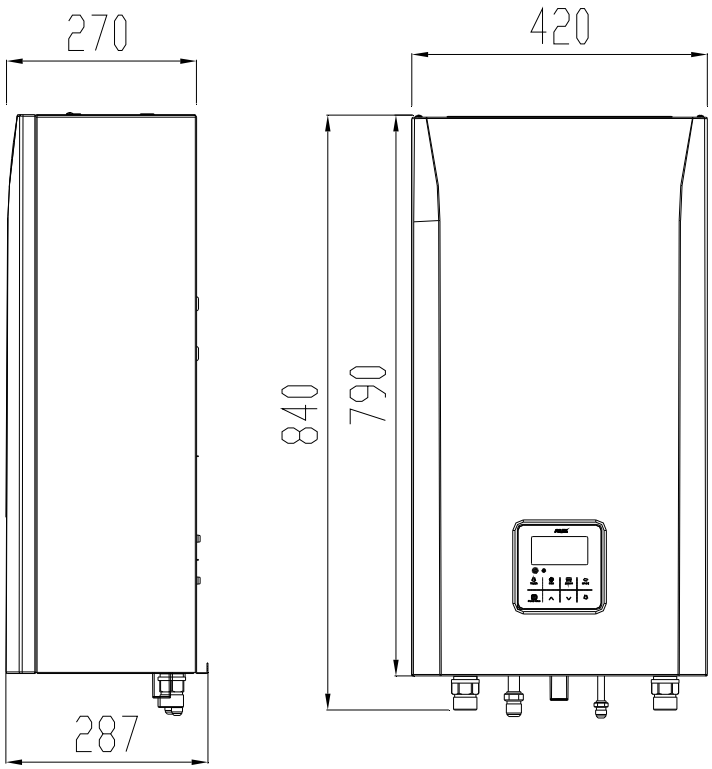
ACHP-H08/4R3HA-O / ACHP-H10/4R3HA-O





2. Hydronic Box

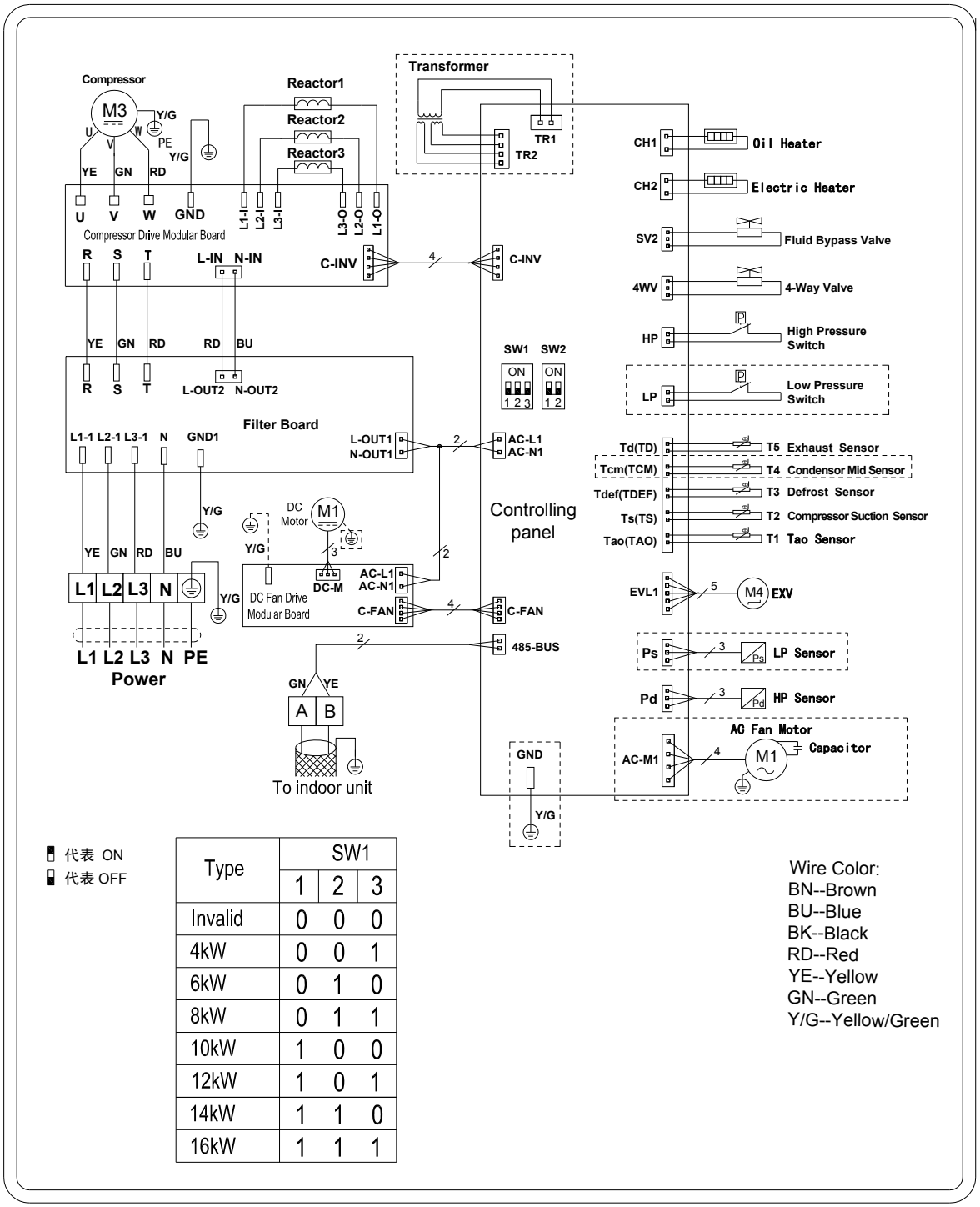
AHM-P24R2/C9D3A / AHM-P36R25/C9D9A / AHM-P60R25/C9D9A



Part5 Electrical Principle Diagram

1. Outdoor Unit

4kW, 6kW8kW, 10kW12kW, 14kW, 16kW

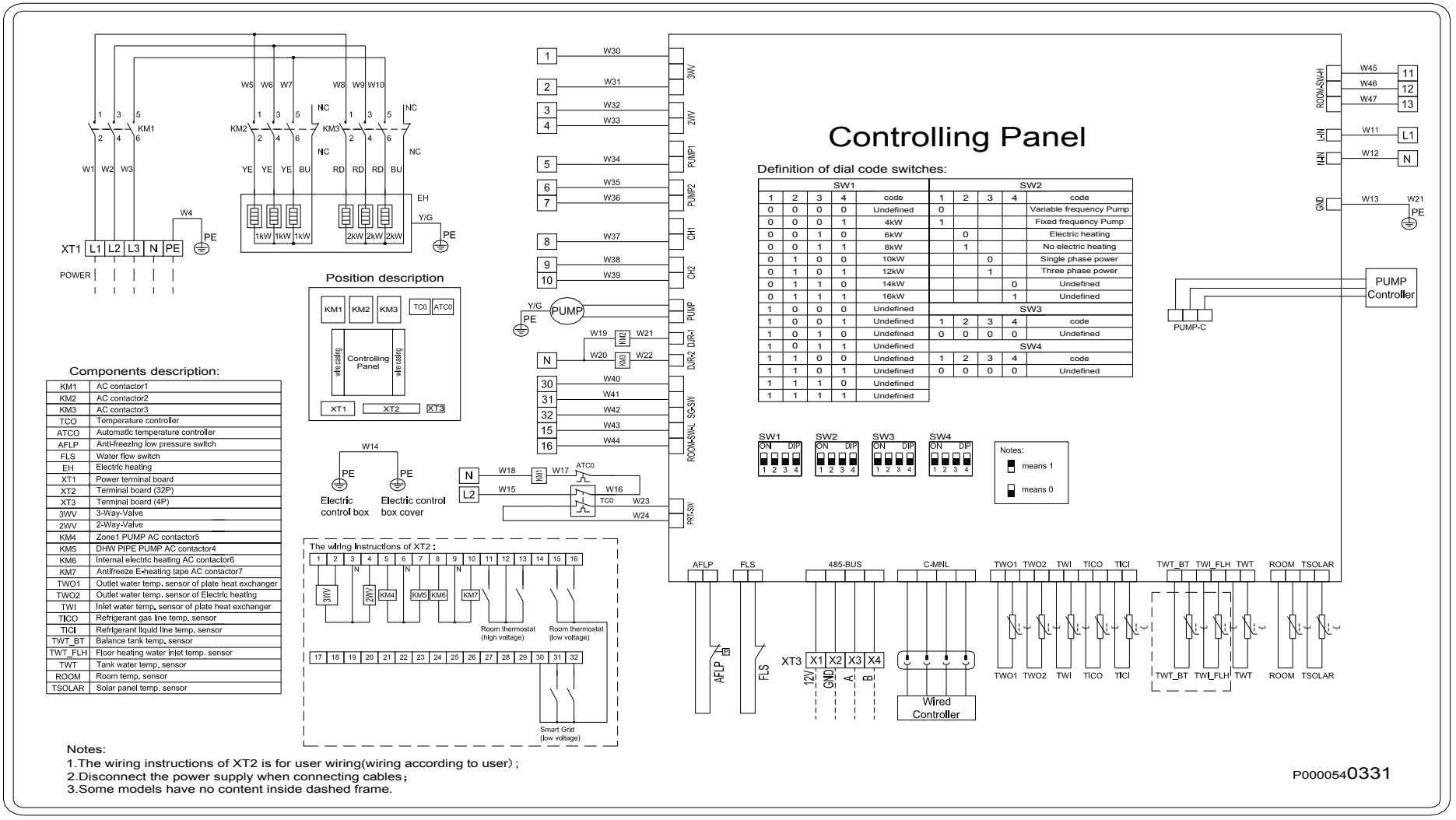


代表 ON
代表 OFF

Type	SW1		
	1	2	3
Invalid	0	0	0
4kW	0	0	1
6kW	0	1	0
8kW	0	1	1
10kW	1	0	0
12kW	1	0	1
14kW	1	1	0
16kW	1	1	1

Wire Color:
BN--Brown
BU--Blue
BK--Black
RD--Red
YE--Yellow
GN--Green
Y/G--Yellow/Green

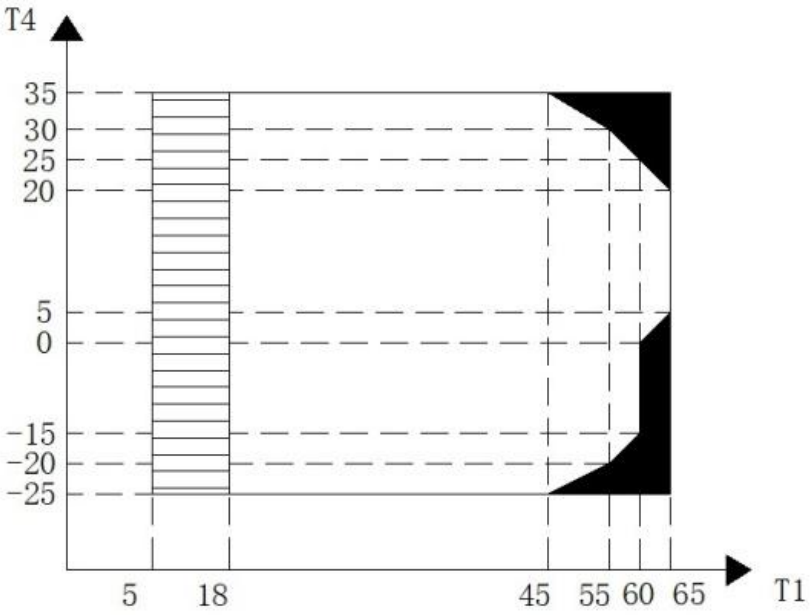
2. Hydronic Box



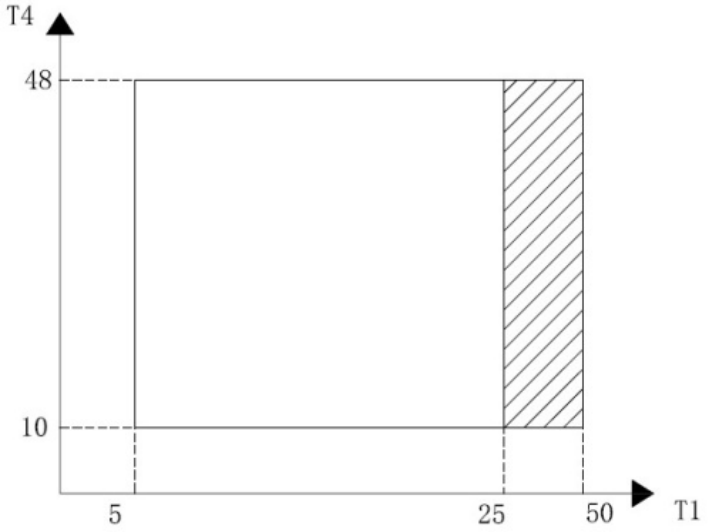
Part6 Capacity Amendment

1. Operating Limits

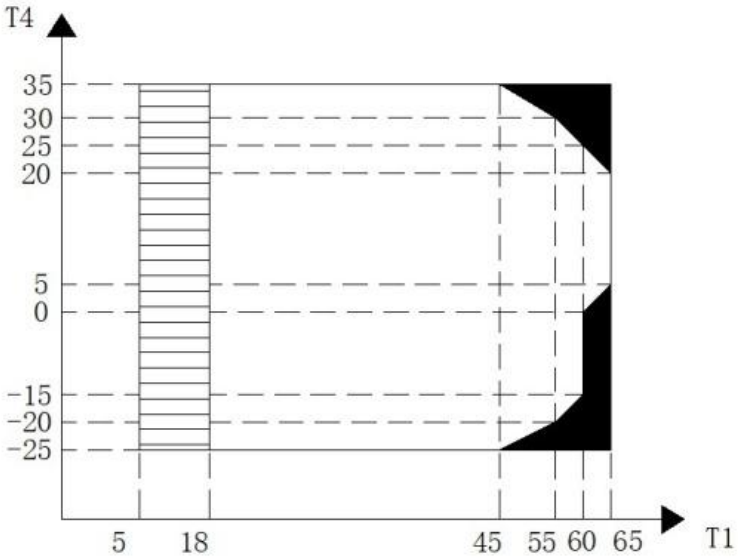
1.1 Heating operating limits



1.2 Cooling operating limits



1.3 Domestic hot water operating limits



Abbreviations:

T4:Outdoortemperature(C)

T1:Leavingwatertemperature(C)

Notes:

1. If the auxiliary electric heating/auxiliary heat source is set to be valid, only the auxiliary electric heating/auxiliary heat source is running; if the auxiliary electric heating/auxiliary heat source is set to be invalid, only the heat pump is running
2. The rise or fall of water temperature is regulated by the water system.
3. Only auxiliary electric heating/auxiliary heat source operates

2. Heating Capacity Tables

Abbreviations: 1 LWT:Leaving wate rtemperature(C) 2 HC: Total heating capacity(kW) 3 PI: Power input(kW) 4 AEH :heat pump can operate but bad effect Advise to use Electric Heating

ACHP-H04/4R3HA-O 4kW maximum heating capacity

Maximum																											
Outdoor air tem	LWT																										
	25			30			35			40			45			50			55			60			65		
	HC	PI	COP	HC	PI	COP	HC	PI	COP	HC	PI	COP	HC	PI	COP	HC	PI	COP	HC	PI	COP	HC	PI	COP	HC	PI	COP
-25	AEH	AEH	AEH	AEH	AEH	AEH	AEH	AEH	AEH	AEH	AEH	AEH	AEH	AEH	AEH	/	/	/	/	/	/	/	/	/	/	/	/
-20	AEH	AEH	AEH	AEH	AEH	AEH	AEH	AEH	AEH	AEH	AEH	AEH	AEH	AEH	AEH	AEH	AEH	AEH	AEH	AEH	AEH	/	/	/	/	/	/
-15	3.81	1.26	3.02	3.62	1.29	2.81	3.46	1.43	2.42	3.14	1.56	2.01	2.71	1.67	1.62	2.41	1.75	1.38	2.05	1.63	1.26	1.94	1.75	1.11	/	/	/
-10	4.4	1.29	3.41	4.72	1.45	3.26	4.57	1.59	2.87	4.25	1.72	2.47	3.82	1.84	2.08	3.51	1.88	1.87	2.86	1.75	1.63	3.04	1.87	1.63	/	/	/
-7	5.14	1.36	3.78	5.36	1.49	3.60	5.21	1.63	3.20	4.89	1.76	2.78	4.76	2.01	2.37	4.63	2.15	2.15	4.5	2.37	1.90	3.78	1.97	1.92	/	/	/
-5	5.01	1.24	4.04	5.2	1.39	3.74	5.04	1.53	3.29	4.76	1.68	2.83	4.65	1.89	2.46	4.58	2.02	2.27	4.43	2.26	1.96	3.85	2	1.93	/	/	/
0	5.56	1.08	5.15	5.42	1.22	4.44	5.25	1.37	3.83	5.07	1.56	3.25	5.19	1.75	2.97	5.17	2.04	2.53	5.28	2.17	2.43	4.55	2.11	2.16	/	/	/
5	6.05	1.04	5.82	5.81	1.19	4.88	5.74	1.32	4.35	5.65	1.49	3.79	5.66	1.72	3.29	5.56	1.99	2.79	5.6	2.08	2.69	4.96	2.1	2.36	4.1	2.17	1.89
7	6.77	1.01	6.70	6.4	1.17	5.47	6.45	1.28	5.04	6.45	1.44	4.48	6.15	1.65	3.73	5.88	1.78	3.30	5.93	1.92	3.09	5.6	2.1	2.67	4.46	2.11	2.11
10	6.7	0.99	6.77	6.36	1.21	5.26	6.4	1.3	4.92	6.64	1.4	4.74	6.38	1.61	3.96	6.13	1.84	3.33	6.03	1.84	3.28	5.6	2	2.80	4.82	2.06	2.34
15	6.28	0.9	6.98	5.97	1.2	4.98	6	1.25	4.80	6.65	1.27	5.24	6.45	1.47	4.39	5.72	1.5	3.81	5.88	1.65	3.56	5.29	1.76	3.01	5.12	1.9	2.69
20	6.11	0.85	7.19	5.99	1.04	5.76	5.92	1.11	5.33	6.41	1.12	5.72	6.37	1.31	4.86	5.86	1.4	4.19	5.77	1.5	3.85	5.02	1.56	3.22	/	/	/
25	6.01	0.76	7.91	6.08	0.84	7.24	5.91	1	5.91	6.22	1.02	6.10	6.36	1.19	5.34	6.06	1.35	4.49	5.73	1.39	4.12	4.81	1.4	3.44	/	/	/
30	6.09	0.73	8.34	6.15	0.82	7.50	6.09	0.93	6.55	6.2	0.96	6.46	6.33	1.11	5.70	5.98	1.26	4.75	5.82	1.32	4.41	4.92	1.36	3.62	/	/	/
35	6.03	0.66	9.14	6.08	0.77	7.90	6.15	0.83	7.41	6.04	0.88	6.86	6.17	1	6.17	5.77	1.15	5.02	5.79	1.23	4.71	/	/	/	/	/	/
40	6.45	0.59	10.93	6.53	0.68	9.60	6.51	0.75	8.68	6.48	0.81	8.00	6.53	0.94	6.95	6.15	1.16	5.30	/	/	/	/	/	/	/	/	/
43	6.79	0.54	12.57	6.89	0.62	11.11	6.81	0.69	9.87	6.84	0.77	8.88	6.83	0.89	7.67	6.47	1.16	5.58	/	/	/	/	/	/	/	/	/

ACHP-H06/4R3HA-O 6kW maximum heating capacity

Maximum																											
ODU Air temp	LWT																										
	25			30			35			40			45			50			55			60			65		
	HC	PI	COP	HC	PI	COP	HC	PI	COP	HC	PI	COP	HC	PI	COP	HC	PI	COP	HC	PI	COP	HC	PI	COP	HC	PI	COP
-25	AEH	AEH	AEH	AEH	AEH	AEH	AEH	AEH	AEH	AEH	AEH	AEH	AEH	AEH	AEH	/	/	/	/	/	/	/	/	/	/	/	/
-20	AEH	AEH	AEH	AEH	AEH	AEH	AEH	AEH	AEH	AEH	AEH	AEH	AEH	AEH	AEH	AEH	AEH	AEH	AEH	AEH	AEH	/	/	/	/	/	/
-15	4.74	1.56	3.04	4.5	1.6	2.81	4.31	1.78	2.42	3.92	1.94	2.02	3.39	2.08	1.63	3.01	2.09	1.44	2.57	1.95	1.32	2.44	2.09	1.17	/	/	/
-10	6.08	1.77	3.44	5.83	1.92	3.04	5.44	2.07	2.63	5.16	2.26	2.28	4.97	2.32	2.14	4.46	2.49	1.79	4.13	2.32	1.78	3.65	2.38	1.53	/	/	/
-7	6.83	1.8	3.79	6.58	1.95	3.37	6.49	2.2	2.95	6.07	2.35	2.58	5.85	2.41	2.43	5.57	2.66	2.09	5.5	2.69	2.04	4.85	2.64	1.84	/	/	/
-5	6.56	1.64	4.00	6.34	1.79	3.54	6.16	1.99	3.10	5.99	2.18	2.75	5.86	2.3	2.55	5.46	2.44	2.24	5.33	2.64	2.02	4.75	2.59	1.83	/	/	/
0	6.81	1.4	4.86	6.69	1.54	4.34	6.67	1.74	3.83	7.12	2.05	3.47	7.17	2.31	3.10	6.2	2.43	2.55	5.74	2.65	2.17	5.38	2.6	2.07	/	/	/
5	7.33	1.36	5.39	7	1.55	4.52	7.17	1.67	4.29	7.25	1.94	3.74	7.28	2.17	3.35	6.66	2.32	2.87	6.4	2.51	2.55	6.03	2.58	2.34	5.21	2.73	1.91
7	7.92	1.32	6.00	7.4	1.51	4.90	7.75	1.6	4.84	7.47	1.83	4.08	7.47	2.04	3.66	7.21	2.2	3.28	7.24	2.41	3.00	6.76	2.56	2.64	5.59	2.64	2.12
10	7.65	1.25	6.12	7.33	1.4	5.24	7.57	1.5	5.05	7.59	1.79	4.24	7.54	1.97	3.83	7.23	2.13	3.39	7.15	2.32	3.08	6.49	2.45	2.65	5.79	2.56	2.26
15	7.37	1.17	6.30	7.4	1.28	5.78	7.46	1.42	5.25	7.98	1.73	4.61	7.83	1.87	4.19	7.44	2.01	3.70	7.18	2.16	3.32	6.21	2.27	2.74	6.3	2.43	2.59
20	7.24	1	7.24	7.28	1.14	6.39	7.29	1.21	6.02	7.52	1.57	4.79	7.73	1.71	4.52	7.59	1.84	4.13	7.12	1.92	3.71	6.29	1.98	3.18	/	/	/
25	7.02	0.85	8.26	7.07	0.99	7.14	7.03	1.11	6.33	6.98	1.35	5.17	7.54	1.57	4.80	7.66	1.71	4.48	6.96	1.71	4.07	6.27	1.72	3.65	/	/	/
30	7.03	0.73	9.63	7.12	0.87	8.18	7.12	0.96	7.42	6.85	1.11	6.17	7.34	1.42	5.17	7.2	1.42	5.07	6.89	1.59	4.33	6.3	1.59	3.96	/	/	/
35	7.14	0.69	10.35	7.28	0.76	9.58	7.31	0.88	8.31	6.82	0.97	7.03	7.24	1.3	5.57	6.84	1.27	5.39	6.92	1.51	4.58	/	/	/	/	/	/
40	7.6	0.67	11.34	7.71	0.76	10.14	7.62	0.84	9.07	7.46	1	7.46	7.68	1.23	6.24	7.27	1.25	5.82	/	/	/	/	/	/	/	/	/
43	7.85	0.65	12.08	7.95	0.72	11.04	7.79	0.78	9.99	7.82	0.93	8.41	7.92	1.1	7.20	7.5	1.23	6.10	/	/	/	/	/	/	/	/	/

ACHP-H08/4R3HA-O 8kW maximum heating capacity

Maximum																											
ODU air temp	LWT																										
	25			30			35			40			45			50			55			60			65		
	HC	PI	COP	HC	PI	COP	HC	PI	COP	HC	PI	COP	HC	PI	COP	HC	PI	COP	HC	PI	COP	HC	PI	COP	HC	PI	COP
-25	AEH	AEH	AEH	AEH	AEH	AEH	AEH	AEH	AEH	AEH	AEH	AEH	AEH	AEH	AEH	/	/	/	/	/	/	/	/	/	/	/	/
-20	AEH	AEH	AEH	AEH	AEH	AEH	AEH	AEH	AEH	AEH	AEH	AEH	AEH	AEH	AEH	AEH	AEH	AEH	AEH	AEH	AEH	/	/	/	/	/	/
-15	7.32	2.14	3.42	6.86	2.31	2.97	6.53	2.58	2.53	5.99	2.54	2.36	5.71	2.72	2.10	5.09	2.77	1.84	5.36	2.99	1.79	4.41	2.91	1.52	/	/	/
-10	7.92	2.14	3.70	7.28	2.3	3.17	7.08	2.37	2.99	6.87	2.75	2.50	6.77	2.86	2.37	6.32	3	2.11	6.07	3.17	1.91	5.19	2.98	1.74	/	/	/
-7	8.03	2.12	3.79	7.86	2.29	3.43	7.66	2.35	3.26	7.44	2.73	2.73	7.33	2.85	2.57	6.87	2.98	2.31	6.61	3.16	2.09	5.71	2.97	1.92	/	/	/
-5	8.45	2.08	4.06	8.37	2.24	3.74	8.09	2.47	3.28	7.85	2.65	2.96	7.84	2.85	2.75	7.75	3.07	2.52	6.85	3.02	2.27	6.44	3.08	2.09	/	/	/
0	8.65	1.82	4.75	8.96	2.11	4.25	8.9	2.34	3.80	8.81	2.62	3.36	8.5	2.84	2.99	8.52	3.04	2.80	7.51	3.08	2.44	7.26	3.25	2.23	/	/	/
5	9.27	1.56	5.94	9.36	1.88	4.98	9.44	2.05	4.60	9.19	2.36	3.89	9.1	2.64	3.45	8.71	2.83	3.08	7.97	2.81	2.84	7.52	2.96	2.54	4.3	3.34	1.29
7	10	1.51	6.62	9.69	1.79	5.41	9.6	1.86	5.16	9.34	2.18	4.28	9.47	2.41	3.93	8.92	2.72	3.28	8.29	2.56	3.24	7.73	2.72	2.84	4.57	3.06	1.49
10	10.51	1.36	7.73	9.69	1.6	6.06	9.35	1.66	5.63	9.11	2.03	4.49	9.15	2.25	4.07	8.69	2.43	3.58	8.61	2.49	3.46	7.91	2.73	2.90	6	2.66	2.26
15	10.28	1.15	8.94	9.81	1.36	7.21	9.51	1.54	6.18	9.49	1.8	5.27	9.33	2.06	4.53	8.83	2.26	3.91	8.74	2.37	3.69	8.1	2.52	3.21	6.13	2.42	2.53
20	10.07	0.97	10.38	9.93	1.16	8.56	9.75	1.34	7.28	9.87	1.61	6.13	9.5	1.83	5.19	8.95	2.04	4.39	8.85	2.14	4.14	8.28	2.29	3.62	/	/	/
25	9.85	0.94	10.48	9.43	1.07	8.81	9.18	1.19	7.71	9.58	1.48	6.47	9.44	1.59	5.94	9.04	1.91	4.73	8.52	1.94	4.39	7.89	2.05	3.85	/	/	/
30	9.62	0.86	11.19	8.93	0.96	9.30	8.61	1.08	7.97	9.29	1.32	7.04	9.37	1.46	6.42	9.12	1.77	5.15	8.28	1.76	4.70	7.51	1.81	4.15	/	/	/
35	9.98	0.88	11.34	9.26	0.97	9.55	8.93	1.1	8.12	9.63	1.35	7.13	9.72	1.5	6.48	9.46	1.77	5.34	8.59	1.804	4.76	/	/	/	/	/	/
40	10.48	0.94	11.15	9.75	1	9.75	9.4	1.12	8.39	10.14	1.39	7.29	10.23	1.58	6.47	9.96	1.81	5.50	/	/	/	/	/	/	/	/	/
43	10.73	0.88	12.19	9.98	0.89	11.21	9.62	1.05	9.16	10.38	1.31	7.92	10.43	1.51	6.91	10.2	1.65	6.18	/	/	/	/	/	/	/	/	/

ACSHC-H36A/ASR2D I10kW maximum heating capacity

Maximum																											
ODU air tem	LWT																										
	25			30			35			40			45			50			55			60			65		
	HC	PI	COP	HC	PI	COP	HC	PI	COP	HC	PI	COP	HC	PI	COP	HC	PI	COP	HC	PI	COP	HC	PI	COP	HC	PI	COP
-25	AEH	AEH	AEH	AEH	AEH	AEH	AEH	AEH	AEH	AEH	AEH	AEH	AEH	AEH	AEH	/	/	/	/	/	/	/	/	/	/	/	/
-20	AEH	AEH	AEH	AEH	AEH	AEH	AEH	AEH	AEH	AEH	AEH	AEH	AEH	AEH	AEH	AEH	AEH	AEH	AEH	AEH	AEH	/	/	/	/	/	/
-15	7.68	2.2	3.49	7.2	2.39	3.01	6.85	2.67	2.57	6.28	2.62	2.40	5.99	2.81	2.13	5.33	2.87	1.86	5.62	3.09	1.82	4.62	3.01	1.53	/	/	/
-10	8.78	2.35	3.74	8.55	2.55	3.35	8.3	2.67	3.11	8.05	2.88	2.80	7.79	3.12	2.50	7.44	3.33	2.23	7.08	3.6	1.97	5.79	3.17	1.83	/	/	/
-7	9.19	2.35	3.91	8.95	2.55	3.51	8.78	2.67	3.29	8.43	2.87	2.94	8.15	3.11	2.62	7.8	3.32	2.35	7.52	3.59	2.09	6.08	3.16	1.92	/	/	/
-5	8.6	2.15	4.00	9.26	2.48	3.73	9.2	2.65	3.47	8.86	2.95	3.00	8.58	3.1	2.77	8.44	3.28	2.57	7.93	3.33	2.38	6.53	3.11	2.10	/	/	/
0	9.48	1.87	5.07	9.81	2.35	4.17	10.01	2.59	3.86	9.7	2.97	3.27	9.34	3.14	2.97	9.27	3.31	2.80	8.63	3.35	2.58	7.44	3.34	2.23	/	/	/
5	10.37	1.84	5.64	10.4	2.18	4.77	10.53	2.36	4.46	10.53	2.75	3.83	10.22	2.99	3.42	9.88	3.25	3.04	9.51	3.38	2.81	8.28	3.31	2.50	4.95	3.41	1.45
7	10.94	1.8	6.08	10.74	2	5.37	10.74	2.12	5.07	10.94	2.53	4.32	10.74	2.76	3.89	10.27	3.08	3.33	10.16	3.23	3.15	8.67	2.99	2.90	5.29	3.14	1.68
10	11.66	1.65	7.07	10.86	1.91	5.69	10.46	2.02	5.18	10.4	2.44	4.26	10.33	2.75	3.76	10.05	2.97	3.38	10.03	3.17	3.16	8.73	3.1	2.82	6.9	3.11	2.22
15	11.85	1.5	7.90	11.05	1.73	6.39	10.65	1.82	5.85	10.55	2.2	4.80	10.55	2.48	4.25	10.23	2.67	3.83	10.21	2.85	3.58	8.88	2.79	3.18	7.01	2.8	2.50
20	11.21	1.29	8.69	11.21	1.45	7.73	11.11	1.69	6.57	11.11	1.99	5.58	10.71	2.22	4.82	10.41	2.48	4.20	10.26	2.64	3.89	9.31	2.66	3.50	/	/	/
25	10.35	1.11	9.32	10.31	1.24	8.31	10.23	1.45	7.06	10.23	1.71	5.98	9.87	1.91	5.17	9.63	2.14	4.50	9.47	2.27	4.17	8.59	2.29	3.75	/	/	/
30	10.19	0.99	10.29	9.49	1.13	8.40	9.32	1.15	8.10	9.27	1.35	6.87	10.34	1.64	6.30	9.73	1.91	5.09	9.46	1.91	4.95	7.91	1.99	3.97	/	/	/
35	10.61	0.98	10.83	9.85	1.06	9.29	9.66	1.14	8.47	9.62	1.35	7.13	10.71	1.64	6.53	10.1	1.9	5.32	9.83	1.93	5.09	/	/	/	/	/	/
40	11.14	0.96	11.60	10.35	1.04	9.95	10.15	1.18	8.60	10.11	1.35	7.49	11.24	1.63	6.90	10.64	1.87	5.69	/	/	/	/	/	/	/	/	/
43	11.43	0.93	12.29	10.63	0.98	10.85	10.43	1.1	9.48	10.39	1.25	8.31	11.63	1.49	7.81	10.93	1.7	6.43	/	/	/	/	/	/	/	/	/

ACHP-H12/5R3HA-O / ACSHC-H42A5/ASR2DI 12kW maximum heating capacity

Abbreviations:1 LWT:Leavingwatertemperature(C)2 HC:Totalheatingcapacity(kW) 3PI:Powerinput(kW)4AEH:heat pump can operate but bad effect

Maximum																											
ODU air tem	LWT																										
	25			30			35			40			45			50			55			60			65		
	HC	PI	COP	HC	PI	COP	HC	PI	COP	HC	PI	COP	HC	PI	COP	HC	PI	COP	HC	PI	COP	HC	PI	COP	HC	PI	COP
-25	AEH	AEH	AEH	AEH	AEH	AEH	AEH	AEH	AEH	AEH	AEH	AEH	AEH	AEH	AEH	/	/	/	/	/	/	/	/	/	/	/	
-20	AEH	AEH	AEH	AEH	AEH	AEH	AEH	AEH	AEH	AEH	AEH	AEH	AEH	AEH	AEH	AEH	AEH	AEH	AEH	AEH	AEH	/	/	/	/	/	/
-15	9.41	3.18	2.96	9.37	3.4	2.76	9.37	3.68	2.55	8.44	3.68	2.29	7.9	4.01	1.97	7.22	4.03	1.79	6.84	4.37	1.57	6.38	4.75	1.34	/	/	/
-10	11.5	3.48	3.30	10.6	3.69	2.87	10.5	3.96	2.65	10.19	4.35	2.34	9.82	4.55	2.16	9.46	4.63	2.04	9.1	4.8	1.90	7.2	5.14	1.40	/	/	/
-7	12.85	3.58	3.59	11.45	3.68	3.11	11.55	3.95	2.92	10.95	4.33	2.53	10.95	4.56	2.40	11.15	4.8	2.32	11.15	5.31	2.10	8.6	5.12	1.68	/	/	/
-5	12.89	3.34	3.86	11.69	3.56	3.28	11.79	3.88	3.04	11.39	4.27	2.67	11.39	4.62	2.47	11.29	4.76	2.37	11.09	5.15	2.15	8.7	5.15	1.69	/	/	/
0	13.07	2.9	4.51	12.47	3.16	3.95	12.57	3.47	3.62	12.87	4.07	3.16	12.87	4.4	2.93	11.67	4.64	2.52	11.37	4.77	2.38	9.09	5.06	1.80	/	/	/
5	15.11	2.7	5.60	14.01	3.01	4.65	14.11	3.32	4.25	14.31	3.74	3.83	14.11	4.22	3.34	13.31	4.5	2.96	13.31	4.74	2.81	12.11	5.1	2.37	10.43	5.2	2.01
7	16.01	2.62	6.11	14.81	2.88	5.14	15.11	3.16	4.78	15.31	3.62	4.23	15.01	4.05	3.71	14.41	4.48	3.22	14.41	4.71	3.06	13.51	5.12	2.64	12.01	5.22	2.30
10	15.53	2.44	6.36	14.93	2.66	5.61	14.83	2.87	5.17	15.13	3.38	4.48	14.83	3.93	3.77	14.03	4.15	3.38	13.63	4.42	3.08	13.23	4.83	2.74	12.23	4.93	2.48
15	15.65	2.01	7.79	15.25	2.25	6.78	14.95	2.69	5.56	15.55	3.21	4.84	15.15	3.57	4.24	13.95	3.77	3.70	12.65	4.01	3.15	12.85	4.36	2.95	12.25	4.46	2.75
20	15.1	1.72	8.78	14.8	1.94	7.63	14.7	2.26	6.50	15.3	2.81	5.44	15.3	3.21	4.77	14.2	3.43	4.14	12.5	3.61	3.46	11.3	3.77	3.00	/	/	/
25	14.94	1.58	9.46	14.84	1.76	8.43	14.74	1.96	7.52	15.24	2.38	6.40	15.24	2.76	5.52	14.44	3.03	4.77	12.54	3.15	3.98	10.54	3.39	3.11	/	/	/
30	15.11	1.47	10.28	14.71	1.64	8.97	14.91	1.87	7.97	15.21	2.24	6.79	15.21	2.65	5.74	14.51	2.84	5.11	13.11	2.96	4.43	10.81	3.42	3.16	/	/	/
35	15.71	1.43	10.99	15.41	1.64	9.40	15.21	1.84	8.27	15.61	2.21	7.06	15.11	2.54	5.95	14.71	2.76	5.33	13.41	2.83	4.74	/	/	/	/	/	/
40	16.22	1.44	11.26	16.12	1.62	9.95	15.92	1.82	8.75	16.52	2.2	7.51	15.82	2.47	6.40	15.02	2.72	5.52	/	/	/	/	/	/	/	/	/
43	16.7	1.37	12.19	16.5	1.52	10.86	16.4	1.75	9.37	17	2.13	7.98	16.5	2.37	6.96	15.3	2.59	5.91	/	/	/	/	/	/	/	/	/

ACHP-H14/5R3HA-O / ACSHC-H48A5/ASR2DI 14kW maximum heating capacity

Maximum																										
ODU Air temp	LWT																									
	25			30			35			40			45			50			55			60			65		
	HC	PI	COP	HC	PI	COP	HC	PI	COP	HC	PI	COP	HC	PI	COP	HC	PI	COP	HC	PI	COP	HC	PI	COP	HC	PI	COP
-25	AEH	AEH	AEH	AEH	AEH	AEH	AEH	AEH	AEH	AEH	AEH	AEH	AEH	AEH	AEH	/	/	/	/	/	/	/	/	/	/	/	/
-20	AEH	AEH	AEH	AEH	AEH	AEH	AEH	AEH	AEH	AEH	AEH	AEH	AEH	AEH	AEH	AEH	AEH	AEH	AEH	AEH	AEH	/	/	/	/	/	/
-15	10.16	3.44	2.95	10.12	3.69	2.74	10.12	3.98	2.54	9.12	3.99	2.29	8.18	4.16	1.97	7.56	4.36	1.73	7.01	4.62	1.52	6.56	5.09	1.29	/	/	/
-10	12.46	3.84	3.24	11.96	4.21	2.84	11.56	4.48	2.58	11.16	4.74	2.35	10.2	4.77	2.14	9.63	5.05	1.91	9.28	5.25	1.77	7.29	5.34	1.37	/	/	/
-7	14.21	4.05	3.51	13.41	4.31	3.11	13.21	4.58	2.88	12.81	4.97	2.58	12.41	5.2	2.39	11.51	5.36	2.15	11.81	5.49	2.15	8.53	5.34	1.60	/	/	/
-5	14.4	3.84	3.75	13.7	3.93	3.49	13	4.22	3.08	13.1	4.67	2.81	12.6	5.05	2.50	11.7	5.3	2.21	11.6	5.38	2.16	8.75	5.12	1.71	/	/	/
0	14.86	3.46	4.29	14.26	3.6	3.96	12.96	3.88	3.34	13.56	4.38	3.10	13.26	4.91	2.70	12.46	5.05	2.47	12.36	5.25	2.35	9.9	5.54	1.79	/	/	/
5	15.98	3.01	5.31	15.48	3.38	4.58	14.88	3.71	4.01	14.88	4.03	3.69	14.78	4.67	3.16	14.38	5.06	2.84	14.38	5.26	2.73	12.28	5.46	2.25	10.34	5.41	1.91
7	16.88	2.88	5.86	16.18	3.22	5.02	16.08	3.44	4.67	16.18	3.93	4.12	16.28	4.42	3.68	15.58	4.88	3.19	15.08	4.99	3.02	13.78	5.27	2.61	10.98	5.02	2.19
10	16.04	2.33	6.88	16.04	2.94	5.46	15.44	3.15	4.90	15.84	3.65	4.34	15.54	4.13	3.76	15.84	4.67	3.39	14.74	4.65	3.17	13.74	4.96	2.77	11.74	5.03	2.33
15	15.86	2.07	7.66	15.76	2.68	5.88	15.76	3	5.25	16.36	3.62	4.52	16.06	4.04	3.98	15.86	4.43	3.58	13.56	4.08	3.32	13.26	4.54	2.92	12.46	5.03	2.48
20	15.43	1.8	8.57	15.33	2.22	6.91	15.13	2.61	5.80	15.73	3.06	5.14	15.63	3.44	4.54	15.53	3.86	4.02	13.23	3.64	3.63	11.53	3.79	3.04	/	/	/
25	15.42	1.72	8.97	15.22	2	7.61	15.12	2.46	6.15	15.42	2.76	5.59	15.22	3.06	4.97	15.22	3.51	4.34	13.02	3.36	3.88	10.72	3.48	3.08	/	/	/
30	15.85	1.61	9.84	15.35	1.86	8.25	15.45	2.16	7.15	15.65	2.48	6.31	15.55	2.86	5.44	15.15	3.2	4.73	13.35	2.99	4.46	10.85	3.46	3.14	/	/	/
35	16.56	1.51	10.97	15.96	1.76	9.07	15.56	1.93	8.06	16.06	2.32	6.92	15.86	2.71	5.85	15.36	3.01	5.10	13.56	2.83	4.79	/	/	/	/	/	/
40	16.73	1.45	11.54	16.93	1.64	10.32	16.73	1.94	8.62	16.53	2.25	7.35	16.33	2.64	6.19	15.53	2.83	5.49	/	/	/	/	/	/	/	/	/
43	17.07	1.41	12.11	17.27	1.59	10.86	17.07	1.93	8.84	16.87	2.17	7.77	16.67	2.61	6.39	15.77	2.78	5.67	/	/	/	/	/	/	/	/	/

ACHP-H16/5R3HA-O / ACSHC-H60A5/ASR2DI 16kW maximum heating capacity

Maximum																											
ODU Air temp	LWT																										
	25			30			35			40			45			50			55			60			65		
	HC	PI	COP	HC	PI	COP	HC	PI	COP	HC	PI	COP	HC	PI	COP	HC	PI	COP	HC	PI	COP	HC	PI	COP	HC	PI	COP
-25	AEH	AEH	AEH	AEH	AEH	AEH	AEH	AEH	AEH	AEH	AEH	AEH	AEH	AEH	AEH	/	/	/	/	/	/	/	/	/	/	/	/
-20	AEH	AEH	AEH	AEH	AEH	AEH	AEH	AEH	AEH	AEH	AEH	AEH	AEH	AEH	AEH	AEH	AEH	AEH	AEH	AEH	AEH	/	/	/	/	/	/
-15	12.42	4.44	2.80	11.92	4.67	2.55	11.32	5	2.26	10.72	5.31	2.02	9.65	5.45	1.77	8.15	5.39	1.51	7.44	5.36	1.39	7.04	5.66	1.24	/	/	/
-10	14.05	4.58	3.07	13.65	4.85	2.81	13.35	5.16	2.59	13.05	5.5	2.37	11.75	5.68	2.07	10.14	5.63	1.80	9.57	5.95	1.61	7.69	5.66	1.36	/	/	/
-7	14.93	4.63	3.22	14.73	4.93	2.99	14.53	5.23	2.78	14.43	5.59	2.58	13.73	6.06	2.27	13.53	6.26	2.16	13.23	6.33	2.09	8.88	6.22	1.43	/	/	/
-5	15.24	4.3	3.54	14.94	4.64	3.22	14.64	4.96	2.95	14.44	5.36	2.69	14.04	5.91	2.38	13.64	5.85	2.33	13.24	5.95	2.23	9.26	6	1.54	/	/	/
0	15.73	3.53	4.46	15.33	3.95	3.88	14.93	4.31	3.46	14.53	4.84	3.00	14.73	5.37	2.74	14.03	5.18	2.71	13.43	5.46	2.46	10.19	5.58	1.83	/	/	/
5	17.42	3.29	5.29	15.22	3.65	4.17	16.72	4.04	4.14	16.22	4.61	3.52	16.52	5	3.30	15.92	5.09	3.13	15.12	5.25	2.88	13.32	5.4	2.47	11.32	5.28	2.14
7	18.16	3.22	5.64	16.36	3.18	5.14	17.46	3.85	4.54	17.06	4.31	3.96	17.26	4.77	3.62	16.86	5.11	3.30	16.86	5.59	3.02	14.76	5.4	2.73	11.96	5.19	2.30
10	18.63	3.03	6.15	17.03	3.36	5.07	18.23	3.75	4.86	17.73	4.35	4.08	17.93	4.74	3.78	17.33	5.14	3.37	16.73	5.18	3.23	14.93	5.17	2.89	12.83	4.99	2.57
15	19.53	2.81	6.95	19.93	3.13	6.37	19.53	3.53	5.53	18.93	4.13	4.58	19.13	4.58	4.18	18.43	4.84	3.81	18.13	5.16	3.51	15.33	4.88	3.14	13.13	4.85	2.71
20	17.33	2.13	8.14	17.53	2.43	7.21	17.33	2.74	6.32	18.03	3.45	5.23	16.73	3.82	4.38	15.23	4.11	3.71	15.63	4.37	3.58	13.73	4.44	3.09	/	/	/
25	16.87	1.91	8.83	16.87	2.31	7.30	16.67	2.39	6.97	17.27	2.95	5.85	16.37	3.31	4.95	15.17	3.54	4.29	14.77	3.76	3.93	13.07	4.13	3.16	/	/	/
30	16.25	1.59	10.22	16.15	1.92	8.41	16.05	2.04	7.87	16.55	2.49	6.65	15.95	2.85	5.60	15.05	3.05	4.93	13.85	3.19	4.34	13.35	4.15	3.22	/	/	/
35	16.94	1.56	10.86	17.24	1.9	9.07	16.94	2	8.47	17.24	2.48	6.95	16.54	2.85	5.80	15.64	3.06	5.11	14.04	3.13	4.49	/	/	/	/	/	/
40	17.54	1.53	11.46	18.24	1.81	10.08	17.84	1.94	9.20	18.04	2.46	7.33	17.04	2.84	6.00	16.24	3.04	5.34	/	/	/	/	/	/	/	/	/
43	17.87	1.52	11.76	18.67	1.77	10.55	18.27	1.94	9.42	18.37	2.45	7.50	17.37	2.76	6.29	16.57	3	5.52	/	/	/	/	/	/	/	/	/

3. Cooling CapacityTables

ACHP-H04/4R3HA-O 4kW capacity tables

Maximum															
Outdoor air temp.	LWT()														
	5			10			15			20			25		
	CC	PI	EER	CC	PI	EER	CC	PI	EER	CC	PI	EER	CC	PI	EER
-5	/	/	/	/	/	/	5.09	0.48	10.60	5.8	0.57	10.18	6.42	0.5	12.84
0	/	/	/	/	/	/	4.87	0.6	8.12	5.58	0.68	8.21	6.2	0.58	10.69
5	/	/	/	/	/	/	4.37	0.7	6.24	5.08	0.78	6.51	5.7	0.68	8.38
10	/	/	/	/	/	/	6.41	1.11	5.77	6.79	1.06	6.41	7.46	0.9	8.29
15	/	/	/	5.37	0.89	6.03	8.41	1.49	5.64	8.46	1.29	6.56	9.17	1.08	8.49
20	5.04	1.1	4.58	6.33	1.41	4.49	8.48	1.55	5.47	8.65	1.36	6.36	9.3	1.16	8.02
25	6.18	1.37	4.51	7.28	1.91	3.81	8.54	1.6	5.34	8.83	1.4	6.31	9.43	1.22	7.73
30	6.14	1.61	3.81	7.1	1.91	3.72	8.07	1.68	4.80	8.49	1.49	5.70	9.07	1.33	6.82
35	6.15	1.82	3.38	6.99	1.9	3.68	7.66	1.79	4.28	8.22	1.61	5.11	8.78	1.47	5.97
40	4.17	1.53	2.73	5.45	1.83	2.98	6.28	1.75	3.59	7	1.7	4.12	8.25	1.66	4.97
43	2.92	1.17	2.50	4.14	1.54	2.69	5.42	1.58	3.43	6.22	1.59	3.91	7.89	1.61	4.90
Normal															
Outdoor air temp.	LWT()														
	5			10			15			20			25		
	CC	PI	EER	CC	PI	EER	CC	PI	EER	CC	PI	EER	CC	PI	EER
-5	/	/	/	/	/	/	4.16	0.35	11.89	4.78	0.39	12.26	5.28	0.37	14.27
0	/	/	/	/	/	/	3.99	0.42	9.50	4.61	0.47	9.81	5.11	0.39	13.10
5	/	/	/	/	/	/	3.56	0.51	6.98	4.14	0.55	7.53	4.69	0.48	9.77
10	/	/	/	/	/	/	5.22	0.82	6.37	5.54	0.75	7.39	6.14	0.64	9.59
15	/	/	/	4.11	0.64	6.42	7.11	1.18	6.03	7.32	1.02	7.18	7.76	0.83	9.35
20	4	0.83	4.82	5.18	1.07	4.84	7.12	1.22	5.84	7.49	1.09	6.87	8.14	0.93	8.75
25	4.96	1.04	4.77	6.03	1.47	4.10	7.27	1.28	5.68	7.75	1.14	6.80	8.36	0.98	8.53
30	4.99	1.23	4.06	5.97	1.51	3.95	6.97	1.38	5.05	7.55	1.26	5.99	8.15	1.12	7.28
35	4.86	1.35	3.60	5.8	1.46	3.97	6.37	1.38	4.62	7.22	1.31	5.51	8.04	1.23	6.54
40	3.47	1.17	2.97	4.67	1.44	3.24	5.52	1.42	3.89	6.32	1.39	4.55	7.52	1.34	5.61
43	2.46	0.93	2.65	3.33	1.17	2.85	4.38	1.2	3.65	5.38	1.27	4.24	6.31	1.17	5.39
Minimum															
Outdoor air temp.	LWT														
	5			10			15			20			25		
	CC	PI	EER	CC	PI	EER	CC	PI	EER	CC	PI	EER	CC	PI	EER
-5	/	/	/	/	/	/	2.81	0.22	12.77	3.2	0.25	12.80	3.54	0.22	16.09
0	/	/	/	/	/	/	2.7	0.27	10.00	3.1	0.3	10.33	3.44	0.26	13.23
5	/	/	/	/	/	/	2.07	0.27	7.67	2.39	0.3	7.97	2.68	0.26	10.31
10	/	/	/	/	/	/	3.05	0.44	6.93	3.25	0.42	7.74	3.56	0.36	9.89
15	/	/	/	2.64	0.38	6.95	3.96	0.61	6.49	3.82	0.48	7.96	4.57	0.44	10.39
20	2.18	0.44	4.95	2.45	0.49	5.00	3.7	0.6	6.17	4.27	0.6	7.12	4.76	0.53	8.98
25	2.54	0.53	4.79	2.68	0.62	4.32	3.6	0.61	5.90	4.23	0.6	7.05	4.69	0.54	8.69
30	2.53	0.6	4.22	2.63	0.63	4.17	3.42	0.65	5.26	4.09	0.65	6.29	4.53	0.68	6.66
35	2.4	0.62	3.87	2.88	0.66	4.36	3.36	0.66	5.09	4.01	0.66	6.08	4.58	0.65	7.05
40	1.77	0.54	3.28	2.38	0.66	3.61	2.89	0.68	4.25	3.55	0.73	4.86	4.44	0.76	5.84
43	1.07	0.33	3.24	1.77	0.55	3.22	2.45	0.61	4.02	2.91	0.64	4.55	4.14	0.73	5.67

ACHP-H06/4R3HA-O 6kW capacity tables

Maximum															
Outdoor air temp.	LWT()														
	5			10			15			20			25		
	CC	PI	EER	CC	PI	EER	CC	PI	EER	CC	PI	EER	CC	PI	EER
-5	/	/	/	/	/	/	5.67	0.62	9.15	6.78	0.58	11.69	7.17	0.67	10.70
0	/	/	/	/	/	/	5.47	0.74	7.39	6.58	0.71	9.27	6.97	0.79	8.82
5	/	/	/	/	/	/	4.98	0.85	5.86	6.09	0.82	7.43	6.78	0.8	8.48
10	/	/	/	/	/	/	6.73	1.17	5.75	7.31	1.05	6.96	8.25	0.99	8.33
15	/	/	/	6.32	1.16	5.45	8.52	1.52	5.61	8.57	1.32	6.49	9.28	1.13	8.21
20	5.83	1.44	4.05	7.05	1.49	4.73	8.58	1.55	5.54	8.75	1.36	6.43	9.4	1.16	8.10
25	7.56	1.87	4.04	7.77	1.84	4.22	8.63	1.6	5.39	8.92	1.4	6.37	9.52	1.22	7.80
30	6.94	1.92	3.61	7.73	1.97	3.92	8.21	1.72	4.77	8.63	1.53	5.64	9.21	1.37	6.72
35	6.27	1.96	3.20	7.65	2.09	3.66	7.74	1.82	4.25	8.3	1.64	5.06	8.86	1.5	5.91
40	4.22	1.56	2.71	5.5	1.86	2.96	6.33	1.78	3.56	7.05	1.73	4.08	8.3	1.69	4.91
43	3	1.23	2.44	4.22	1.6	2.64	5.5	1.64	3.35	6.3	1.65	3.82	7.97	1.67	4.77
Normal															
Outdoor air temp.	LWT()														
	5			10			15			20			25		
	CC	PI	EER	CC	PI	EER	CC	PI	EER	CC	PI	EER	CC	PI	EER
-5	/	/	/	/	/	/	4.64	0.45	10.31	5.59	0.41	13.63	5.9	0.45	13.11
0	/	/	/	/	/	/	4.49	0.53	8.47	5.44	0.49	11.10	5.75	0.53	10.85
5	/	/	/	/	/	/	4.07	0.64	6.36	4.97	0.59	8.42	5.64	0.59	9.56
10	/	/	/	/	/	/	5.49	0.86	6.38	5.96	0.75	7.95	6.47	0.69	9.38
15	/	/	/	4.85	0.84	5.77	7.22	1.21	5.97	7.43	1.05	7.08	7.87	0.86	9.15
20	4.64	1.08	4.30	5.78	1.14	5.07	7.22	1.22	5.92	7.59	1.09	6.96	8.24	0.93	8.86
25	6.07	1.42	4.27	6.45	1.42	4.54	7.36	1.28	5.75	7.84	1.14	6.88	8.45	0.98	8.62
30	5.67	1.47	3.86	6.52	1.55	4.21	7.11	1.39	5.12	7.69	1.27	6.06	8.29	1.13	7.34
35	4.97	1.47	3.38	6.36	1.61	3.95	6.45	1.41	4.57	7.3	1.34	5.45	8.12	1.26	6.44
40	3.52	1.2	2.93	4.72	1.47	3.21	5.57	1.45	3.84	6.37	1.42	4.49	7.57	1.37	5.53
43	2.54	0.99	2.57	3.41	1.23	2.77	4.46	1.26	3.54	5.46	1.33	4.11	6.39	1.23	5.20
Minimum															
Outdoor air temp.	LWT														
	5			10			15			20			25		
	CC	PI	EER	CC	PI	EER	CC	PI	EER	CC	PI	EER	CC	PI	EER
-5	/	/	/	/	/	/	3.15	0.28	11.25	3.75	0.26	14.42	3.97	0.3	13.23
0	/	/	/	/	/	/	3.06	0.34	9.00	3.67	0.33	11.12	3.89	0.36	10.81
5	/	/	/	/	/	/	2.69	0.34	7.91	2.89	0.33	8.76	3.07	0.3	10.23
10	/	/	/	/	/	/	3.22	0.45	7.16	3.51	0.41	8.56	3.77	0.37	10.19
15	/	/	/	3.14	0.51	6.16	4.07	0.64	6.36	3.93	0.51	7.71	4.68	0.47	9.96
20	2.55	0.56	4.55	2.77	0.51	5.43	3.8	0.6	6.33	4.37	0.6	7.28	4.86	0.53	9.17
25	3.12	0.7	4.46	2.9	0.6	4.83	3.69	0.61	6.05	4.32	0.6	7.20	4.78	0.54	8.85
30	2.92	0.72	4.06	2.93	0.65	4.51	3.56	0.66	5.39	4.23	0.66	6.41	4.67	0.62	7.53
35	2.5	0.68	3.68	3.18	0.75	4.24	3.44	0.69	4.99	4.09	0.69	5.93	4.66	0.68	6.85
40	1.82	0.57	3.19	2.43	0.69	3.52	2.94	0.71	4.14	3.6	0.76	4.74	4.49	0.79	5.68
43	1.15	0.39	2.95	1.85	0.61	3.03	2.53	0.67	3.78	2.99	0.7	4.27	4.22	0.79	5.34

ACHP-H08/4R3HA-O 8kW capacity tables

Maximum															
Outdoor air temp.	LWT()														
	5			10			15			20			25		
	CC	PI	EER	CC	PI	EER	CC	PI	EER	CC	PI	EER	CC	PI	EER
-5	/	/	/	/	/	/	6.8	0.65	10.46	8.62	0.78	11.05	9.15	0.73	12.53
0	/	/	/	/	/	/	6.6	0.74	8.92	7.69	0.74	10.39	8.19	0.7	11.70
5	/	/	/	/	/	/	6.41	0.77	8.32	6.75	0.67	10.07	7.23	0.64	11.30
10	/	/	/	/	/	/	6.72	0.77	8.73	8.34	0.87	9.59	8.73	0.82	10.65
15	/	/	/	6.4	0.91	7.03	7.76	1.03	7.53	9.54	1.19	8.02	10.16	1.16	8.76
20	6.09	1.2	5.08	7.47	1.34	5.57	8.79	1.4	6.28	10.72	1.65	6.50	11.56	1.69	6.84
25	6.89	1.51	4.56	8.24	1.66	4.96	9.68	1.71	5.66	11.67	1.93	6.05	13.18	2.05	6.43
30	7.67	1.95	3.93	8.97	2.07	4.33	10.55	2.12	4.98	12.6	2.26	5.58	14.76	2.46	6.00
35	7.83	2.27	3.45	9.21	2.33	3.95	10.65	2.33	4.57	12.18	2.42	5.03	14.03	2.52	5.57
40	7.04	2.55	2.76	7.85	2.4	3.27	9.31	2.56	3.64	10.66	2.54	4.20	12.7	2.86	4.44
43	5.54	2.32	2.39	6.09	2.23	2.73	7.18	2.17	3.31	8.6	2.21	3.89	10.49	2.53	4.15
Normal															
Outdoor air temp.	LWT()														
	5			10			15			20			25		
	CC	PI	EER	CC	PI	EER	CC	PI	EER	CC	PI	EER	CC	PI	EER
-5	/	/	/	/	/	/	5.55	0.47	11.81	7.09	0.55	12.89	7.51	0.53	14.17
0	/	/	/	/	/	/	5.41	0.53	10.21	6.34	0.55	11.53	6.74	0.52	12.96
5	/	/	/	/	/	/	5.27	0.54	9.76	5.5	0.47	11.70	5.95	0.46	12.93
10	/	/	/	/	/	/	5.48	0.57	9.61	6.8	0.63	10.79	7.18	0.61	11.77
15	/	/	/	4.91	0.66	7.44	6.59	0.83	7.94	8.26	0.94	8.79	8.6	0.9	9.56
20	4.84	0.9	5.38	6.12	1.02	6.00	7.4	1.09	6.79	9.28	1.33	6.98	10.12	1.34	7.55
25	5.55	1.14	4.87	6.84	1.27	5.39	8.26	1.36	6.07	10.24	1.55	6.61	11.68	1.62	7.21
30	6.24	1.48	4.22	7.54	1.63	4.63	9.11	1.71	5.33	11.2	1.88	5.96	13.26	2.01	6.60
35	6.19	1.69	3.66	7.64	1.78	4.29	8.86	1.78	4.98	10.69	1.97	5.43	12.83	2.11	6.08
40	5.83	1.95	2.99	6.7	1.89	3.54	8.16	2.07	3.94	9.61	2.09	4.60	11.57	2.31	5.01
43	4.63	1.84	2.52	4.89	1.7	2.88	5.81	1.65	3.52	7.43	1.76	4.22	8.39	1.84	4.56
Minimum															
Outdoor air temp.	LWT														
	5			10			15			20			25		
	CC	PI	EER	CC	PI	EER	CC	PI	EER	CC	PI	EER	CC	PI	EER
-5	/	/	/	/	/	/	3.74	0.3	12.47	4.72	0.35	13.49	5.01	0.33	15.18
0	/	/	/	/	/	/	3.66	0.34	10.76	4.26	0.35	12.17	4.54	0.34	13.35
5	/	/	/	/	/	/	3.02	0.3	10.07	3.19	0.27	11.81	3.41	0.26	13.12
10	/	/	/	/	/	/	3.23	0.31	10.42	3.99	0.34	11.74	4.18	0.33	12.67
15	/	/	/	3.18	0.4	7.95	3.73	0.43	8.67	4.35	0.45	9.67	5.1	0.48	10.63
20	2.65	0.46	5.76	2.91	0.46	6.33	3.88	0.54	7.19	5.29	0.72	7.35	5.92	0.74	8.00
25	2.88	0.55	5.24	3.08	0.52	5.92	4.13	0.63	6.56	5.6	0.79	7.09	6.54	0.85	7.69
30	3.18	0.72	4.42	3.33	0.68	4.90	4.48	0.8	5.60	6.04	0.96	6.29	7.32	1.07	6.84
35	3.06	0.76	4.03	3.78	0.8	4.73	4.65	0.84	5.54	5.9	0.98	6.02	7.26	1.09	6.66
40	2.87	0.9	3.19	3.37	0.87	3.87	4.22	1	4.22	5.34	1.09	4.90	6.77	1.31	5.17
43	1.88	0.64	2.94	2.57	0.81	3.17	3.25	0.85	3.82	4	0.89	4.49	5.51	1.15	4.79

ACHP-H10/4R3HA-O 10kW capacity tables

Maximum															
Outdoor air temp.	LWT()														
	5			10			15			20			25		
	CC	PI	EER	CC	PI	EER	CC	PI	EER	CC	PI	EER	CC	PI	EER
-5	/	/	/	/	/	/	7.31	0.73	10.01	9.27	0.86	10.78	9.83	0.81	12.14
0	/	/	/	/	/	/	7.06	0.81	8.72	8.21	0.85	9.66	8.75	0.8	10.94
5	/	/	/	/	/	/	7.25	0.91	7.97	7.61	0.81	9.40	8.12	0.77	10.55
10	/	/	/	/	/	/	6.91	0.83	8.33	8.53	0.88	9.69	9.16	0.94	9.74
15	/	/	/	6.76	1.13	5.98	8.07	1.09	7.35	9.94	1.19	8.35	11.1	1.26	8.81
20	6.65	1.34	4.96	7.64	1.45	5.27	9.12	1.51	5.97	11.24	1.7	6.61	12.94	1.74	7.44
25	7.6	1.72	4.42	8.73	1.85	4.72	10.34	1.92	5.24	12.47	2.11	5.91	14.4	2.21	6.52
30	8.52	2.2	3.87	9.8	2.34	4.19	11.54	2.43	4.62	13.67	2.61	5.24	15.83	2.82	5.61
35	8.58	2.52	3.40	9.93	2.47	4.02	11.48	2.66	4.21	13.15	2.72	4.83	14.96	2.91	5.14
40	7.09	2.57	2.76	7.9	2.42	3.26	9.36	2.58	3.51	10.71	2.56	4.18	12.75	2.88	4.43
43	5.57	2.35	2.37	6.12	2.26	2.71	7.21	2.2	3.16	8.63	2.24	3.85	10.52	2.56	4.11
Normal															
Outdoor air temp.	LWT()														
	5			10			15			20			25		
	CC	PI	EER	CC	PI	EER	CC	PI	EER	CC	PI	EER	CC	PI	EER
-5	/	/	/	/	/	/	5.96	0.53	11.25	7.61	0.62	12.27	8.05	0.59	13.64
0	/	/	/	/	/	/	5.97	0.58	10.29	6.77	0.61	11.10	7.19	0.57	12.61
5	/	/	/	/	/	/	5.78	0.67	8.63	6.08	0.59	10.31	6.55	0.58	11.29
10	/	/	/	/	/	/	5.62	0.63	8.92	6.94	0.66	10.52	7.52	0.72	10.44
15	/	/	/	5.19	0.82	6.33	6.85	0.88	7.78	8.61	0.95	9.06	9.4	0.98	9.59
20	5.28	1.01	5.23	6.27	1.11	5.65	7.68	1.19	6.45	9.74	1.37	7.11	11.32	1.38	8.20
25	6.12	1.3	4.71	7.25	1.42	5.11	8.82	1.54	5.73	10.94	1.7	6.44	12.77	1.75	7.30
30	6.94	1.67	4.16	8.24	1.83	4.50	9.97	1.95	5.11	12.15	2.15	5.65	14.22	2.29	6.21
35	6.76	1.97	3.43	8.23	1.98	4.16	9.54	2.05	4.65	11.53	2.22	5.19	13.68	2.43	5.63
40	5.88	1.98	2.97	6.75	1.92	3.52	8.21	2.1	3.91	9.66	2.12	4.56	11.62	2.34	4.97
43	4.66	1.87	2.49	4.92	1.73	2.84	5.84	1.68	3.48	7.46	1.79	4.17	8.42	1.87	4.50
Minimum															
Outdoor air temp.	LWT														
	5			10			15			20			25		
	CC	PI	EER	CC	PI	EER	CC	PI	EER	CC	PI	EER	CC	PI	EER
-5	/	/	/	/	/	/	4.02	0.34	11.82	5.07	0.4	12.68	5.39	0.38	14.18
0	/	/	/	/	/	/	3.9	0.38	10.26	4.53	0.39	11.62	4.83	0.37	13.05
5	/	/	/	/	/	/	3.42	0.35	9.77	3.6	0.31	11.61	3.84	0.3	12.80
10	/	/	/	/	/	/	3.28	0.36	9.11	4.03	0.38	10.61	4.33	0.41	10.56
15	/	/	/	3.36	0.5	6.72	3.88	0.47	8.26	4.54	0.46	9.87	5.57	0.53	10.51
20	2.89	0.52	5.56	3	0.5	6.00	4.04	0.59	6.85	5.56	0.74	7.51	6.62	0.77	8.60
25	3.18	0.63	5.05	3.28	0.59	5.56	4.42	0.71	6.23	5.99	0.87	6.89	7.16	0.93	7.70
30	3.54	0.79	4.48	3.65	0.73	5.00	4.91	0.89	5.52	6.56	1.08	6.07	7.87	1.21	6.50
35	3.33	0.89	3.74	4.06	0.89	4.56	5	0.98	5.10	6.35	1.11	5.72	7.73	1.27	6.09
40	2.92	0.93	3.14	3.42	0.9	3.80	4.27	1.03	4.15	5.39	1.12	4.81	6.82	1.34	5.09
43	1.91	0.67	2.85	2.6	0.84	3.10	3.28	0.88	3.73	4.03	0.92	4.38	5.54	1.18	4.69

ACHP-H12/5R3HA-O / ACSHC-H42A5/ASR2DI 12kW maximum cooling capacity

Maximum															
Outdoor air temp.	LWT()														
	5			10			15			20			25		
	CC	PI	EER	CC	PI	EER	CC	PI	EER	CC	PI	EER	CC	PI	EER
-5	/	/	/	/	/	/	10.07	1.34	7.51	10.91	1.48	7.37	11.91	1.43	8.33
0	/	/	/	/	/	/	9.84	1.63	6.04	11.41	1.55	7.36	12.4	1.56	7.95
5	/	/	/	/	/	/	9.66	1.75	5.52	11.95	1.61	7.42	12.92	1.68	7.69
10	/	/	/	/	/	/	11.34	2.1	5.40	12.67	1.97	6.43	14.71	1.99	7.39
15	/	/	/	11.01	2.36	4.67	13.01	2.37	5.49	15.37	2.31	6.65	16.48	2.28	7.23
20	8.3	2.09	3.97	12.67	3.02	4.20	14.68	3.18	4.62	16.45	3.2	5.14	17.05	2.9	5.88
25	10.61	3.05	3.48	14.31	3.66	3.91	16.33	3.96	4.12	17.51	4.06	4.31	17.58	3.49	5.04
30	10.52	3.6	2.92	13.96	4.15	3.36	15.71	3.93	4.00	17.53	4.03	4.35	17.6	3.46	5.09
35	10.4	4.55	2.29	13.58	4.93	2.75	15.04	4.59	3.28	15.85	4.41	3.59	15.77	4.03	3.91
40	8.63	4.58	1.88	10.39	4.38	2.37	11.19	3.97	2.82	12.71	4.1	3.10	13.75	3.82	3.60
43	5.71	3.74	1.53	6.62	3.28	2.02	7.84	3.04	2.58	9.04	3.21	2.82	11.19	3.28	3.41
Normal															
Outdoor air temp.	LWT()														
	5			10			15			20			25		
	CC	PI	EER	CC	PI	EER	CC	PI	EER	CC	PI	EER	CC	PI	EER
-5	/	/	/	/	/	/	8.21	0.98	8.38	8.98	1.06	8.47	9.77	1.04	9.39
0	/	/	/	/	/	/	8.04	1.17	6.87	9.4	1.11	8.47	10.18	1.11	9.17
5	/	/	/	/	/	/	7.84	1.3	6.03	9.7	1.17	8.29	10.59	1.25	8.47
10	/	/	/	/	/	/	9.21	1.56	5.90	11.1	1.43	7.76	12.07	1.48	8.16
15	/	/	/	8.38	1.66	5.05	11	1.84	5.98	13.28	1.78	7.46	13.93	1.71	8.15
20	6.59	1.57	4.20	10.35	2.26	4.58	12.33	2.42	5.10	14.23	2.5	5.69	14.91	2.25	6.63
25	8.51	2.29	3.72	11.84	2.76	4.29	13.9	3.09	4.50	15.35	3.19	4.81	15.58	2.7	5.77
30	8.57	2.73	3.14	11.72	3.2	3.66	13.56	3.29	4.12	14.84	3.36	4.42	14.96	2.99	5.00
35	8.19	3.37	2.43	11.24	3.72	3.02	12.48	3.44	3.63	13.9	3.5	3.97	14.42	3.29	4.38
40	7.14	3.5	2.04	8.87	3.4	2.61	9.8	3.14	3.12	11.46	3.29	3.48	12.52	3.02	4.15
43	4.78	2.95	1.62	5.31	2.46	2.16	6.34	2.25	2.82	7.81	2.49	3.14	8.95	2.32	3.86
Minimum															
Outdoor air temp.	LWT														
	5			10			15			20			25		
	CC	PI	EER	CC	PI	EER	CC	PI	EER	CC	PI	EER	CC	PI	EER
-5	/	/	/	/	/	/	5.5	0.63	8.73	5.98	0.69	8.67	6.52	0.67	9.73
0	/	/	/	/	/	/	5.39	0.75	7.19	6.26	0.71	8.82	6.8	0.72	9.44
5	/	/	/	/	/	/	4.47	0.67	6.67	5.5	0.62	8.87	5.95	0.64	9.30
10	/	/	/	/	/	/	5.34	0.82	6.51	6.44	0.77	8.36	6.93	0.78	8.88
15	/	/	/	5.33	0.98	5.44	6.13	0.95	6.45	6.89	0.83	8.30	8.17	0.9	9.08
20	3.59	0.79	4.54	4.82	0.98	4.92	6.38	1.17	5.45	8.07	1.34	6.02	8.68	1.24	7.00
25	4.35	1.1	3.95	5.2	1.12	4.64	6.84	1.41	4.85	8.33	1.63	5.11	8.7	1.43	6.08
30	4.35	1.28	3.40	5.12	1.27	4.03	6.63	1.48	4.48	8.01	1.67	4.80	8.3	1.56	5.32
35	4.01	1.51	2.66	5.49	1.67	3.29	6.5	1.62	4.01	7.64	1.74	4.39	8.17	1.71	4.78
40	3.51	1.61	2.18	4.43	1.58	2.80	5.07	1.51	3.36	6.37	1.72	3.70	7.35	1.71	4.30
43	1.97	1	1.97	2.81	1.15	2.44	3.56	1.14	3.12	4.23	1.24	3.41	5.89	1.44	4.09

ACHP-H14/5R3HA-O / ACSHC-H48A5/ASR2DI 14kW capacity tables

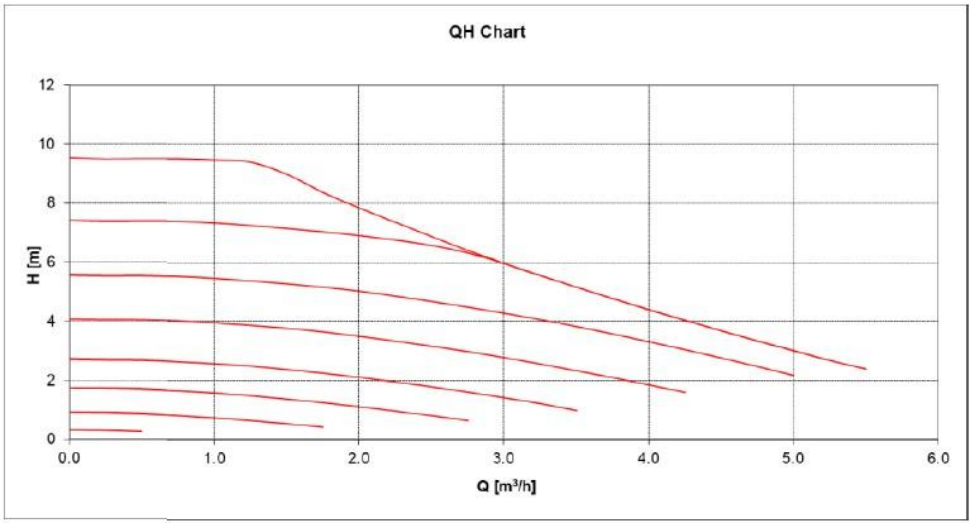
Maximum															
Outdoor air temp.	LWT()														
	5			10			15			20			25		
	CC	PI	EER	CC	PI	EER	CC	PI	EER	CC	PI	EER	CC	PI	EER
-5	/	/	/	/	/	/	10.57	1.38	7.66	11.47	1.53	7.50	12.57	1.48	8.49
0	/	/	/	/	/	/	10.36	1.74	5.95	11.96	1.65	7.25	13.06	1.66	7.87
5	/	/	/	/	/	/	10.16	1.84	5.52	12.59	1.69	7.45	13.59	1.76	7.72
10	/	/	/	/	/	/	11.88	2.25	5.28	13.68	1.99	6.87	14.78	2.01	7.35
15	/	/	/	11.58	2.41	4.80	13.68	2.41	5.68	16.08	2.41	6.67	16.98	2.41	7.05
20	8.73	2.25	3.88	13.36	3.24	4.12	15.46	3.41	4.53	16.46	3.22	5.11	17.06	2.92	5.84
25	11.17	3.24	3.45	15.07	3.89	3.87	17.17	4.21	4.08	17.57	4.06	4.33	17.67	3.49	5.06
30	11.08	4.02	2.76	14.68	4.59	3.20	16.48	4.62	3.57	16.78	4.24	3.96	16.68	3.8	4.39
35	10.99	4.93	2.23	14.29	5.44	2.63	15.89	5	3.18	15.89	4.56	3.48	15.89	4.24	3.75
40	8.69	4.65	1.87	10.45	4.45	2.35	11.28	4.04	2.79	12.78	4.17	3.06	13.78	3.89	3.54
43	5.77	3.83	1.51	6.68	3.37	1.98	7.9	3.13	2.52	9.1	3.3	2.76	11.27	3.37	3.34
Normal															
Outdoor air temp.	LWT()														
	5			10			15			20			25		
	CC	PI	EER	CC	PI	EER	CC	PI	EER	CC	PI	EER	CC	PI	EER
-5	/	/	/	/	/	/	8.64	1	8.64	9.45	1.09	8.67	10.29	1.07	9.62
0	/	/	/	/	/	/	8.46	1.25	6.77	9.89	1.18	8.38	10.76	1.18	9.12
5	/	/	/	/	/	/	8.26	1.37	6.03	10.2	1.24	8.23	11.19	1.32	8.48
10	/	/	/	/	/	/	9.7	1.67	5.81	11.18	1.45	7.71	12.08	1.5	8.05
15	/	/	/	8.82	1.76	5.01	11.58	1.94	5.97	13.98	1.88	7.44	14.38	1.77	8.12
20	6.93	1.69	4.10	10.86	2.43	4.47	12.96	2.6	4.98	14.26	2.52	5.66	14.96	2.27	6.59
25	8.97	2.44	3.68	12.47	2.94	4.24	14.67	3.28	4.47	15.37	3.19	4.82	15.67	2.7	5.80
30	9.02	3.05	2.96	12.38	3.55	3.49	14.28	3.63	3.93	14.88	3.43	4.34	14.98	3.03	4.94
35	8.66	3.68	2.35	11.89	4.12	2.89	13.19	3.77	3.50	13.99	3.64	3.84	14.49	3.47	4.18
40	7.2	3.57	2.02	8.93	3.47	2.57	9.86	3.21	3.07	11.48	3.36	3.42	12.58	3.09	4.07
43	4.84	3.04	1.59	5.37	2.55	2.11	6.4	2.34	2.74	7.87	2.58	3.05	9.01	2.41	3.74
Minimum															
Outdoor air temp.	LWT														
	5			10			15			20			25		
	CC	PI	EER	CC	PI	EER	CC	PI	EER	CC	PI	EER	CC	PI	EER
-5	/	/	/	/	/	/	5.79	0.65	8.91	6.3	0.71	8.87	6.87	0.69	9.96
0	/	/	/	/	/	/	5.69	0.8	7.11	6.6	0.76	8.68	7.17	0.77	9.31
5	/	/	/	/	/	/	4.71	0.73	6.45	5.8	0.67	8.66	6.27	0.7	8.96
10	/	/	/	/	/	/	5.64	0.89	6.34	6.49	0.79	8.22	6.98	0.8	8.73
15	/	/	/	5.63	1.05	5.36	6.46	1.02	6.33	7.26	0.9	8.07	8.44	0.96	8.79
20	3.78	0.86	4.40	5.08	1.07	4.75	6.72	1.26	5.33	8.11	1.36	5.96	8.72	1.26	6.92
25	4.6	1.17	3.93	5.5	1.19	4.62	7.22	1.5	4.81	8.39	1.63	5.15	8.76	1.43	6.13
30	4.59	1.45	3.17	5.4	1.43	3.78	6.99	1.66	4.21	8.05	1.73	4.65	8.35	1.6	5.22
35	4.26	1.7	2.51	5.82	1.9	3.06	6.88	1.82	3.78	7.72	1.85	4.17	8.25	1.85	4.46
40	3.57	1.68	2.13	4.49	1.65	2.72	5.13	1.58	3.25	6.43	1.79	3.59	7.41	1.78	4.16
43	2.03	1.09	1.86	2.87	1.24	2.31	3.62	1.23	2.94	4.29	1.33	3.23	5.95	1.53	3.89

ACHP-H16/5R3HA-O / ACSHC-H60A5/ASR2DI 16kW capacity tables

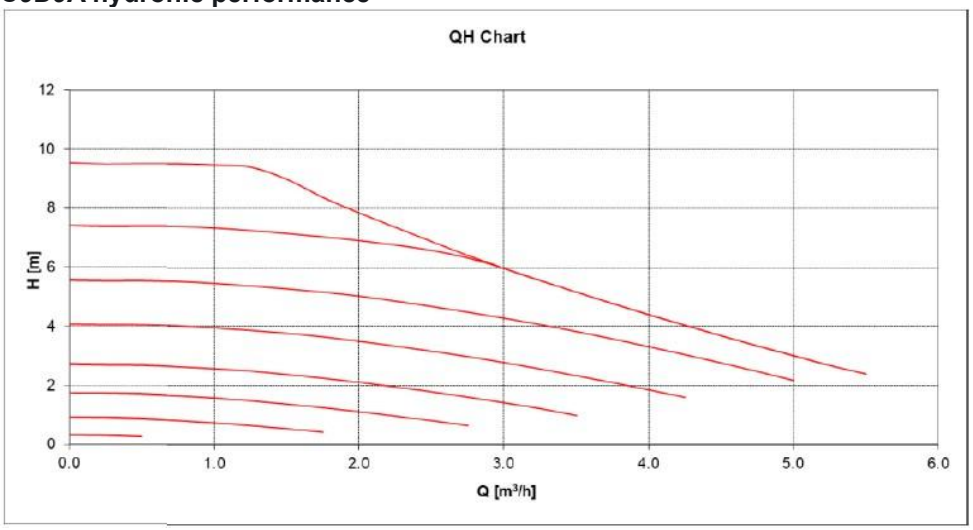
Maximum															
Outdoor air temp.	LWT()														
	5			10			15			20			25		
	CC	PI	EER	CC	PI	EER	CC	PI	EER	CC	PI	EER	CC	PI	EER
-5	/	/	/	/	/	/	10.62	1.41	7.53	11.52	1.56	7.38	12.62	1.51	8.36
0	/	/	/	/	/	/	10.4	1.77	5.88	12	1.68	7.14	13.1	1.69	7.75
5	/	/	/	/	/	/	10.22	1.84	5.55	12.65	1.69	7.49	13.65	1.76	7.76
10	/	/	/	/	/	/	11.94	2.31	5.17	13.74	2.05	6.70	14.84	2.07	7.17
15	/	/	/	12.02	2.56	4.70	14.12	2.57	5.49	16.72	2.5	6.69	17.62	2.43	7.25
20	9.61	2.55	3.77	14.62	3.67	3.98	16.42	3.68	4.46	17.52	3.48	5.03	18.12	3.16	5.73
25	12.33	2.67	4.62	16.53	4.4	3.76	18.03	4.55	3.96	18.53	4.39	4.22	18.53	3.78	4.90
30	12.13	4.54	2.67	16.13	5.19	3.11	17.83	5.13	3.48	17.73	4.74	3.74	17.53	4.1	4.28
35	12.01	5.48	2.19	15.71	6.06	2.59	17.11	5.66	3.02	16.91	5.02	3.37	16.81	4.53	3.71
40	9.55	5.21	1.83	11.53	4.99	2.31	12.33	4.52	2.73	14.03	4.79	2.93	15.23	4.46	3.41
43	6.59	4.61	1.43	7.94	4.23	1.88	9.62	4.02	2.39	11.11	4.24	2.62	12.61	3.96	3.18
Normal															
Outdoor air temp.	LWT()														
	5			10			15			20			25		
	CC	PI	EER	CC	PI	EER	CC	PI	EER	CC	PI	EER	CC	PI	EER
-5	/	/	/	/	/	/	8.69	1.03	8.44	9.5	1.12	8.48	10.34	1.1	9.40
0	/	/	/	/	/	/	8.5	1.28	6.64	9.93	1.21	8.21	10.8	1.21	8.93
5	/	/	/	/	/	/	8.32	1.37	6.07	10.26	1.24	8.27	11.25	1.32	8.52
10	/	/	/	/	/	/	9.76	1.73	5.64	11.24	1.51	7.44	12.14	1.56	7.78
15	/	/	/	9.14	1.83	4.99	12.02	2.02	5.95	14.42	1.95	7.39	14.82	1.84	8.05
20	7.63	1.92	3.97	12.02	2.75	4.37	13.72	2.82	4.87	15.12	2.74	5.52	15.92	2.47	6.45
25	9.87	2.77	3.56	13.73	3.33	4.12	15.43	3.55	4.35	16.23	3.45	4.70	16.43	2.93	5.61
30	9.91	3.45	2.87	13.53	3.93	3.44	15.43	3.95	3.91	15.83	3.75	4.22	15.73	3.19	4.93
35	9.48	4.09	2.32	13.01	4.59	2.83	14.21	4.27	3.33	14.81	4.02	3.68	15.31	3.72	4.12
40	7.91	3.99	1.98	9.81	3.88	2.53	10.83	3.59	3.02	12.63	3.85	3.28	13.83	3.53	3.92
43	5.52	3.66	1.51	6.37	3.19	2.00	7.78	3	2.59	9.59	3.31	2.90	10.07	2.83	3.56
Minimum															
Outdoor air temp.	LWT														
	5			10			15			20			25		
	CC	PI	EER	CC	PI	EER	CC	PI	EER	CC	PI	EER	CC	PI	EER
-5	/	/	/	/	/	/	5.84	0.68	8.59	6.35	0.74	8.58	6.92	0.72	9.61
0	/	/	/	/	/	/	5.73	0.83	6.90	6.64	0.79	8.41	7.21	0.8	9.01
5	/	/	/	/	/	/	4.77	0.73	6.53	5.86	0.67	8.75	6.33	0.7	9.04
10	/	/	/	/	/	/	5.7	0.95	6.00	6.55	0.85	7.71	7.04	0.86	8.19
15	/	/	/	5.85	1.11	5.27	6.7	1.08	6.20	7.53	0.96	7.84	8.76	1.01	8.67
20	4.13	1	4.13	5.59	1.23	4.54	7.15	1.39	5.14	8.63	1.49	5.79	9.27	1.38	6.72
25	5.06	1.34	3.78	6.05	1.36	4.45	7.61	1.64	4.64	8.84	1.77	4.99	9.23	1.56	5.92
30	5.04	1.65	3.05	5.94	1.62	3.67	7.55	1.85	4.08	8.55	1.94	4.41	8.78	1.74	5.05
35	4.65	1.86	2.50	6.36	2.08	3.06	7.4	2.04	3.63	8.17	2.02	4.04	8.73	1.95	4.48
40	3.92	1.86	2.11	4.93	1.82	2.71	5.64	1.75	3.22	7.06	2.03	3.48	8.15	2.02	4.03
43	2.29	1.3	1.76	3.37	1.54	2.19	4.36	1.56	2.79	5.18	1.69	3.07	6.64	1.78	3.73

Part7 Hydronic Performance

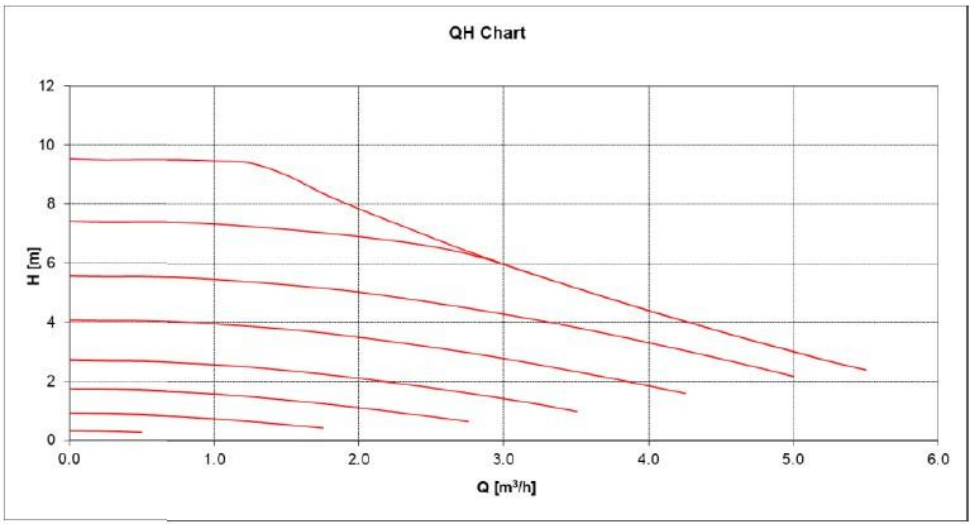
AHM-P24R2/C9D3A hydronic performance



AHM-P36R25/C9D9A hydronic performance



AHM-P60R25/C9D9A hydronic performance


QH Chart
H [m]
12
10
8
6
4
2
0
0.0
1.0
2.0
3.0
4.0
5.0
6.0
Q [m³/h]

Part8 Sound Levels

1. Sound pressure levels[1]

Model	dB(A)
ACHP-H04/4R3HA-O	43
ACHP-H06/4R3HA-O	44
ACHP-H08/4R3HA-O	45
ACHP-H10/4R3HA-O	48
ACHP-H12/5R3HA-O / ACSHC-H42A5/ASR2DI	49
ACHP-H14/5R3HA-O / ACSHC-H48A5/ASR2DI	50
ACHP-H16/5R3HA-O / ACSHC-H60A5/ASR2DI	54

Notes

1.Sound pressure level is measured at a position1m in front of the unit and (1+H)/2m (where H is the height of the unit)above the floor in a semi anechoic chamber.During actual operation operation,sound pressure levels may be higher as a result of ambient noise.

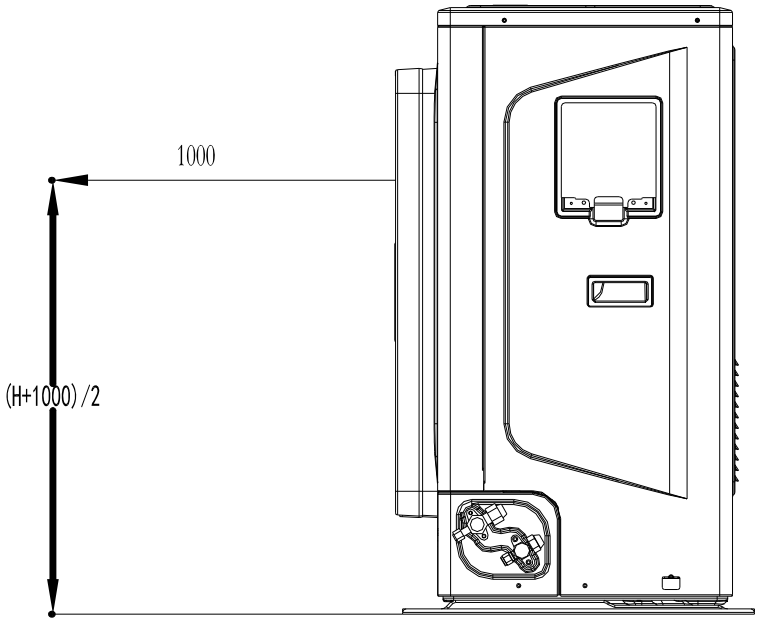
2. Outdoor air temperature7℃ DB,85%R.H.;EWT30℃,LWT35℃.

3. Outdoor air temperature 7℃ DB, 85% R.H.; EWT 40℃, LWT 45℃.

4. Outdoor air temperature 7℃ DB,85% R.H.; EWT 47℃,LWT 55℃.

5. Sound pressure level is the maximum value tested under the three conditions of Notes2, Notes3 and Notes4.

2. Sound pressure level measurement(unit:mm)



Part9 Installation

1. Installation

1.1 Acceptance and Unpacking

- When units are delivered check whether any damage occurred during shipment. If there is damage to the surface or outside of a unit, submit a written report to the shipping company.
- Check that the model, specifications and quantity of the units delivered are as ordered.
- Check that all accessories ordered have been included.Retain the Owner's Manual for future refere

1.2 Hoisting

- Do not remove any packaging before hoisting. If units are not packaged or if the packaging is damaged, use suitable boards or packing material to protect the units.
- Hoist one unit at a time, using two ropes to ensure stability.
- Keep units upright during hoisting the outdoor unit, ensuring that the angle to the vertical does not exceed 30

1.3 Outdoor unit

1.3.1 Placement Considerations

Placement of the outdoor unit should take account of the following considerations:

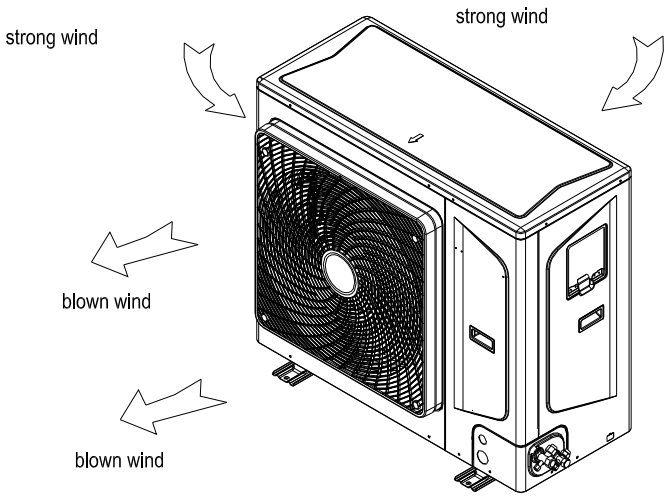
- Outdoor units should not be exposed to direct radiation from a hightemperature heat source.
- Outdoor units should not be installed in positions where dust or dirt may affect heat exchangers.
- Outdoor units should not be installed in locations where exposure to oil or to corrosive or harmful gases, such as acidic or alkaline gases, may occur.
- Outdoor units should not be installed in locations where exposure to salinity may occur.
- Outdoor units should be installed in welldrained, wellventilated positions
- Outdoor units should be installed in locations where the noise from the unit will not disturb neighbors.

1.3.2 Strong Wind Installation

Wind of 5m/s or more blowing against an outdoor units air outlet blocks the flow of air through the unit, leading to deterioration in unit capacity, accelerated frost accumulation when in heating mode or domestic hot water mode, and potential disruption to operation due to increased pressure in the refrigerant circuit. Exposure to very strong wind can also cause the fan to rotate excessively fast, potentially leading to damage to the fan. In locations where exposure to high winds may occur should take account of the following considerations:

- For installation of the outdoor unit in a place where the wind direction can be foreseen. Set the outlet side at a right angle to the direction of the wind, refer to Figure 3-2.1.
- If turn the air outlet side toward the building's wall, fence or screen. Make sure there is enough room to do the installation

Strong wind installation direction

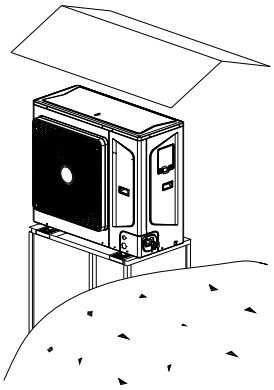


1.3.3 Cold Climatel nstallation

In cold climate locations installation should take account of the following considerations:

- Never install the unit at a site where the suction side may be exposed directly to wind.
- To prevent exposure to wind, install a baffle plate on the air discharge side of the unit.
- To prevent exposure to wind, install the unit with its suction side facing the wall.
- In areas of heavy snowfall, a canopy should be installed to prevent snow entering the unit. Additionally, the height of the base structure should be increased so as to raise the unit further off the ground.

Snow shielding



1.3.4 Hot Climate Installation

As the outdoor temperature is measured via the out door ambient temperature sensor,make sure to install the outdoor unit in the shade,or a canopy should be constructed to avoid direct sunlight. So that it is not influenced by the sunsheat,otherwise system protection may occur.

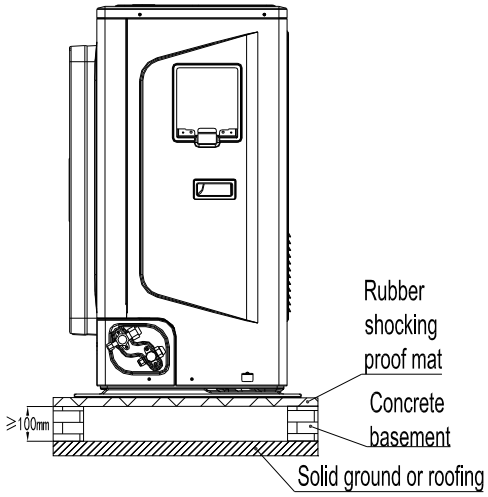
1.3.5 Base Structure

Outdoor unit base structure design should take account of the following considerations:

- A solid base prevent sexcess vibration and noise.Outdoor unit bases should be constructed on solid ground or on structures of sufficien tstrength to support the units weight.
- Bases should be at least 100mm high to provide sufficient drainage and to prevent water ingress into the base of the unit.
- Either steel or concrete bases may be suitable.
- Outdoor units should no tbe installed on supporting structures that could be damaged by water building in the event of a blocked drain.

- Fix the unit securely to foundation by means of the 10 expansion bolt. It is best to screw in the foundation bolts until their length is 20 mm from the foundation surface.

Outdoor unit fixing



1.3.6 Drainage

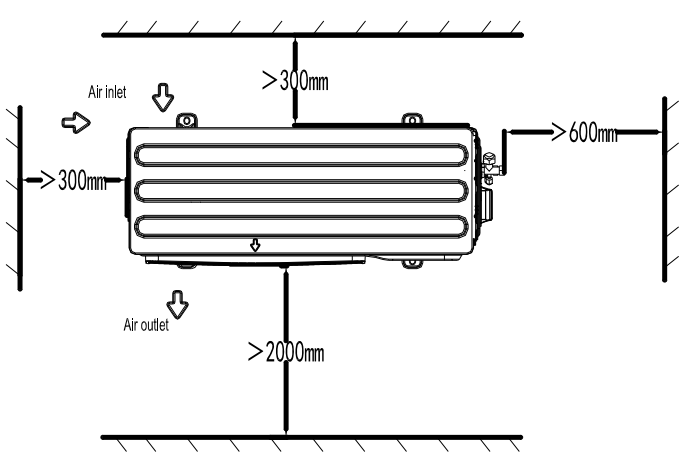
Drainage ditch should be provided to allow drainage of condensate that may form on the air side heat exchanger when the unit is running in heating mode or domestic hot water mode. The drainage should ensure that condensate is directed away from roadways and footpaths, especially in locations where the climate is such that condensate may freeze.

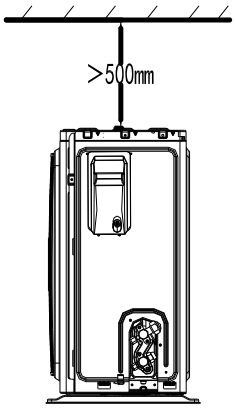
1.3.7 Spacing

- **Single unit installation**

Outdoor unit must be spaced such that sufficient air may flow through each unit. Sufficient airflow across heat exchangers is essential for outdoor units to function properly.

Single unit installation requirement (Unit: mm)

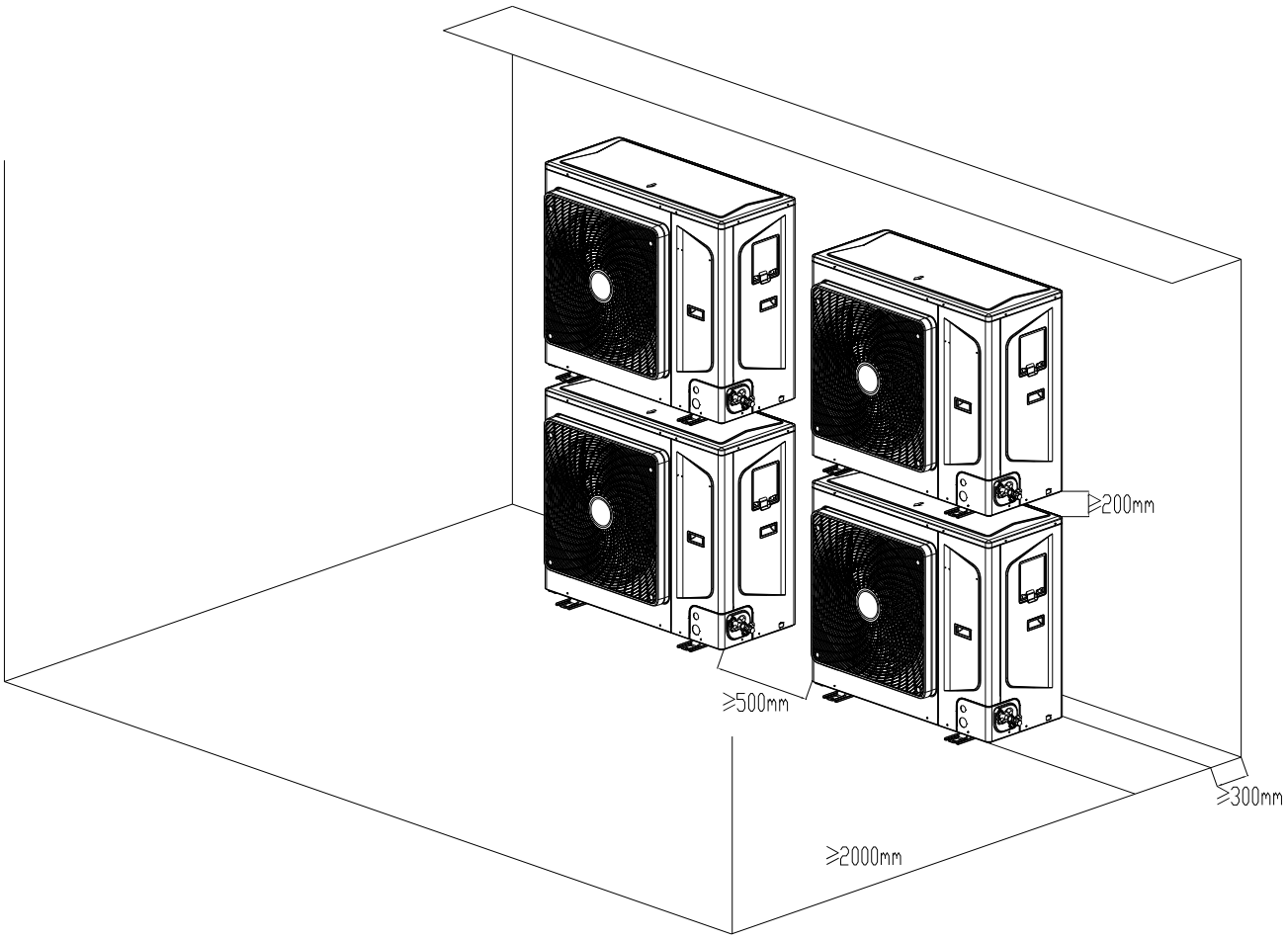




- **Stacked installation**

Show the minimum spaces that must be allowed between units and the minimum distances from obstacles in front of and behind units.

Installation with obstacles in front of the unit and behind the unit

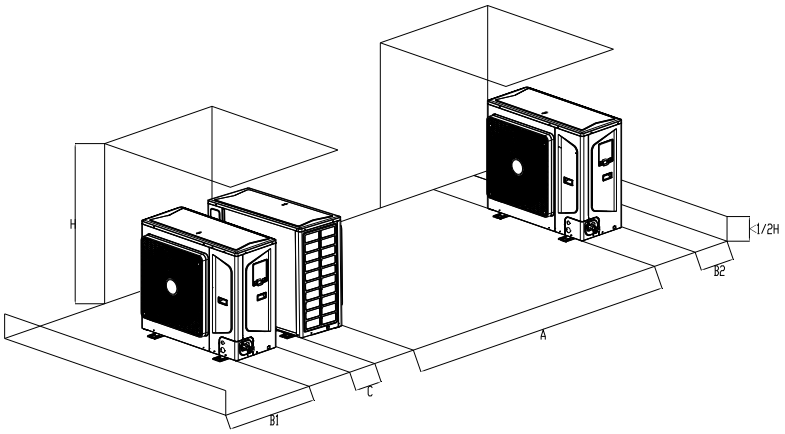


Minimum spacing from obstacles in front of the unit

Model name	Amm
ACHP-H04/4R3HA-O	2000
ACHP-H06/4R3HA-O	
ACHP-H08/4R3HA-O	
ACHP-H10/4R3HA-O	
ACHP-H12/5R3HA-O / ACSHC-H42A5/ASR2DI	
ACHP-H14/5R3HA-O / ACSHC-H48A5/ASR2DI	
ACHP-H16/5R3HA-O / ACSHC-H60A5/ASR2DI	

Installationin Rows

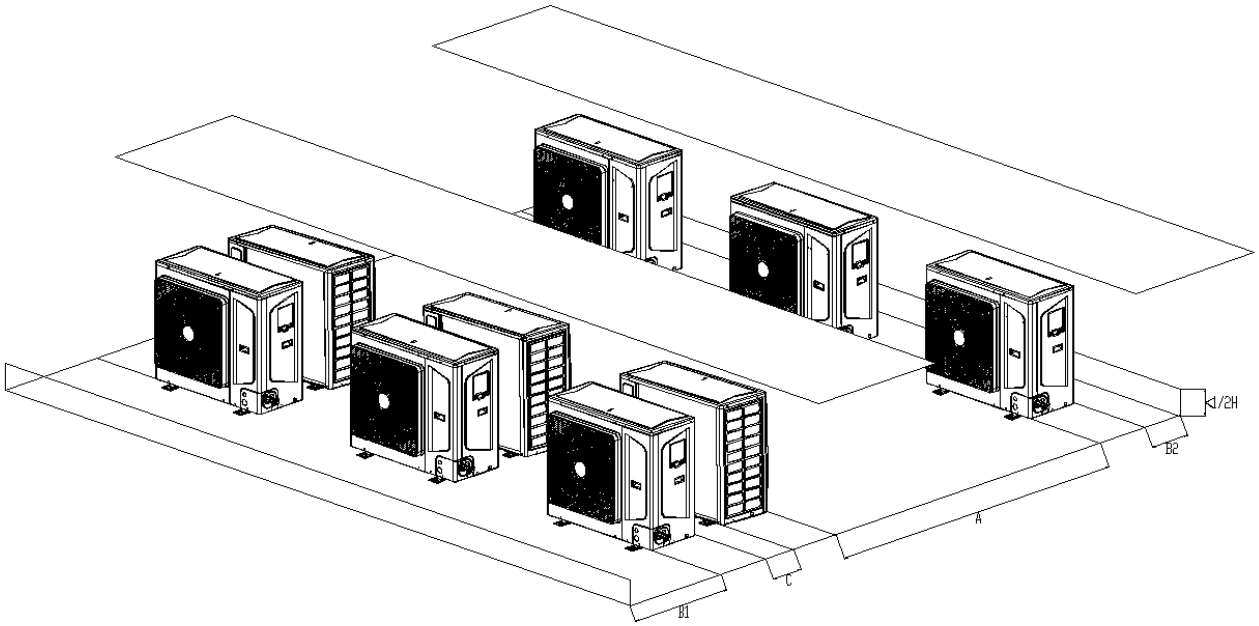
Single row installation



Single row installation spacing requirements

Model name	Amm	B1mm	B2mm	Cmm
ACHP-H04/4R3HA-O	3000	2000	150	600
ACHP-H06/4R3HA-O				
ACHP-H08/4R3HA-O				
ACHP-H10/4R3HA-O				
ACHP-H12/5R3HA-O / ACSHC-H42A5/ASR2DI				
ACHP-H14/5R3HA-O / ACSHC-H48A5/ASR2DI				
ACHP-H16/5R3HA-O / ACSHC-H60A5/ASR2DI				

Multi row installation



Multiple row installation spacing requirements

Modelname	Amm	B1mm	B2mm	Cmm
ACHP-H04/4R3HA-O	3000	2000	300	600
ACHP-H06/4R3HA-O				
ACHP-H08/4R3HA-O				
ACHP-H10/4R3HA-O				
ACHP-H12/5R3HA-O / ACSHC-H42A5/ASR2DI				
ACHP-H14/5R3HA-O / ACSHC-H48A5/ASR2DI				
ACHP-H16/5R3HA-O / ACSHC-H60A5/ASR2DI				

1.4 Hydronic box

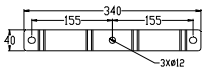
1.4.1 Placement Considerations

- Hydronic box should be installed in positions that are as close as possible to the heat emitters.
- Hydronic box should be installed in positions that are sufficiently close to the desired position of the wired controller that the controllers wiring length limitation will not be exceeded.
- In systems that are configured to heat domestic hot water, hydronic box should be installed in positions that are sufficiently close to the domestic hot water tank that the temperature sensor wiring length limitations will not be exceeded. .

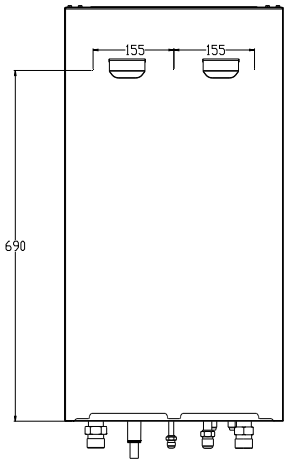
1.4.2 Mounting the hydronic box

1、Fix the wall mounting bracket to the wall using appropriate plugs and screws.

Wall bracket



Hydronic box backside



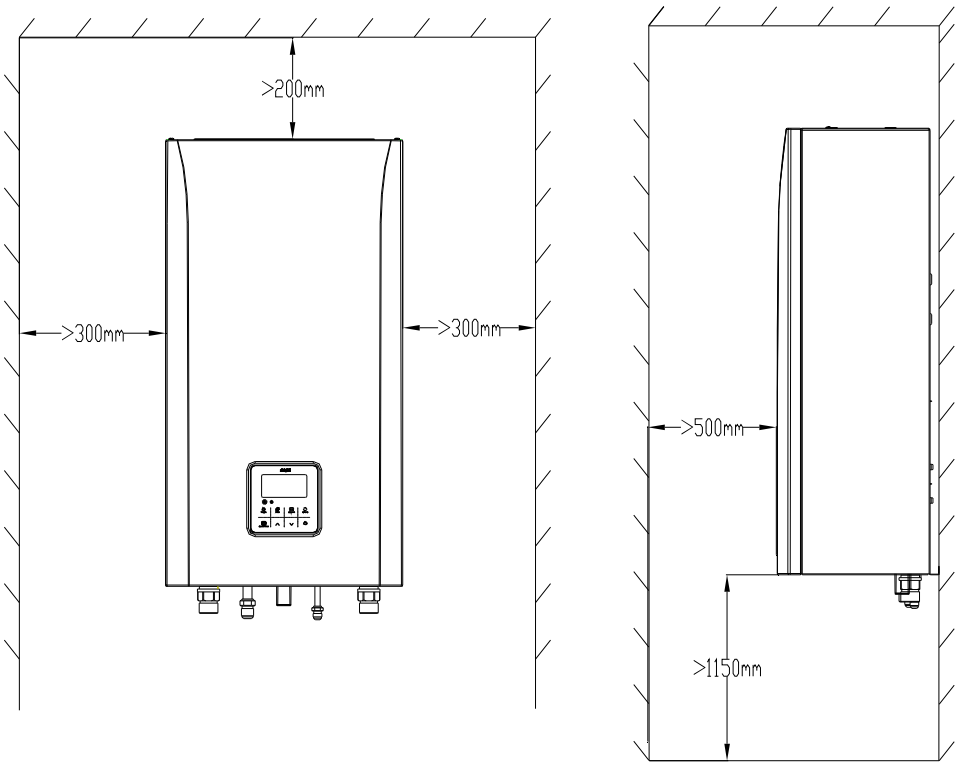
2、Make sure the wall mounting bracket is completely level. When the unit is not installed level, air might get trapped in the water circuit resulting in malfunctioning of the unit. Pay special attention to this when installing the hydronic box to prevent overflow of the drain pan.

3、Hang the hydronic box on the wall mounting bracket

4、Fix the hydronic box at the bottom inside using appropriate plugs and screws. The hydronic box is equipped with 2 holes at the bottom outer edges of the frame.

1.4.3 Service space requirement

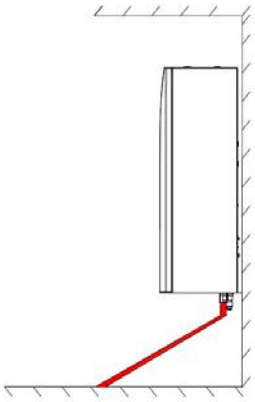
Service space requirement(unit:mm)



1.4.4 Drainage

The water pan is placed at the bottom of the hydronic box, and a drain pipe extends out of the machine. During installation, an additional pan water pipe needs to be connected to it and lead the water to the drain.；

The drainage connections of hydronic box refer to below



2. Refrigerant Pipework

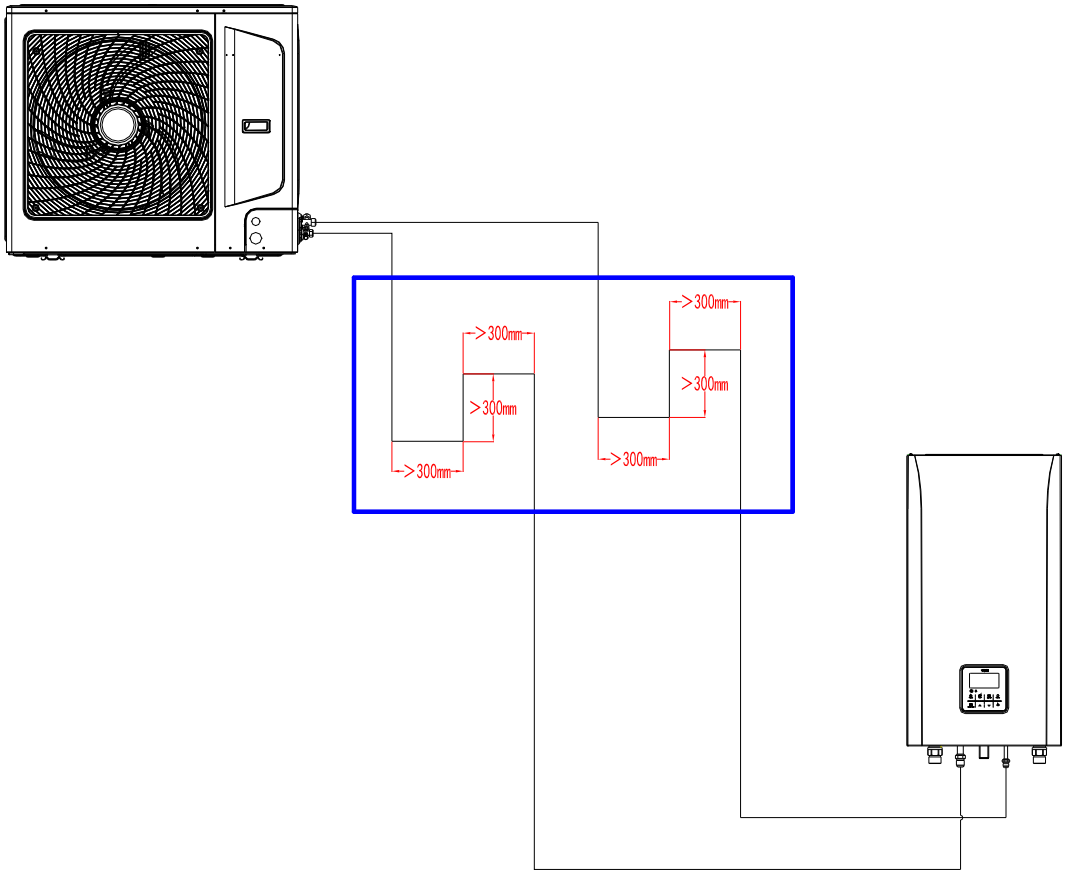
2.1 Permitted Piping Length and Level Difference

The piping length and level difference limitations that apply are summarized. Before installation, it is necessary to check if the piping length and height difference are meeting the requirements.

Permitted Piping Length and Level Difference

Models	4-16kW
Max. piping length	50m
Max. height difference when outdoor unit is upside	20m
Max. height difference when outdoor unit is downside	20m

Connect method



The largest level difference between indoor unit and outdoor unit should not exceed 20m. Additionally: If the outdoor unit is above and the level difference is greater than 20m, it is recommended that an oil return bend with dimensions as specified in Figure is set every 5m in the gas pipe of the main pipe;.

2.2 Pipe Size and Connect method

Refrigerant pipe connection

Models	4/6kW	8/10kW	12-16kW
Pipe size	Liquid side (9.52); Gas side (15.9)	Liquid side (9.52); Gas side (15.9)	Liquid side (9.52); Gas side (15.9)
Connect method	Bell Mouth	Bell Mouth	Bell Mouth

2.3 Procedure and Principles

2.3.1Installation procedure

Notes for installers：Installation of the refrigerant piping system should proceed in the following order:

Pipe insulation → Pipe brazing and installation→Pipe flushing→Gas tightness test →Joint insulation→Vacuum drying

Note: Pipe flushing should be performed once the brazed connections have been completed with the exception of the final connections to the indoor units. That is, flushing should be performed once the outdoor units have been connected but before the indoor units are connected.

2.3.2 Three principles for refrigerant piping

Three principles	Reasons for principles	Measure
Clean	Particles such as oxide produced during brazing and/or building dust can lead to compressor malfunction	1.Seal piping during storage 2.Flow nitrogen during brazing 3.After brazing is complete, the lines are flushed
DRY	Moisture can lead to ice formation or oxidization of internal components leading to abnormal operation or compressor damage	1.Pipe flushing 2.Vacuum drying
SEALED	Imperfect seals can lead to refrigerant leakage	1.The line installation operator must have skilled skills 2.Line air tightness check 3.After brazing is complete, the lines are flushed

2.4 Storing Copper Piping

2.4.1 Pipe delivery, storage and sealing

Notes for installers

- Ensure that piping does not get bent or deformed during delivery or whilst stored.
- On construction sites store piping in a designated location.
- To prevent dust or moisture entering, piping should be kept sealed whilst in storage and until it is about to beconnected. If piping is to be used soon, seal the openings with plugs or adhesive tape. If piping is to be stored for a long time, charge the piping with nitrogen at 0.20.5MPa and seal the openings by brazing.
- Storing piping directly on the ground risks dust or water ingress. Wooden supports can be used to raise pipingoff the ground.
- During installation, ensure that piping to be inserted through a hole in a wall is sealed to ensure dust and/orfragments of wall do not enter.
- Be sure to seal piping being installed outdoors (especially if being installed vertically) to prevent rain entering.

2.5 Manipulating Copper Piping

2.5.1 Deoiling

Notes for installers

- Lubrication oil used during some copper pipe manufacturing processes can cause deposits to form in R32 refrigerant systems, causing system errors. Oilfree copper piping should therefore be selected. If ordinary (oily) copper piping is used, it must be cleaned with gauze dipped in tetrachloroethylene solution prior to installation.

Caution:

- Never use carbon tetrachloride (CCl4) for pipe cleansing or flushing, as doing so will seriously damage the system.

2.5.2 Cutting copper piping and removing burrs

Notes for installers

- Use a pipe cutter rather than a saw or cutting machine to cut piping. Rotate the piping evenly and slowly, applying even force to ensure that the piping does not become deformed during cutting. Using a saw or cutting machine to cut piping runs the risk of copper shavings entering the piping. Copper shavings are difficult to remove and pose a serious risk to the system if they enter the compressor or block the throttling unit.
- After cutting using a pipe cutter, use a reamer/scraper to remove any burrs that have formed at the opening,keeping the opening of the piping downwards to avoid copper shavings from entering the piping.
- Remove burrs carefully to avoid scratches, which may prevent a proper seal being formed and lead to refrigerant leakage.

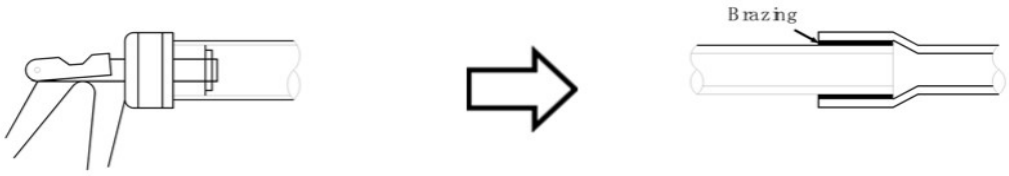
2.5.3 Expanding copper piping ends

- Ends of copper piping can be expanded so that another length of piping can be inserted and the joint brazed.
- Insert the expanding head of the pipe expander into the pipe. After completing pipe expansion, rotate the copper pipe a few degrees to rectify the straight line mark left by the expanding head.

Caution

- Ensure that the expanded section of piping is smooth and even. Remove any burrs that remain after cutting.

Expanding copper piping ends



2.5.4 Flared joints

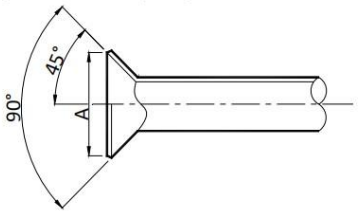
Flared joints should be used where a screw thread connection is required

Notes for installers

- Before flaring 1/2H (half hard) piping, anneal the end of the pipe to be flared.
- Remember to place the flare nut on the piping before flaring.
- Ensure the flared opening is not cracked, deformed or scratched, otherwise it will not form a good seal and refrigerant leakage may occur.
- The diameter of the flared opening should be within the ranges specified
- When connecting a flared joint, apply some compressor oil to the inner and outer surfaces of the flared opening to facilitate the connection and rotation of the flare nut, ensure firm connection between the sealing

surface and the bearing surface, and avoid the pipe becoming deformed

Flared opening size ranges

Pipe (mm)	Flared opening diameter (A) (mm)	Flared opening
6.35	8.7-9.1	
9.53	12.8-13.2	
12.7	16.2-16.6	
15.9	19.3-19.7	
19.1	23.6-24.0	

2.5.5 Bending piping

Bending copper piping reduces the number of brazed joints required and can improve quality and save material

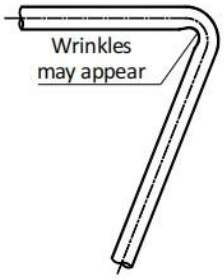
Piping bending methods

- Hand bending is suitable for thin copper piping (6. 35mm 12. 7mm).
- Mechanical bending (using a bending spring, manual bending machine or powered bending machine) is suitable for a wide range of diameters (6. 35mm 54.0mm).

Pipe bending in excess of 90

Caution

- When using a spring bender, ensure that the bender is clean before inserting it in the piping.
- After bending a copper pipe, ensure that there are no wrinkles or deformation on either side of the pipe.
- Ensure that bend angles do not exceed 90, otherwise wrinkles may appear on the inner side of the pipe, and the pipe may buckle or crack.
- Do not use a pipe that has buckled during the bending process; ensure that the cross section at the bend is greater than 2/3 of the original area.



2.6 Refrigerant Piping Supports

When the air conditioning is running, the refrigerant piping will deform (shrink, expand and droop). To avoid damage to piping, hangers or supports should be spaced as per the criteria. In general, the gas and liquid pipes should be suspended in parallel and the interval between support points should be selected according to the diameter of the gas pipe.

Refrigerant piping support spacings		
Pipe (mm)	Interval between support points (m)	
	Horizontal Piping	Vertical Piping
20	1	1.5
20-40	1.5	2
40	2	2.5

Suitable insulation should be provided between the piping and the supports. If wooden dowels or blocks are to be used, use wood that has undergone preservative treatment.

Changes in refrigerant flow direction and refrigerant temperature result in movement, expansion and shrinkage of the refrigerant piping. Piping should therefore not be fixed too tightly, otherwise stress

concentrations may occur in the piping, with the potential for rupturing.

2.7 Brazing

Care must be taken to prevent oxide forming on the inside of copper piping during brazing. The presence of oxide in a refrigerant system adversely affects the operation of valves and compressors, potentially leading to low efficiency or even compressor failure. To prevent oxidation, during brazing nitrogen should be flowed through the refrigerant piping.

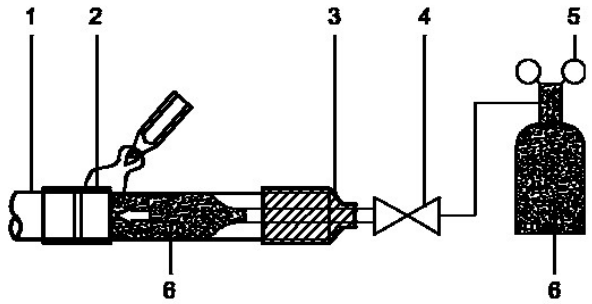
Warning

- Never flow oxygen through piping as doing so aids oxidation and could easily lead to explosion and as such is extremely dangerous.
- Take appropriate safety precautions such as having a fire extinguisher to hand whilst brazing

Flowing nitrogen during brazing

- Use a pressure reducing valve to flow nitrogen through copper piping at 0. 20. 3MPa during brazing.
- Start the flow before brazing starts and ensure that the nitrogen continuously passes through the section being brazed until the brazing is complete and the copper has cooled down completely.

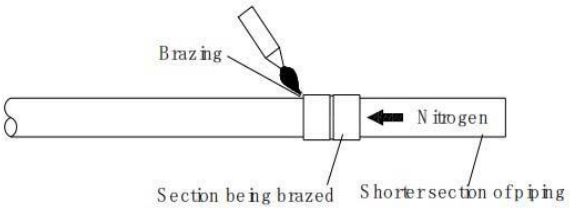
Flowing nitrogen through piping during brazing

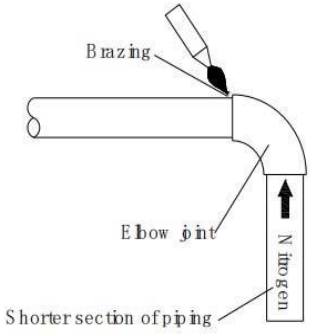


Number	Name
1	Copper piping
2	Section being brazed
3	Nitrogen connection
4	Hand valve
5	Pressurereducing valve
6	Nitrogen

- When joining a shorter section of piping to a longer section, flow nitrogen from the shorter side to allow better displacement of air with nitrogen.
- If the distance from the point where nitrogen enters the piping to the joint to be brazed is long, ensure that the nitrogen is flowed for sufficient time to discharge all the air from the section to be brazed before commencing brazing.

Flowing nitrogen from shorter side during brazing

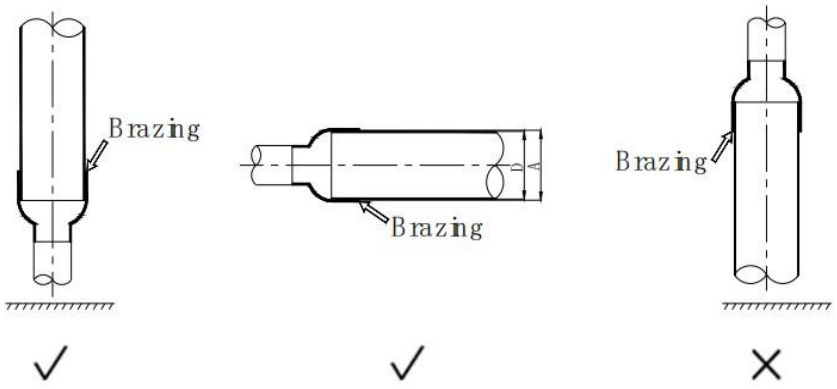




Piping orientation during brazing:

Brazing should be conducted downwards or horizontally to avoid filler leakage.

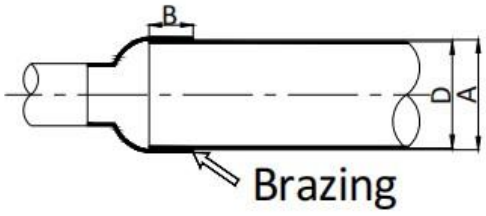
Piping orientation during brazing



Piping overlap during brazing：

specifies the minimum permissible piping overlap and the range of permissible gap sizes for brazed joints on piping of different diameters.

Piping overlap and gap for brazed joints



Legend	
A	Inner diameter of larger pipe
B	Inlaid depth (overlap)
D	Outer diameter of smaller pipe

Piping overlap and gap for brazed joints

D (mm)	Minimum permissible B (mm)	Permissible A D (mm)
5D8	6	0.05-0.21
8D12	7	
12D16	8	0.05-0.27
16D25	10	
25D35	12	0.05-0.35
35D45	14	

- Use a copper/phosphorus brazing alloy (BCuP) filler that does not require flux.
- Do not use flux. Flux can cause corrosion of piping and can affect the performance of compressor oil.
- Do not use antioxidants when brazing. Residue can clog piping and damage components.

2.8 Pipe Flushing

2.8.1 Purpose

To remove dust, other particles and moisture, which could cause compressor malfunction if not flushed out before the system is run, the refrigerant piping should be flushed using nitrogen. As described in Part 3, 3.3.1 Installation procedure, pipe flushing should be performed once the piping connections have been completed with the exception of the final connections to the hydronic box. That is, flushing should be performed once the outdoor unit have been connected but before the hydronic box is connected.

2.8.2 Procedure

Warning

Only use nitrogen for flushing. Using carbon dioxide risks leaving condensation in the piping. Oxygen, air, refrigerant, flammable gases and toxic gases must not be used for flushing. Use of such gases may result in fire or explosion.

Procedure

The liquid and gas sides can be flushed simultaneously; alternatively, one side can be flushed first and then Steps 1 to 6 repeated, for the other side. The flushing procedure is as follows:

1. Attach a pressure reducing valve to a nitrogen cylinder.
2. Connect the pressure reducing valve outlet to the inlet on the liquid (or gas) side of the outdoor unit.
3. Start to open the nitrogen cylinder valve and gradually increase the pressure to 0.5MPa.
4. Allow time for nitrogen to flow as far as the opening at hydronic box.
5. Flush the opening:

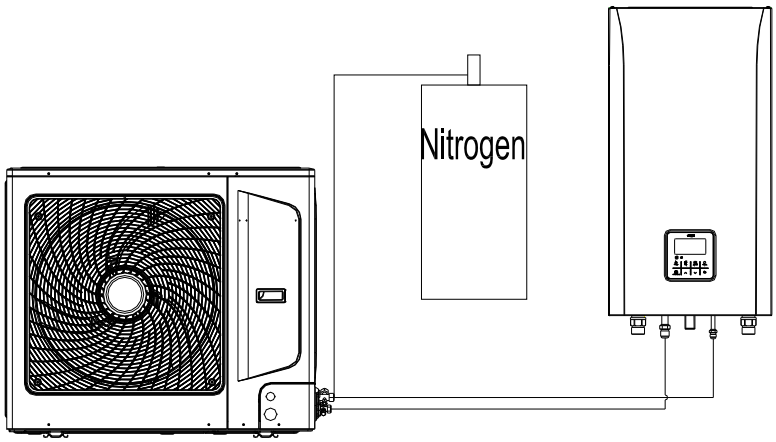
a) Using suitable material, such as a bag or cloth, press firmly against the opening at hydronic box.

b) When the pressure becomes too high to block with your hand, suddenly remove your hand allowing gas to rush out.

c) Repeatedly flush in this manner until no further dirt or moisture is emitted from the piping. Use a clean cloth to check for dirt or moisture being emitted. Seal the opening once it has been flushed.

6. Once flushing is complete, seal the opening to prevent dust and moisture from entering.

Pipe flushing using nitrogen



2.9 Gas tightness Test

2.9.1 Purpose

To prevent faults caused by refrigerant leakage, a gastightness test should be performed before system commissioning.

2.9.2 Procedure

Notes for installers

Warning

Only dry nitrogen should be used for gastightness testing. Oxygen, air, flammable gases and toxic gases must not be used for gas tightness testing. Use of such gases may result in fire or explosion Procedure,The gas

tightness test procedure is as follows:

Step 1

Once the piping system is complete and the hydronic box and outdoor unit have been connected, vacuum the piping to 0.1MPa.

Step 2

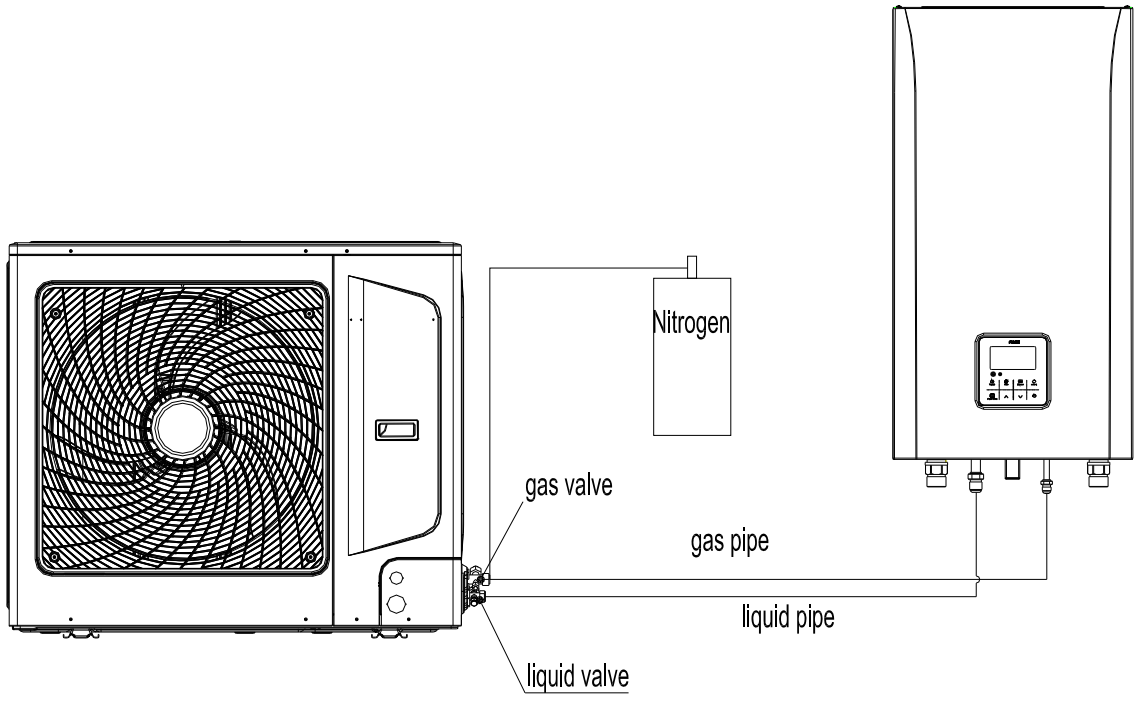
- Charge the piping with nitrogen at 4.3MPa and leave for at least 24 hours.
- After the test period of at least 24 hours, observe the pressure in the piping and assess whether or not the observed pressure indicates the presence of a leak. Allow for any change in ambient temperature over the test period by adjusting the reference pressure by 0.01MPa per 1C of temperature difference. Adjusted reference pressure = Pressure at pressurization + (temperature at observation temperature at pressurization) x 0.01MPa.
- Compare the observed pressure with the adjusted reference pressure. If they are the same, the piping has passed the gastightness test.
- If the observed pressure is lower than the adjusted reference pressure, the piping has failed the test. Refer to

Part 3, 3.9.3 Leak detection. Once the leak has been found and fixed, the gastightness test should be repeated.

Step 3

- If not continuing straight to vacuum drying (see Part 3, 3.10 Vacuum Drying) once the gastightness test is complete, reduce the system pressure to 0.50.8MPa and leave the system pressurized until ready to carry out the vacuum drying procedure.

Gastightness test



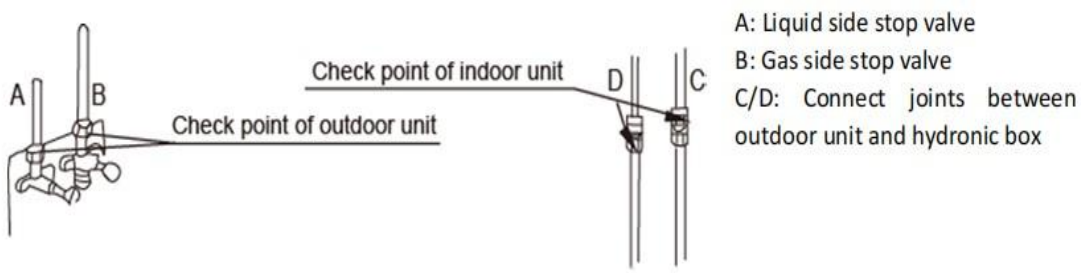
2.9.3 Leak detection

Notes for installers

1. Audio detection: relatively large leaks are audible.
2. Touch detection: place your hand at joints to feel for escaping gas.
3. Soapy water detection: small leaks can be detected by the formation of bubbles when soapy water is applied

to a joint

Leak detection



4. Refrigerant leak detection: for leaks that are difficult to detect, refrigerant leak detection may be used as follows:

a) Pressurize the piping with nitrogen at 0.3MPa.

b) Add refrigerant into the piping until the pressure reaches 0.5MPa.

c) Use a halogen refrigerant detector to find the leak.

d) If the leak source cannot be found, continuing charging with refrigerant to a pressure of 4.3 MPa and then search again.

2.10 Vacuum Drying

2.10. 1 Purpose

Vacuum drying should be performed in order to remove moisture and noncondensable gases from the system. Removing moisture prevents ice formation and oxidization of copper piping or other internal components. The presence of ice particles in the system would cause abnormal operation, whilst particles of oxidized copper can cause compressor damage. The presence of noncondensable gases in the system would lead to pressure fluctuations and poor heat exchange performance.

2.10.2 Procedure

A vacuum pump is used to lower the pressure in the piping to the extent that any moisture present evaporates. At 5mmHg (755mmHg below typical atmospheric pressure) the boiling point of water is 0C. Therefore a vacuum pump capable of maintaining a pressure of755mmHg or lower should be used. Using a vacuum pump with a discharge in excess of 4L/s and a precision level of 0.02mmHg is recommended.

Caution

- Before performing vacuum drying, make sure that the outdoor unit stop valves are firmly closed.
- Once the vacuum drying is complete and the vacuum pump is stopped, the low pressure in the piping could suck vacuum pump lubricant into the air conditioning system. The same could happen if the vacuum pump stops unexpectedly during the vacuum drying procedure. Mixing of pump lubricant with compressor oil could cause compressor malfunction and a oneway valve should therefore be used to prevent vacuum pump lubricant seeping into the piping system.

Procedure

The vacuum drying procedure is as follows:

Step 1

Connect the blue (low pressure side) hose of a pressure gauge to the outdoor unit gas pipe stop valve, the red (high pressure side) hose to the outdoor unit liquid pipe stop valve and the yellow hose to the vacuum pump.

Step 2

Start the vacuum pump and then open the pressure gauge valves to start vacuum the system.

After 30 minutes, close the pressure gauge valves.

After a further 5 to 10 minutes check the pressure gauge. If the gauge has returned to zero, check for leakages in the refrigerant piping

Step 3

Reopen the pressure gauge valves and continue vacuum drying for at least 2 hours and until a pressure difference of 755mmHg or more has been achieved. Once the pressure difference of at least 755mmHg has been achieved, continue vacuum drying for 2 hours.

After 30 minutes, close the valve on the gauge;

Step 4

Close the pressure gauge valves and then stop the vacuum pump.

After 1 hour, check the pressure gauge. If the pressure in the piping has not increased, the procedure is finished. If the pressure has increased, check for leakages.

After vacuum drying, keep the blue and red hoses connected to the pressure gauge and to the outdoor unit stop valves, in preparation for refrigerant charging (see Part 3, 3.11 Charging Refrigerant).

2.11 Charging Refrigerant

2.11.1 Calculating additional refrigerant charge

The additional refrigerant charge required depends on the lengths and diameters of the outdoor unit and hydronic box liquid pipes. If the length of the liquid side pipe is less than 15 meters it is no need to add more refrigerant, so calculating the added refrigerant the length of the liquid side pipe must subtract 15 meters.

Additional refrigerant charge

Model	Liquid side piping (mm)	Refrigerant	Additional refrigerant charge per meter of equivalent length of piping (kg)
4/6kW	9.52	R32	L-15*38
8/10kW	9.52	R32	L-15*38
12/14/16kW	9.52	R32	L-15*38

2.11.2 Adding refrigerant

Notes for installers

Caution

- Only charge refrigerant after performing a gas tightness test and vacuum drying.
- Never charge more refrigerant than required as doing so can lead to liquid hammering.
- Only use refrigerant R32 charging with an unsuitable substance may cause explosions or accidents
- Use tools and equipment designed for use with R32 to ensure required pressure resistance and to prevent foreign materials from entering the system.
- Refrigerant must be treated in accordance with applicable legislation.
- Always use protective gloves and protect your eyes when charging refrigerant.
- Open refrigerant containers slowly

Procedure

The procedure for adding refrigerant is as follows:

Step 1

Calculate additional refrigerant charge R (kg) (see Part 3, 3.11.1 Calculating Additional Refrigerant Charge)

Step 2

Place a tank of R32 refrigerant on a weighing scale. Turn the tank upside down to ensure refrigerant is

charged in a liquid state.

After vacuum drying (see Part 3, 3.10 Vacuum Drying), the blue and red pressure gauge hoses should still beconnected to the pressure gauge and to the outdoor unit stop valves.

Connect the yellow hose from the pressure gauge to the R32 refrigerant tank.

Step 3

Open the valve where the yellow hose meets the pressure gauge, and open the refrigerant tank slightly to let

the refrigerant eliminate the air. Caution: open the tank slowly to avoid freezing your hand

Set the weighing scale to zero.

Step 4

Open the three valves on the pressure gauge to begin charging refrigerant. When the amount charged reaches R (kg), close the three valves. If the amount charged has not reached R (kg), but no additional refrigerant can be charged, close the three valves on the pressure gauge, run the outdoor unit. in cooling mode, and then open the yellow and blue valves. Continue charging until the full R (kg) of refrigerant has been charged, then close the yellow and blue valves. Note: Before running the system, be sure to complete all test run and be sure to open stop valves as running the system with the stop valves closed would damage the compressor.

3. Water Pipework

3.1 Water Circuit Checks

Hydronic box are equipped with a water inlet and outlet for connection to a water circuit. AI-Thermal Split units should only be connected to closed water circuits. Connection to an open water circuit would lead to excessive corrosion of the water piping. Only materials complying with all applicable legislation should be used Before continuing installation of the unit, check the following:

The maximum water pressure 3 bar.

The maximum water temperature 70℃ according to safety device setting

Always use materials that are compatible with the water used in the system and with the materials used in the unit.

Ensure that components installed in the field piping can withstand the water pressure and temperature.

Drain taps must be provided at all low points of the system to permit complete drainage of the circuit during maintenance。

Air vents must be provided at all high points of the system. The vents should be located at points that are easily accessible for service. An automatic air purge is provided inside the unit. Check that this air purge valve is not tightened so that automatic release of air in the water circuit is possible.

3.2 Water volume and sizing expansion vessels

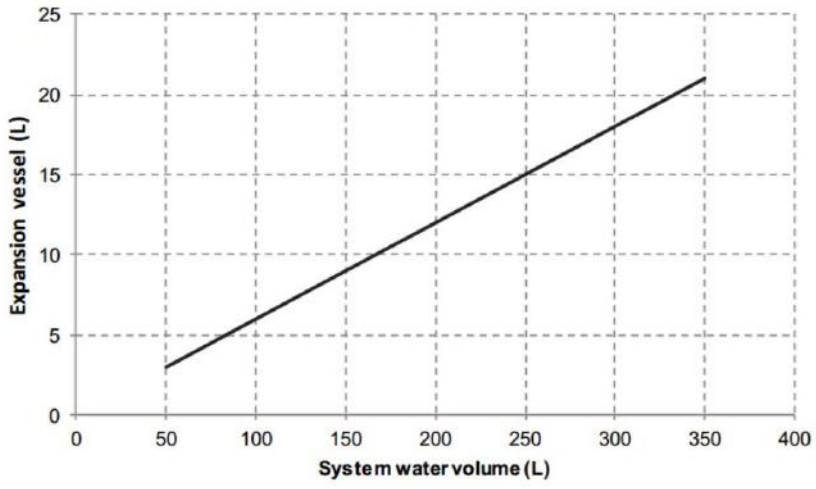
The units are equipped with an expansion vessel of 5L that has a default prepressure of 1.5 bar. To assure proper operation of the unit, the prepressure of the expansion vessel might need to be adjusted.

Check that the total water volume in the installation, excluding the internal water volume of the unit, is at least 40L.

Expansion vessel volume must fit the total water system volume

To size the expansion for the heating and cooling circuit.

The expansion vessel volume can follow the figure below:



Notes:

In most applications this minimum water volume will be satisfactory.

In critical processes or in rooms with a high heat load though, extra water might be required.

3.3 Water Circuit Connection

Water connections must be made correctly in accordance with the labels on the hydronic box, with respect to the water inlet and water outlet. If air, moisture or dust gets in the water circuit, problems may occur. Therefore, always take into account the following when connecting the water circuit:

Use clean pipes only.

Hold the pipe end downwards when removing burrs

Cover the pipe end when inserting it through a wall to prevent dust and dirt entering.

Use a good thread sealant for sealing the connections. The sealing must be able to withstand the pressures and temperatures of the system.

When using noncopper metallic piping, be sure to insulate the two kinds of materials from each other to prevent galvanic corrosion.

For copper is a soft material, use appropriate tools for connecting the water circuit. Inappropriate tools will cause damage to the pipes

3.4 Water Circuit Antifreeze Protection

Ice formation can cause damage to the hydronic system. All internal hydronic parts are insulated to reduce heat loss. Insulation must also be added to the field piping.

The software contains special functions using the heat pump to protect the entire system against freezing. When the temperature of the water flow in the system drops to a certain value, the unit will heat the water, either using the heat pump, the electric heating tap, or the backup heater. The freeze protection function will turn off only when the temperature increases to a certain value.

In event of a power failure, the above features would not protect the unit from freezing.

Since a power failure could happen when the unit is unattended, the supplier recommends use antifreeze fluid to the water system.

Depending on the expected lowest outdoor temperature, make sure the water system is filled with a concentration of glycol as mentioned in the table below. When glycol is added to the system, the performance of the unit will be affected. The correction factor of the unit capacity, flow rate and pressure drop of the system is listed in the table

Ethylene Glycol

Concentration of ethylene glycol (%)	Modification coefficient				Freezing point (C)
	Cooling capacity	Power input	Water resistance	Water flow	
0	1.000	1.000	1.000	1.000	0
10	0.984	0.998	1.118	1.019	-4
20	0.973	0.995	1.268	1.051	-9
30	0.965	0.992	1.482	1.092	-16
40	0.960	0.989	1.791	1.145	-23
50	0.950	0.983	2.100	1.200	-37

Propylene Glycol

Concentration of propylene glycol(%)	Modification coefficient				Freezing point (C)
	Cooling capacity	Power input	Water resistance	Water flow	
0	1.000	1.000	1.000	1.000	0
10	0.976	0.966	1.071	1.000	-3
20	0.961	0.992	1.189	1.016	-7
30	0.948	0.988	1.380	1.034	-13
40	0.938	0.984	1.728	1.078	-22
50	0.925	0.975	2.150	1.125	-35

Uninhibited glycol will turn acidic under the influence of oxygen. This process is accelerated by presence of copper and at higher temperatures. The acidic uninhibited glycol attacks metal surfaces and forms galvanic corrosion cells that cause severe damage to the system. It is of extreme importance:

That the water treatment is correctly executed by a qualified water specialist.

That a glycol with corrosion inhibitors is selected to counteract acids formed by the oxidation of glycols.

That in case of an installation with a domestic hot water tank, only the use of propylene glycol is allowed. In other installations the use of ethylene glycol is fine.

That no automotive glycol is used because their corrosion inhibitors have a limited lifetime and contain silicates that can foul or plug the system;

That galvanized piping is not used in glycol systems since it may lead to the precipitation of certain elements in the glycols corrosion inhibitor;

To ensure that the glycol is compatible with the materials used in the system

3.5 Water Flow Switch

Water may enter into the flow switch and cannot be drained out and may freeze when the temperature is low enough. The flow switch should be removed and dried, then can be reinstalled in the unit.

CounterclockWise rotation, remove the water flow switch.

Drying the water flow switch completely.

3.6 Adding Water

Connect the water supply to the fill valve and open the valve.

Make sure the automatic air purge valve is open (at least 2 turns).

Fill with water until the manometer indicates a pressure of approximately 2.0 bars. Remove air in the circuit as much as possible using the air purge valve. Air in the water circuit could lead to malfunction of the backup electric heater.

3.7 Water Piping Insulation

The complete water circuit including all piping, water piping must be insulated to prevent condensation during cooling operation and reduction of the heating and cooling capacity as well as prevention of freezing of the outside water piping during winter. The insulation material should at least of B1 fire resistance rating and complies with all applicable legislation

The thickness of the sealing materials must be at least 13mm with thermal conductivity 0.039W/mK in order to prevent freezing on the outside water piping. If the outdoor ambient temperature is higher than 30C and the

humidity is higher than RH 80%, the thickness of the sealing materials should be at least 20mm in order to avoid condensation on the surface of the seal.

4. Electrical Wiring

4.1 General caution

All installation and wiring must be carried out by competent and suitably qualified, certified and accredited professionals and in accordance with all applicable legislation.

Electrical systems should be grounded in accordance with all applicable legislation.

Overcurrent circuit breakers and residualcurrent circuit breakers (ground fault circuit interrupters) should be used in accordance with all applicable legislation.

Wiring patterns shown in this data book are general connection guides only and are not intended for, or to include all details for, any specific installation.

The water piping, power wiring and communication wiring are typically run in parallel. However the communication wiring should not be bound together with power wiring. To prevent signal interference, the power wiring and communication wiring should not be run in the same conduit. If the power supply is less than 10A, a separation of at least 300mm between power wiring and communication wiring conduits should be maintained; if the power supply is in the range 10A to 50A then a separation of at least 500mm should be maintained.

4.2 Precautions

Fix cables so that cables do not make contact with the pipes (especially on the high pressure side).

Secure the electrical wiring with cable ties so that it does not come in contact with the piping, particularly on the highpressure side.

Make sure no external pressure is applied to the terminal connectors.When installing the ground fault circuit interrupter make sure that it is compatible with the inverter (resistant to high frequency electrical noise) to avoid unnecessary opening of the ground fault circuit interrupter

4.3 Guideless

Most field wiring on the unit is to be made on the terminal block inside the switch box. To gain access to the terminal block, remove the switch box service panel.

Fix all cables using cable ties.

A dedicated power circuit is required for the backup electric heater.

Installation equipped with a domestic hot water tank (field supplied) requires a dedicated power circuit for the immersion heater

Secure the wiring in the order shown below:

Lay out the wires before wiring, so that the cover of the electronic control box will not be bulging after the cover;

All wiring reference electrical wiring diagram;

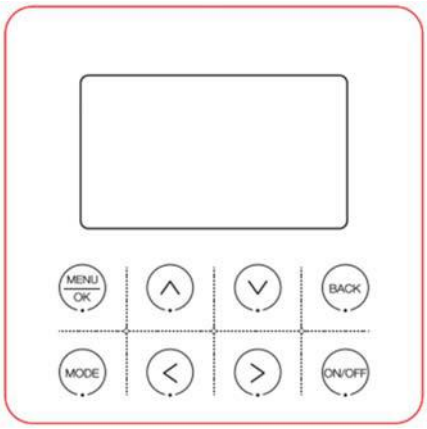
After the wire is connected, secure the cover of the electronic control box.

Part10 Wired Controller

1. Introduction

During installation, the parameter settings should be configured by the installer to suit the installation configuration, climate conditions and enduser preferences. The relevant settings are accessible and programmable through the FOR SERVICEMAN menu on the wired controller.

Wired controller



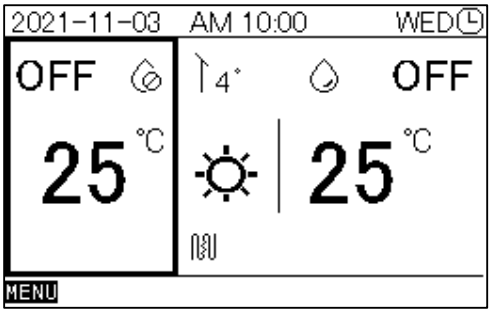
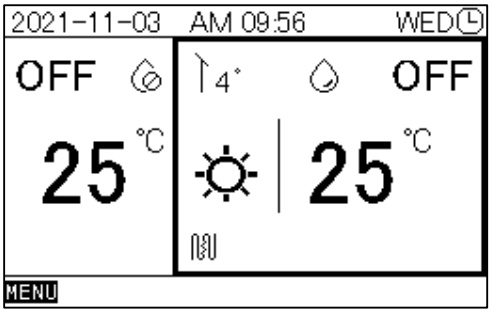
The wired controller button

NO	Name	Logo	Description
1	Menu/Confirm	MENU OK	Enter the next menu interface/setting confirmation
2	Up	∧	Upward selection/value increase or content change
3	Down	∨	Downward selection/decrease value or content change
4	Back	BACK	Return to the previous level/View current fault
5	Mode	MODE	Mode Switch
6	Left	<	Change selected item
7	Right	>	Change selected item
8	ON/OFF	ON/OFF	Control unit on/off

2、Instructions

2.1 Mode area selection

In the main interface, by pressing the 【left】 key, you can select the DHW(Domestic hot water) display area; by pressing the 【right】 key, you can select the air conditioning display area

/	Interface
Select the DHW display area	
Select the air conditioning display area	

2.2 ON/OFF

Select DHW or air-conditioning area, press 【on/off】key, it will switch the state of【on/off】immediately

2.2.1 DHW mode ON/OFF

In the power-on state, select the DHW display area and press the 【on/off】key to immediately switch to the off state.

In the off state, select the DHW display area and press the 【on/off】key to immediately switch to the on state.

2.2.2 Air conditioning mode ON/OFF

In the power-on state, select the air conditioner display area and press the 【on/off】key to immediately switch to the off state.

In the off state, select the air conditioner display area and press the 【on/off】key to immediately switch to the on state.

2.2.3 Air conditioning mode switch

Select the air conditioning display area and press the [Mode] key, the unit will switch between

"cooling", "heating" and "auto" modes

2.2.4 Water temperature adjustment

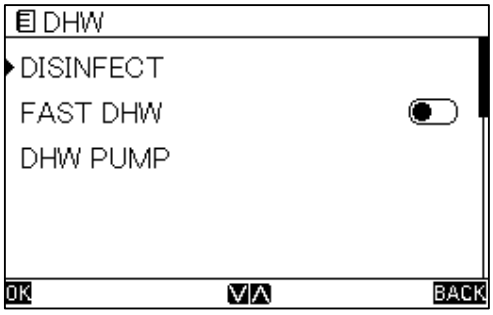
Select the air conditioner display area, press the 【up】]key to increase the set water temperature, and press the【down】key to decrease the set water temperature.

Select the DHW display area, press the 【up】 key, the set water temperature will be increased , and press the【down】key, the set water temperature will be decreased

2.3 Menu

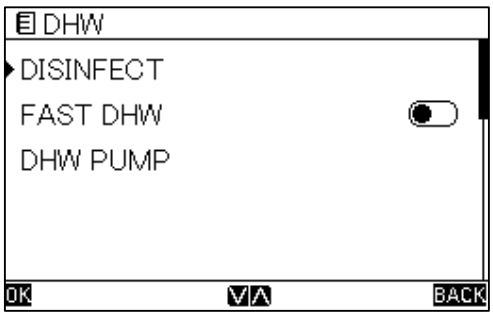
2.3.1 DHW related functions

On the menu page, switch between the options by pressing the 【up】 or the 【down】 The item indicated by the arrow indicates the current selection. Select the "DHW" function, and press the 【Menu/OK】key to enter the hot water related Optionss, as shown in the figure below:

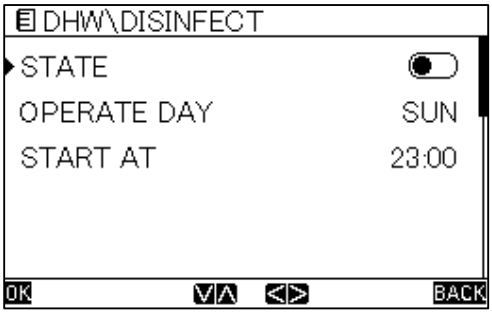
/	Interface
DHW interface	

2.3.1.1 Disinfection settings

In the DHW interface, select by pressing the 【up】 or the【down】, the item indicated by the arrow indicates the current selection of "Disinfect", press the 【Menu/OK】 to enter the disinfection mode setting, and press the 【BACK】 , Then return to the previous page, as shown in the figure below

/	Interface
DHW interface	

The disinfection setting interface is as follows

/	Interface
disinfection setting interface	

The disinfection mode is divided into three items

1、STATE：Whether the function is enabled (enabled by default)

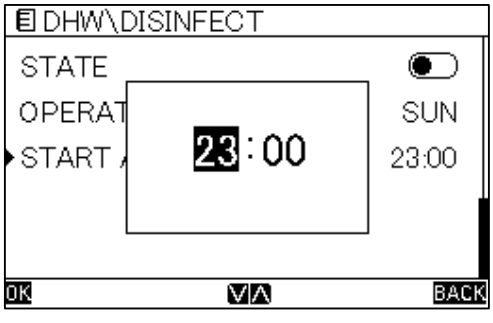
2、OPERATE DAY：Enable date (Monday to Sunday, seven days optional, default Friday)

3、START TIME：Activation time (hours and minutes can be set, default 23:00)

In the disinfection mode interface, select "STATE" by pressing the 【up】 or the【down】and by pressing the 【left】 or the 【right】 , you can set whether to enable the disinfection mode;

In the disinfection mode interface, select "OPERATE DAY" by pressing the【up】 or the【down】 and by pressing the 【left】 or the 【right】 , you can select which day of the week to start the disinfection mode.

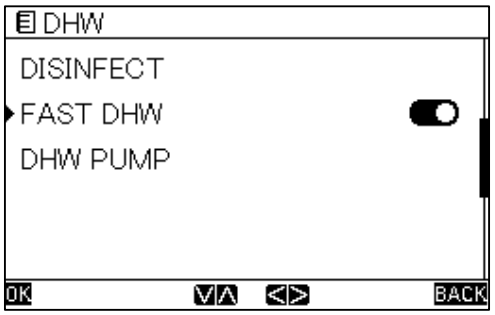
In the disinfection mode interface, select "START AT" by pressing the 【up】 or the【down】, and enter the time setting interface by pressing the 【Menu/OK】, as shown in the figure below

/	Interface
Time setting interface	

In the time setting interface, you can select "Hour" and "Minute" by pressing the 【left】 or the 【right】 to modify

2.3.1.2 Fast DHW setting

In the DHW interface, select by pressing the 【up】 or the【down】. The item indicated by the arrow indicates that the FAST DHW is currently selected. Use the 【left】 or the 【right】 to select whether to enable it. The setting interface is as shown below

/	Interface
FAST DHW setting interface	

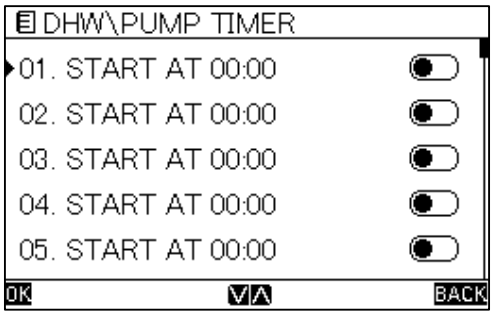
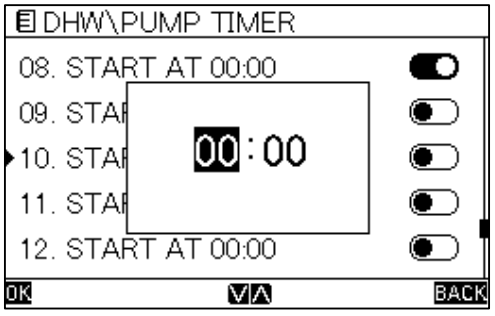
In the FAST DHW setting options, by pressing the 【left】 or the 【right】 , set whether to enable the FAST DHW mode (not enabled by default)

2.3.1.3 DHW PUMP Setting

In the DHW interface, select by pressing the 【up】 key or the【down】key, the item indicated by the arrow indicates the current selection, select "DHW PUMP", and press the 【Menu/OK】to enter the DHW PUMP setting;

In the DHW PUMP setting interface, press the 【up】 or the【down】to select the timer setting, the item indicated by the arrow indicates the current selection, press the 【Menu/OK】key to enable the timer, and set the timer time, press 【BACK】 to return to the previous page, as shown in the figure below:

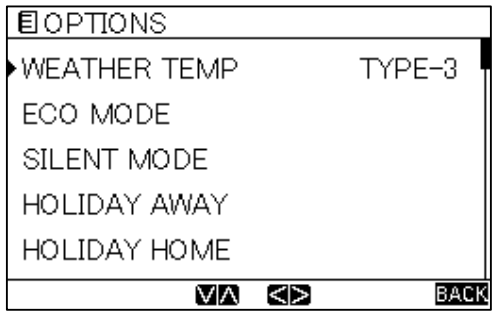
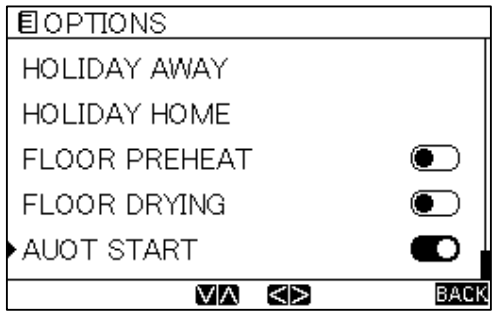
The setting interface is as shown below

/	Interface
Select DHW PUMP Interface	
Timer setting interface	

2.3.2 Options

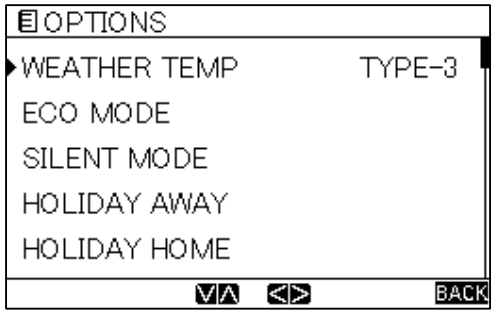
In the menu interface, select by pressing the 【up】 or the【down】, the item indicated by the arrow indicates the currently selected "Options", press the 【Menu/OK】to enter the Options;

In the Options interface, select the function by pressing the 【up】 or the【down】. The item indicated by the arrow indicates the current selection. The interface is as shown in the figure below

/	Interface
Options interface	 

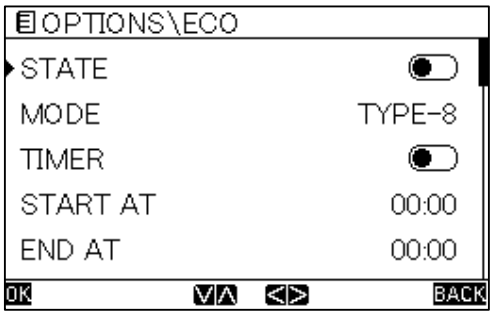
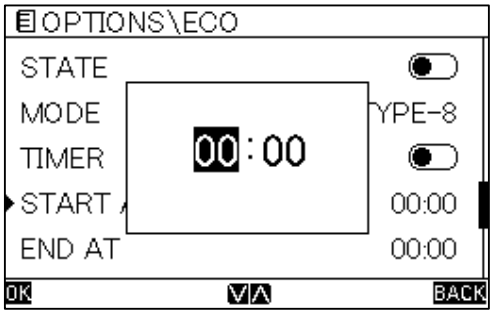
2.3.2.1 WEATHER TEMP Setting

In the Options interface, select by pressing the 【up】 or the【down】, the item indicated by the arrow indicates that "WEATHER TEMP" is currently selected, and the selection is made by the 【left】 or the 【right】, and the selection is not enabled and the enable level (OFF is not enabled, the enable level is: TYPE-1, TYPE-2, TYPE-3, TYPE-4, TYPE-5, TYPE-6, TYPE-7, TYPE-8, TYPE-9), The interface is as shown below

/	Interface
WEATHER TEMP setting interface	

2.3.2.2 ECO Setting

In the function setting interface, select by pressing the 【up】 or the【down】, the item indicated by the arrow indicates that the "ECO" is currently selected, press the 【Menu/OK】to enter the ECO mode setting; in the ECO mode setting interface , Select by 【up】 or[down], the item indicated by the arrow indicates the current selection

/	Interface
ECO setting interface	
ECO TIMER setting interface	

The ECO mode is divided into four items

1、ECO STATE: Whether the function is enabled (not enabled by default)

2、ECO MODE: Choose ECO levels (TYPE-1、TYPE-2、TYPE-3、TYPE-4、TYPE-5、TYPE-6、TYPE-7、TYPE-8)

3、ECO TIMER: Whether the ECO timer is enabled (not enabled by default)

4、START TIME: ECO start time (hours and minutes can be set, default 08:00)

5、END TIME: ECO end time (hours and minutes can be set, default 19:00)

The operation is as follows

In the option of ECO/STATE , you can set whether to enable the ECO mode by pressing the 【left】 or the 【right】 .

In the option of ECO/MODE, Select the ECO MODE by pressing the 【left】 or the 【right】

In the option of ECO/TIMER, By pressing the 【left】 or the 【right】, you can set whether to enable the ECO timer.

In the option of ECO/START AT, Select "hour" and "minute" by pressing the 【left】 or the

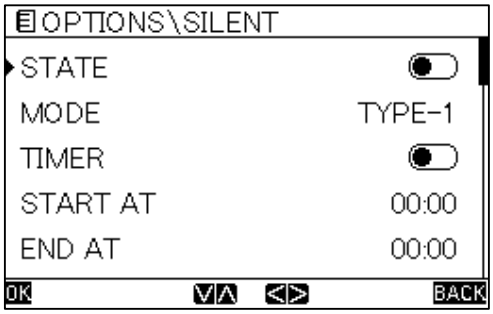
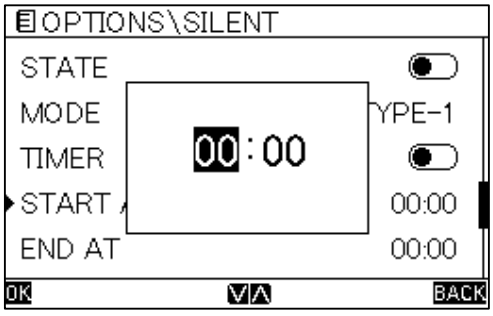
【right】 , and set the time by pressing the 【up】 or the【down】

In the option of ECO/END AT, Select "hour" and "minute" by pressing the【left】or the【right】, and set the time by pressing the 【up】 or the【down】

2.3.2.3 SILINT

In the setting interface, select by pressing the 【up】 or the【down】, the item indicated by the arrow indicates the current selection of "Silent Mode", press the 【Menu/OK】to enter the silent mode setting

The silent setting interface is as follows:

/	Interface
silent setting interface	
silent timer setting interface	

The SILENT mode is divided into five items

1、SILENT STATE: Whether SILENT is enabled (not enabled by default)

2、SILENT MODE: SILENT level setting (two levels setting: TYPE-1, TYPE-2, default TYPE-1)

3、SILENT TIMER: Whether the SILENT timer is enabled (not enabled by default)

4、START TIME : SILENT start time (hours and minutes can be set, default 12:00)

5、END TIME: SILENT end time (hours and minutes can be set, default 15:00)

The operation is as follows：

In the option of SILENT/STATE, you can set whether to enable the SILENT mode by pressing the 【left】 or the 【right】 .

In the option of SILENT/MODE , select the desired SILENT mode by pressing the 【left】 or the 【right】

In the option of SILENT/ TIMER, you can set whether to enable the SILENT timer by pressing the 【left】 or 【right】

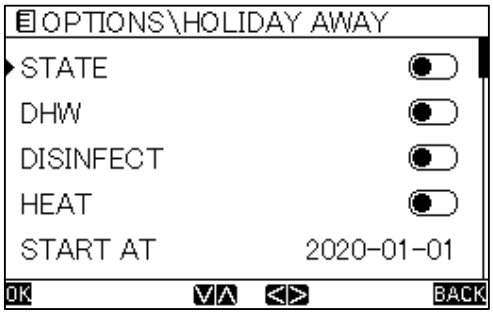
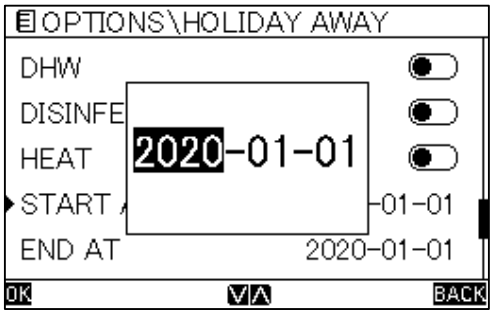
In the option of SILENT/START AT: Select "hour" and "minute" by pressing the 【left】 or the 【right】 , and set the time by pressing the 【up】 or the【down】

In the option of SILENT/END AT: Select "hour" and "minute" by pressing the 【left】 or the 【right】 , and set the time by pressing the 【up】 or the【down】

2.3.2.4 HOLIDAY AWAY

In the interface of OPTIONS, select by pressing the 【up】 or the【down】, the item indicated by the arrow indicates the current selection of "HOLIDAY", press the 【Menu/OK】 to enter the HOLIDAY AWAY mode setting interface

The HOLIDAY AWAY mode setting interface is shown in the figure below

/	Interface
HOLIDAY AWAY mode setting interface	
HOLIDAY mode TIMER setting interface	

The HOLIDAY AWAY mode is divided into six items

1、Whether HOLIDAY AWAY mode is enabled (not enabled by default)

2、Whether DHW is enabled (enabled by default)

3、Whether DISINFECT is enabled (enabled by default)

4、Whether HEAT is enabled (enabled by default)

5、START time (year, month, day can be set, default 2021-00-00)

6、END time (year, month, day can be set, default 2021-00-00)

Select by pressing the 【up】 or【down】, the item indicated by the arrow indicates the current

selection

In the option of HOLIDAY AWAY /STATE, you can set enable or disable by pressing the 【left】 or the 【right】

In the option of HOLIDAY AWAY /DHW, you can set enable or disable by pressing the 【left】 or the 【right】

In the option of HOLIDAY AWAY /DISINFECT, you can set enable or disable by pressing the 【left】 or the 【right】

In the option of HOLIDAY AWAY /HEAT, you can set enable or disable by pressing the 【left】 or the 【right】

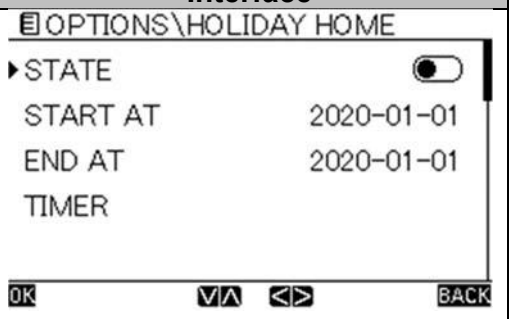
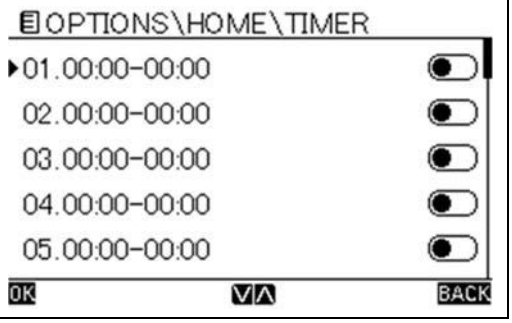
In the option of HOLIDAY AWAY /START AT, by pressing the 【left】 or the 【right】, select "year", "month", "day", and set the time by pressing the 【up】 or the【down】

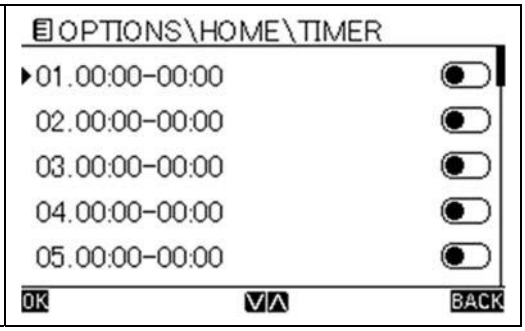
In the option of HOLIDAY AWAY /END AT, by pressing the 【left】 or the 【right】, select "year", "month", "day", and set the time by pressing the 【up】 or the【down】

2.3.2.5 HOLIDAY HOME

In the option of OPTIONS, select by pressing the 【up】 or the【down】, the item indicated by the arrow indicates that the "HOLIDAY HOME" mode is currently selected, and press the 【Menu/OK】 to enter the HOLIDAY HOME mode setting interface

The HOLIDAY HOME mode setting interface is shown in the figure below

/	Interface
HOLIDAY HOME setting interface	
HOLIDAY HOME timer setting interface	

HOLIDAY HOME timer setting interface	

The HOLIDAY HOME mode is divided into 4 items

1、Whether HOLIDAY HOME is enabled (not enabled by default)

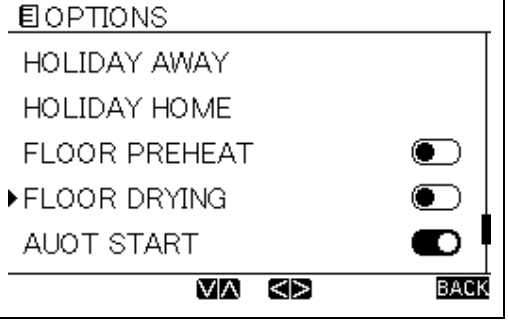
2、Start time (year, month, day can be set, default 2021-00-00)

3、END time (year, month, day can be set, default 2021-00-00)

4、Timer (can enter the setting, the content of the timer is the same as the repeat timing)

2.3.2.6 FLOOR PREHEATING

In the interface of OPTIONS, select by pressing the 【up】 or the【down】. The item indicated by the arrow indicates that the FLOOR PREHEATING is currently selected. Press the 【Menu/OK】 to enter the floor preheating setting. The operation is as shown in the figure below Shown

/	Interface
FLOOR PREHEATING Setting interface	

In the floor preheating setting options, by pressing the 【left】 or the 【right】 you can set whether to enable the floor preheating (not enabled by default))

2.3.2.7 FLOOR DRYING

In the interface of OPTIONS，Select by pressing the 【up】 or the【down】, the item indicated by the arrow indicates the currently selected option " FLOOR DRYING ", press the 【Menu/OK】to enter the floor drying setting

The operation is as shown below：

/	Interface
Floor drying interface	

In the floor drying setting options, you can set whether to enable floor drying by pressing the 【left】 or the 【right】 (not enabled by default)

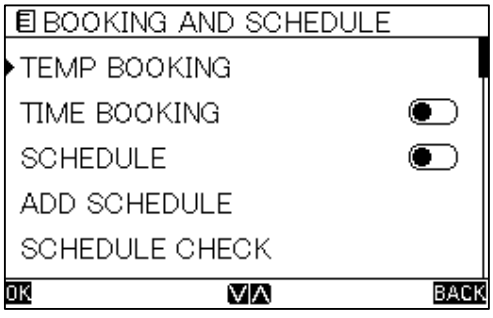
2.3.2.8 Power-down memory

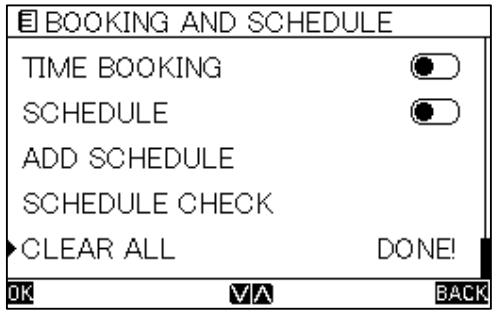
In the interface of OPTIONS, press the 【up】 or the【down】to switch between the options, the item indicated by the arrow indicates the current selection, select " power-down memory", and you can set it by pressing the 【left】 or the 【right】, Whether to enable power-down memory (enabled by default), after enabling, if the unit runs out of power, the unit will automatically start after the power supply is restored

2.3.3 BOOKING and SCHEDULE setting

In the interface of menu, press the 【up】 or the【down】to switch between the various options, the item indicated by the arrow indicates the current selection, select "BOOKING AND SCHEDULE", press the 【Menu/OK】to enter the booking and schedule setting page,

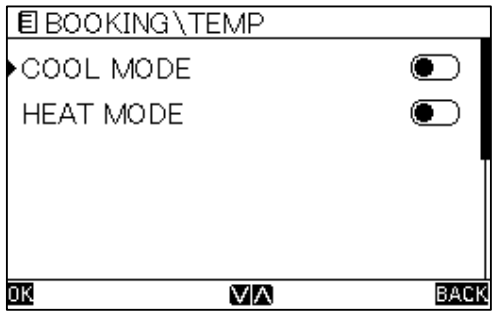
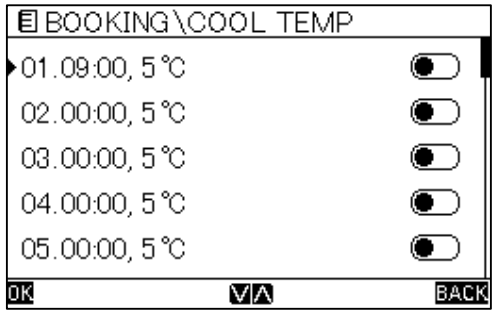
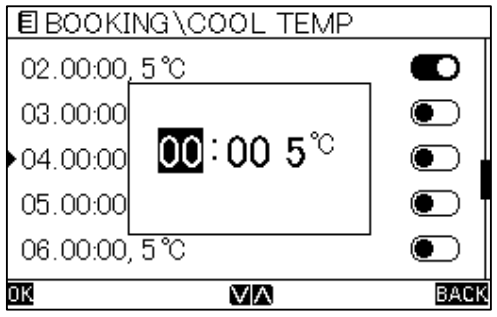
The operation is as shown below

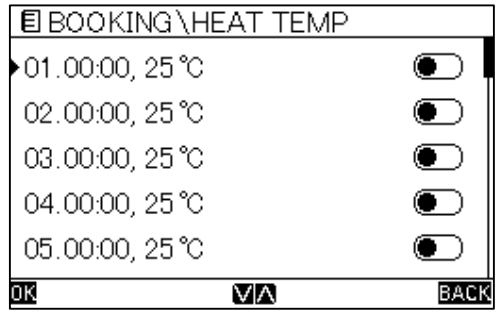
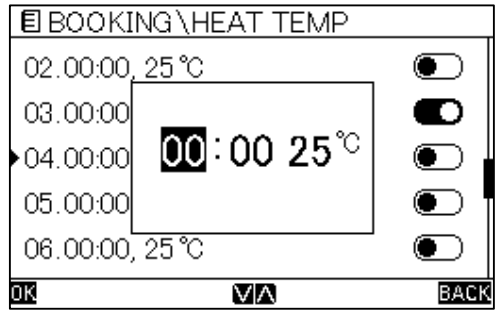
/	Interface
schedule setting interface	

2.3.3.1 booking temperature

In the booking and schedule setting interface, by pressing the 【up】 or the【down】, the item indicated by the arrow indicates the current selection, select "BOOKING/TEMP", and press the【Menu/OK】to enter the temperature reservation setting

/	Interface
BOOKING TEMP setting interface	
BOOKING COOL TEMP setting interface	 

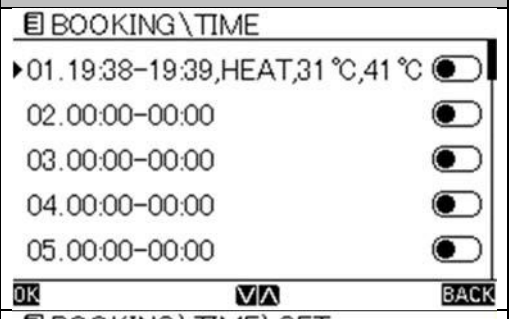
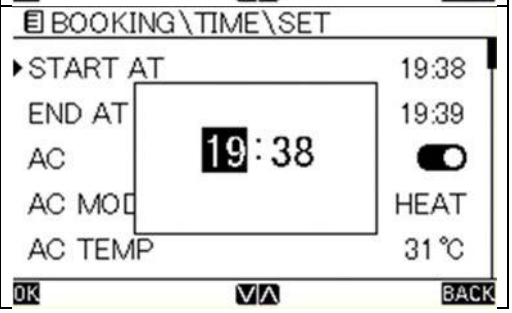
BOOKING HEAT TEMP setting interface	 

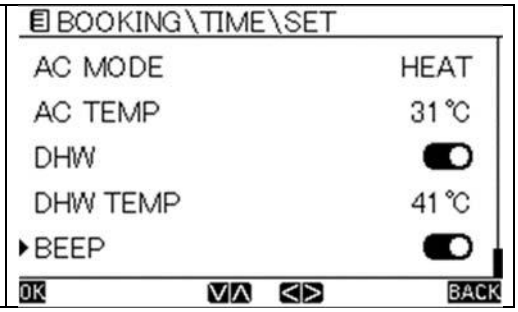
There are 6 sets of timers for BOOKING TEMP; each set of timers can be set to start time (hours and minutes can be set), and the minimum unit of hour is 1 hour

2.3.3.2 TIME BOOKING

In the booking and schedule setting interface，By pressing the 【up】 or the【down】, the item indicated by the arrow indicates the current selection, select " TIME BOOKING ", and press the 【Menu/OK】 to enter the timing setting

The operation is as shown below：

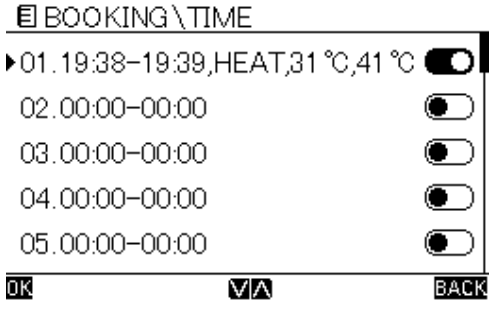
/	Interface
TIME BOOKING setting interface	
TIME BOOKING setting interface	

TIME BOOKING setting interface	

By pressing the 【up】 or the【down】, you can switch between timers 1-6. By pressing the 【left】 or the 【right】, you can set whether to enable the timer (default is not enabled); by pressing the [menu /OK] to enter the corresponding timer page for setting, the timer serial number is displayed in the title line

The following figure is an example, which means that the currently selected timer is timer 1, timer 1 is enabled, and other timers are invalid

The time display page is as shown in the figure below

/	Interface
Time display	

The setting contents of the interface are timer serial number, timer start time setting, timer end timer setting, timer working mode selection and weekly setting.

1. Serial number, the timer serial number is 1-6;

2. Start time, set the start time of the timer;(default：00:00)

3. End time, set the end time of the timer(default：00:00);

4. Whether the air conditioning mode is enabled (not enabled by default)；

5. Mode, select the operating mode, select "heating", "cooling", and "DHW";

6. Water temperature setting, heating: 25-65 (default 35); cooling: 5-25 (default 10); DHW: 30-60 (default 55)

7. Whether the hot water mode is enabled (not enabled by default)；

8. DHW temperature setting, DHW: 30-60℃ (default 55℃)；

2.3.3.3 Weekly schedule

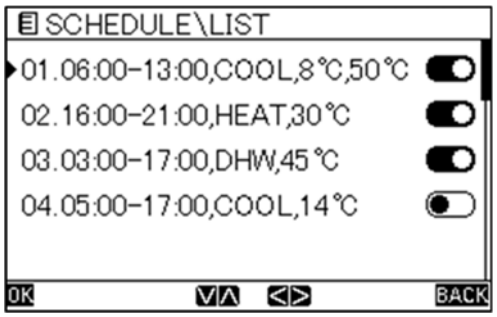
In the booking and schedule setting interface By pressing the 【up】 or the【down】, the item indicated by the arrow indicates the current selection, select " Weekly schedule", and press the 【Menu/OK】to enter the timer setting

You can switch between different timers by pressing the 【up】 or the【down】, and you can set whether to enable the timer by pressing the 【left】 or the 【right】 (not enabled by default); by pressing the 【Menu/OK】to enter the corresponding timer page for setting, and the timer serial number is displayed in the title line.

If there is no timer in the weekly schedule setting interface, the weekly schedule needs to be added

The following figure is an example, which means that the currently selected timer is timer 1, timer 1 is enabled, and other timers are invalid

The timer display page is as shown in the figure below

/	Interface
Weekly schedule	

The setting contents of the interface are timer serial number, timer start time setting, timer end timer setting, timer working mode selection and weekly setting.

1. Serial number, the timer serial number can be up to 99 groups;

2. Start time, set the timer start time (default: 00:00);

3. End time, set the end time of the timer (default: 00:00);

4. Whether the air conditioning mode is enabled (not enabled by default);

5. Air conditioning mode selection, you can choose "heating" or "cooling" (heating by default);

6. Air conditioning water temperature setting, heating: 25-65°C (default 35°C); cooling: 5-25°C (default 10°C);

7. Whether the DHW mode is enabled (not enabled by default);

8. DHW temperature setting,DHW: 30-60°C (default 55°C);

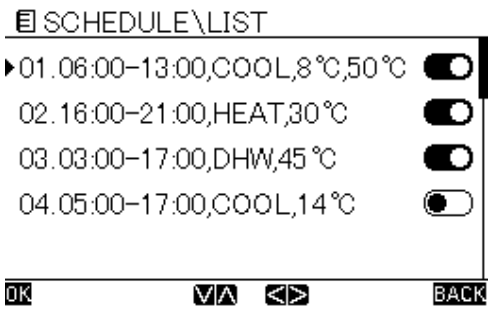
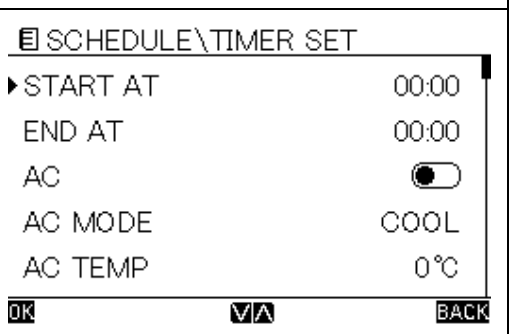
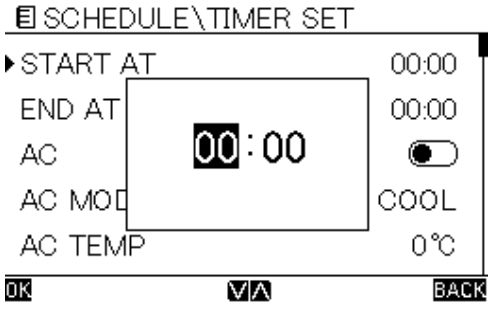
9. Weekly setting, "SUN, MON, TUE, WED, THU, FRI, SAT" means week options, select which days of the week to enable the timer, select the corresponding week, the big box will be reversed,

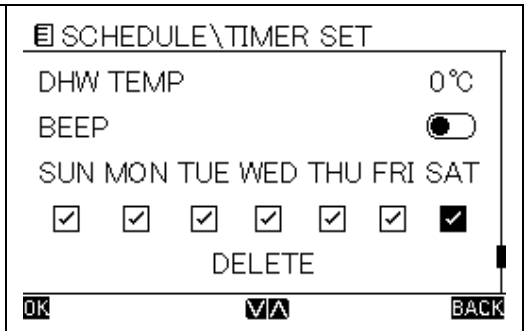
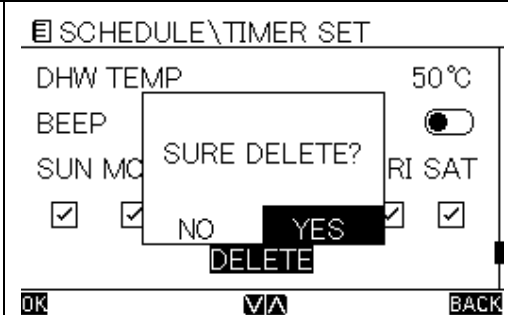
and the box will be valid for that day , As shown in the figure below。

The setting result takes effect in real time. After the content modification is completed, press the [Return] key to return to the previous interface, and the setting is complete.

When the timer is activated and the timer setting time is reached, the water temperature setting is executed according to the water temperature set by the timer.

The timer can be deleted. Select 【DELETE】 in the timer, press 【Menu/OK】and a prompt box "Are you sure to delete?" appears. In the prompt box interface, you can operate the 【left】 and 【right】 , select YES, and press 【Menu/OK】 to delete the timer, select NO, press the 【Menu/OK】to not delete the timer, and maintain the original state.The weekly timer setting interface is shown in the figure:

/	Interface
Schedule LIST setting interface	
Schedule TIMER SET interface	
Schedule TIMER SET interface	

Cancel interface	
Delete interface	

2.3.3.4 Add weekly schedule setting

In the booking and schedule setting interface By pressing the 【up】 or the【down】, the item indicated by the arrow indicates the current selection, select "Add weekly schedule ", and press the 【Menu/OK】to enter the add weekly schedule setting

The contents of the add weekly schedule setting interface are added to start time, end time, timer working mode selection, water temperature setting and week setting

1. Start time, set the timer start time (default: 00:00);

2. End time, set the end time of the timer (default: 00:00);

3. Whether the air conditioning mode is enabled (not enabled by default);

4. Air conditioning mode selection, you can choose "heating" or "cooling" (heating by default);

5. Air conditioning water temperature setting, heating: 25-65°C (default 35°C); cooling: 5-25°C (default 10°C);

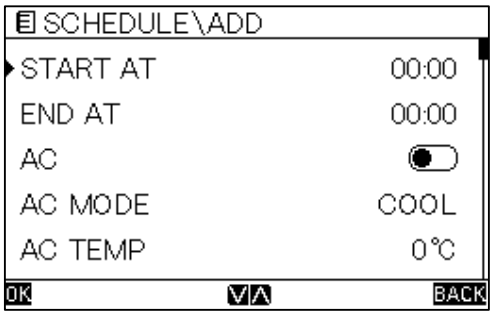
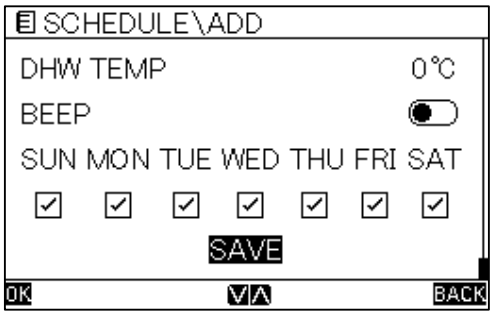
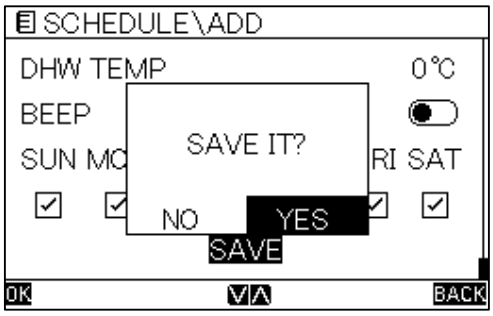
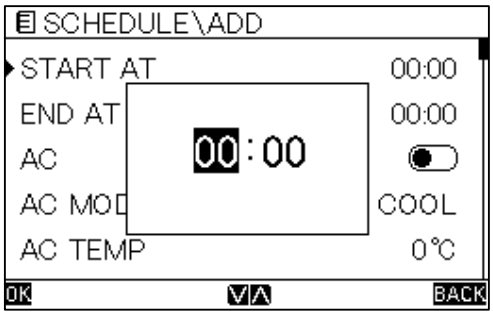
6. Whether the hot water mode is enabled (not enabled by default);

7. DHW temperature setting,DHW: 30-60℃ (default 55℃)；

8. Weekly setting, "SUN, MON, TUE, WED, THU, FRI, SAT" means week options, select which days of the week to enable the timer, select the corresponding week, the big box will be reversed, and the box will be valid for that day , As shown in the figure below。

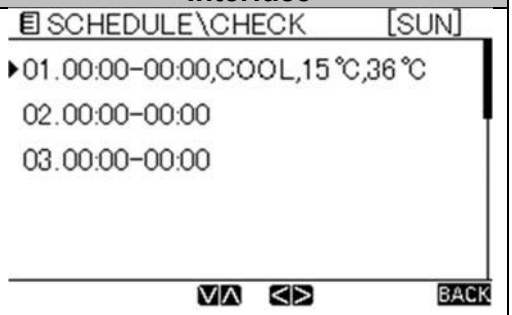
After the weekly timing setting is completed. Save by pressing the【down】key, select 【SAVE】 press the 【Menu/OK】to display a prompt interface, select【YES】and press the 【Menu/OK】to save the effect, and it will appear in the weekly timing setting interface, otherwise it will not take effect, press【BACK】 to return to the previous interface, the setting is complete。

Weekly schedule setting is as shown below:

/	Interface
Add weekly schedule	   

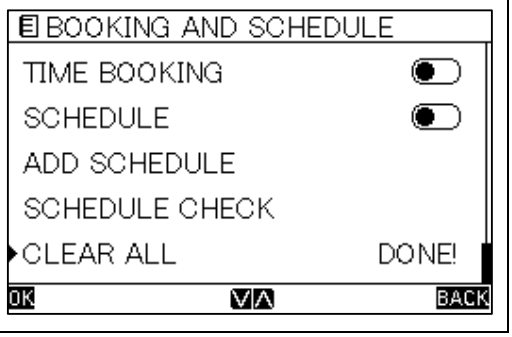
2.3.3.5 Weekly progress check

In the schedule setting interface, by pressing the up key or the downkey, the item indicated by the arrow indicates the current selection, select "weekly progress check", the item indicated by the arrow indicates the current selection, press the 【OK】 to enter "Weekly Progress Check".

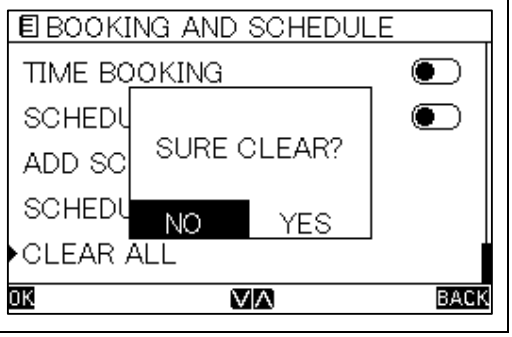
/	Interface
Weekly progress check	

2.3.3.6 Cancel timing

On the Schedule/Timer set page, press the 【Up】or 【Down】 to switch between the options, the item indicated by the arrow indicates the current selection, select "Clear All", press the [OK] key to enter the cancel timing reminder page, operate as shown below

/	Interface
Cancel timing	

In the cancel timing prompt interface, press the 【Left】or 【Right】 to switch between the various options. The item displayed in reverse indicates the current selection: Select "NO" and press the 【OK】 to cancel the timing Set, return to the Schedule/Timer set setting interface; Select "YES" and press the 【OK】 to cancel all timing settings and return to the main interface. The weekly, single-day, or repeated timing icons that were originally displayed on the main interface disappear.

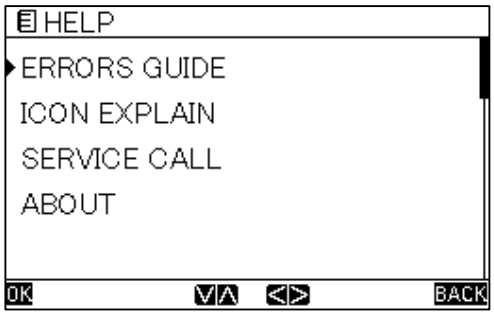
/	Interface
Prompt interface	

2.3.4 Service information settings

On the menu page, press the 【up】 or the【down】 to switch between the various options,

the item indicated by the arrow indicates the current selection, select "Help ", and press the 【Menu/OK】 to enter the help information setting page,

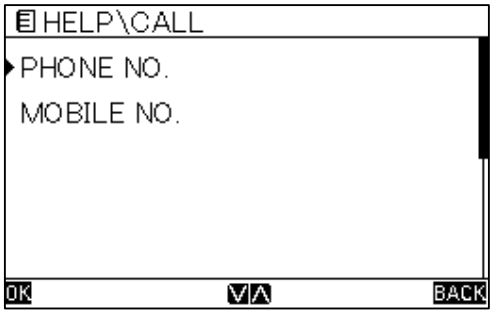
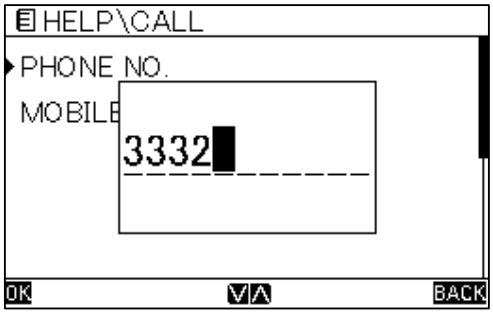
The display picture of the service information setting page:

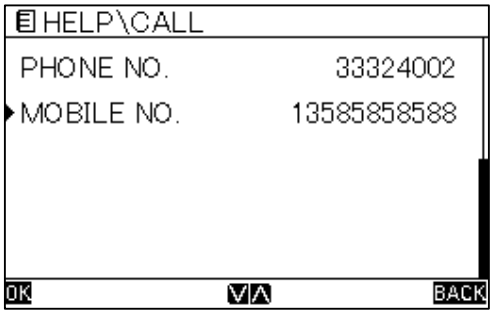
/	Interface
Service information setting interface	

There is 1 function option: (SERVICE CALL)

2.3.4.1 Service call settings

On the service setting page, press the 【up】or the【down】 to switch between the various options. The item indicated by the arrow indicates the current selection, select "Service Call", and press the【OK】to enter the service phone setting prompt page .

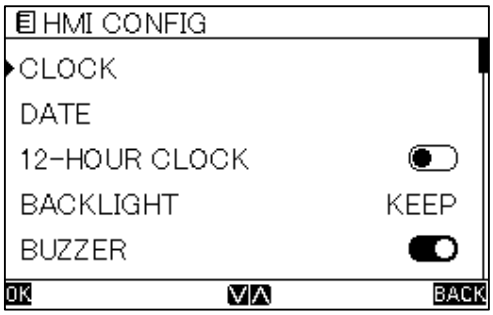
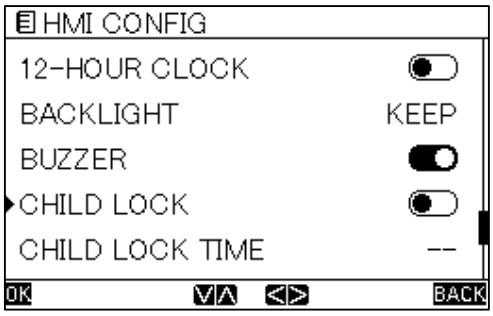
/	Interface
Service call setting interface	 

2.3.5 HMI CONFIG

In the **menu** page, press the【up】or the【down】 to switch between the options, the item indicated by the arrow indicates the current selection, select "HMI CONFIG", press the【OK】 to enter the local configuration setting page, and press the 【Back】to return to the previous page.

The HMI CONFIG page display picture:

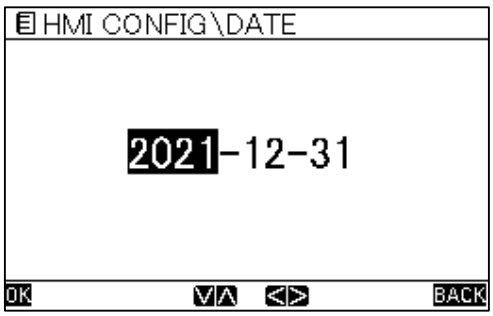
/	Interface
HMI CONFIG	 

2.3.5.1 Date setting

On the HMI CONFIG setting page, by pressing the【up】or the【down】, the item indicated by the arrow indicates the current selection, select "Date ", press the 【OK】 to enter the date setting page, and press the 【left】or the【right】 to change the selected item, press 【up】or the【down】 to modify the currently selected item.

After the modification is completed, press the 【OK】 to make the setting effective and return to the date setting page. During the modification, press the 【Back】 to return to the previous page, and the modification will not take effect.

Date setting page display image:

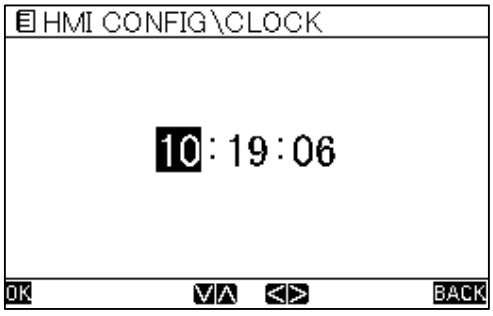
/	Interface
Date	

2.3.5.2 Time setting

On the HMI CONFIG setting page, by pressing the 【up】or the【down】, the item indicated by the arrow indicates the current selection, select "Clock", press the 【OK】 to enter the clock setting page, and press the 【left】or the【right】 to change the selected item, press 【up】or the【down】 to modify the currently selected item.

After the modification is completed, press the 【OK】 to make the setting effective and return to the clock setting page. During the modification, press the 【Back】 to return to the previous page, and the modification will not take effect.

Clock setting page display image:

/	Interface
Clock	

2.3.5.3 12 Hour system

On the HMI CONFIG setting page, by pressing the 【up】or the【down】, the item indicated by the arrow indicates the current selection, select the "12-hour clock", and press the 【left】or the【right】 to select enable or disable (default (Not enable), if you choose to enable, you can set the current time through the main interface "AM" or "PM", and adjust the timing setting and the time display of historical faults synchronously, such as:

/	Interface
12 Main interface	

2.3.5.4 Backlight

On the HMI CONFIG setting page, by pressing the 【up】or the【down】, the item indicated by the arrow indicates the current selection, select "backlight", press the【left】or the【right】 to select "constant light", "energy saving", "Energy saving" is selected by default. When the backlight option is not operated for 10 seconds, it will take effect automatically.

/	Interface
backlight	

2.3.5.5 Buzzer

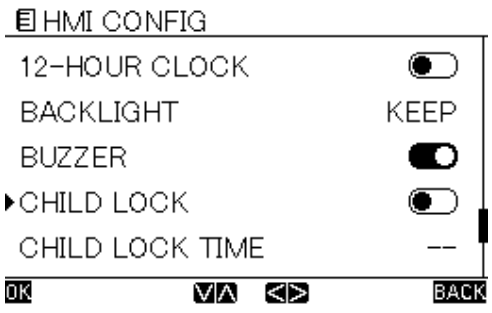
On the local configuration setting page, by pressing the 【up】or the【down】, the item indicated by the arrow indicates the current selection, select "buzzer", and press the 【left】or the【right】 to select enable or disable (default Is enabled).

/	Interface
buzzer	

3.3.5.6 Child lock

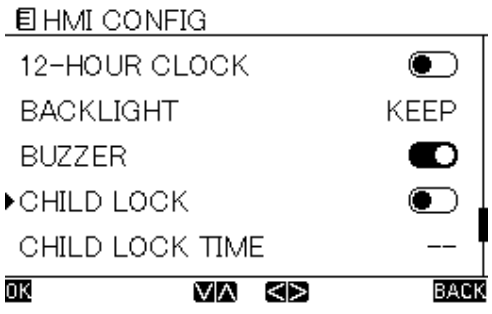
In the local configuration setting interface, select by pressing the【up】or the【down】. The item indicated by the arrow indicates the current selection of "child lock". You can set whether to enable

the child lock by pressing the【left】or the【right】 (Not enabled by default).

/	Interface
Child lock	

3.3.5.7 Child lock time

In the local configuration setting interface, select by pressing the 【up】or the【down】. The item indicated by the arrow indicates the currently selected child lock time. Use the【left】or the【right】to adjust the time (time range 5120S, the default is 60S).

/	Interface
Child lock time	

3.3.6 Commissioning

On the menu page, press the 【up】or the【down】 to switch between the options, the item indicated by the arrow indicates the current selection, select " Commissioning", press the【OK】 to enter the Commissioning setting page, appears the Enter correct password.

Password input page：

/	Interface
Password input	

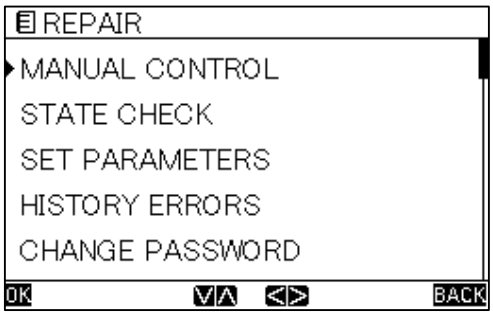
By pressing the【left】or the【right】, select the digit to be entered for the password. The digit displayed in reversed black indicates the current selection.

Select the password value to be entered by pressing the 【up】or the【down】. The default

password is 1234.

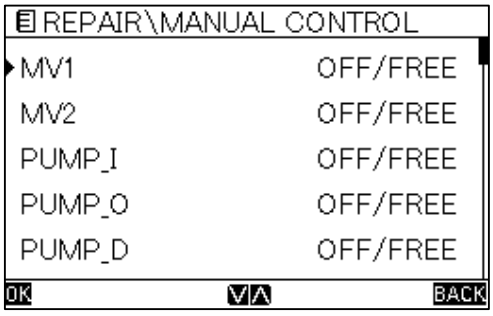
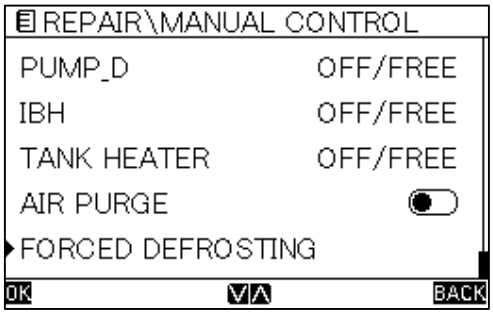
After the 4-digit password is entered, press the 【OK】 to verify. If the password is correct, enter the repair page, otherwise it will prompt that the password is incorrect, enter the password again.

The repair setting page is shown in the figure below:

/	Interface
repair	

3.3.6.1 Manual control

On the repair setting page, by pressing the 【up】or the【down】, the item indicated by the arrow indicates the current selection, select "Manual control", and press the【OK】 to enter the Manual control page.

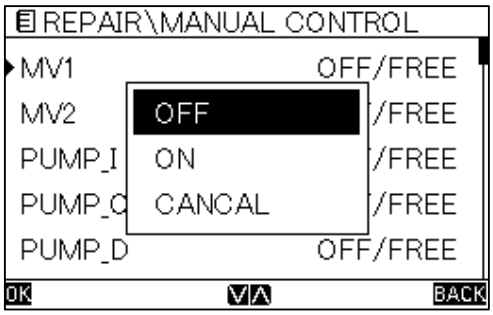
/	Interface
Manual control	 

On the Manual control page, you can compulsively control the components of the Hydronic box, and you can issue commands for the compulsory defrost and automatic exhaust function to the Hydronic box.

Different parameters can be selected through the 【up】or the【down】, the line indicated by

the arrow indicates the current selection.

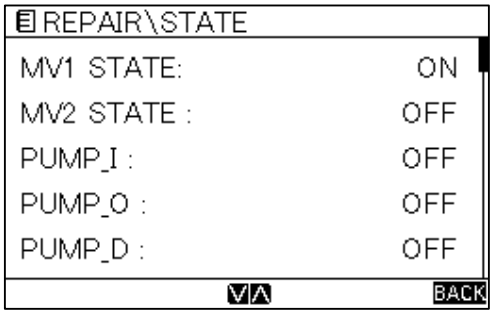
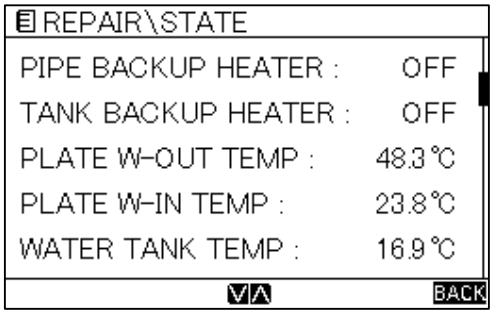
Modify the selected parameter through the【left】or the【right】. Once modified, the modified parameter value will be sent to the Hydronic box automatically.

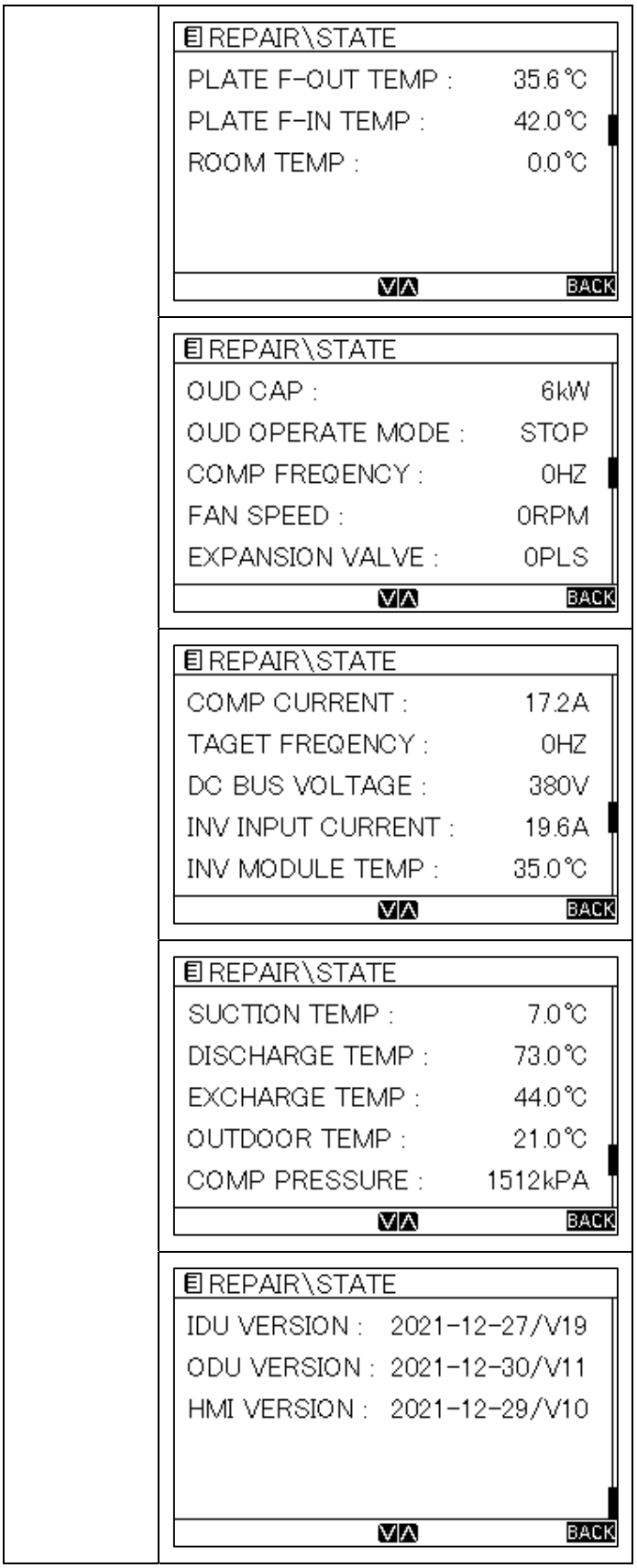
/	Interface
parameter settings	

3.3.6.2 State

On the repair page, by pressing the【up】 or the【down】, the item indicated by the arrow indicates the current selection, select "State", and press the 【OK】to enter the State setting page;

In the State setting page, you can turn the page by pressing 【up】or the【down】.

/	Interface
State	 


REPAIR\STATE
PLATE F-OUT TEMP : 35.6℃
PLATE F-IN TEMP : 42.0℃
ROOM TEMP : 0.0℃
BACK
REPAIR\STATE
OUD CAP : 6kW
OUD OPERATE MODE : STOP
COMP FREQENCY : 0HZ
FAN SPEED : 0RPM
EXPANSION VALVE : 0PLS
BACK
REPAIR\STATE
COMP CURRENT : 17.2A
TAGET FREQENCY : 0HZ
DC BUS VOLTAGE : 380V
INV INPUT CURRENT : 19.6A
INV MODULE TEMP : 35.0℃
BACK
REPAIR\STATE
SUCTION TEMP : 7.0℃
DISCHARGE TEMP : 73.0℃
EXCHARGE TEMP : 44.0℃
OUTDOOR TEMP : 21.0℃
COMP PRESSURE : 1512kPA
BACK
REPAIR\STATE
IDU VERSION : 2021-12-27/V19
ODU VERSION : 2021-12-30/V11
HMI VERSION : 2021-12-29/V10
BACK

3.3.6.3 Parameter settings

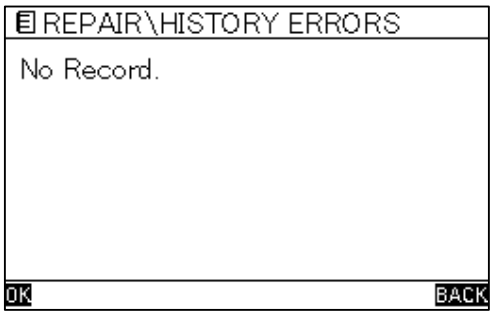
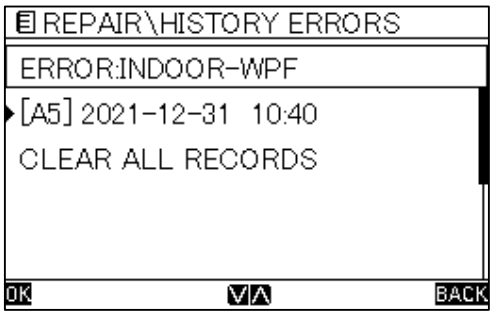
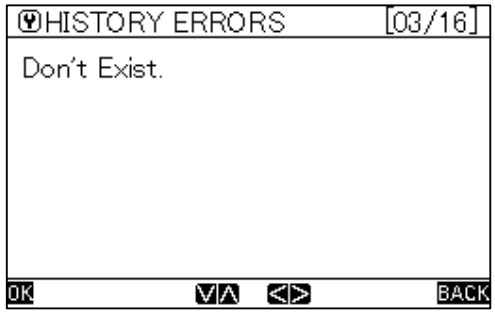
On the repair page, switch between the options by pressing the 【up】or the【down】. The item indicated by the arrow indicates the current selection. Select "Parameter Setting" and press the 【OK】to enter the parameter setting page.

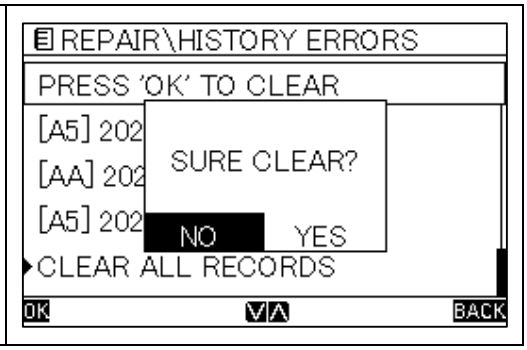
3.3.6.4 History Errors

On the repair page, by pressing the 【up】or the【down】, the item indicated by the arrow indicates the current selection, select "historical fault query", and press the 【OK】to enter the unit History Errors page.

On the History Errors page, select and view faults by pressing the 【up】or the【down】, and you can view the most recent 20 faults at most. The item indicated by the arrow indicates the current selection. The complete fault information includes the time when the fault occurred (fault code, year, month, day, hour, minute), the address of the faulty unit, and the fault name. The selected fault name is displayed on the next line of the title bar. .

History Errors：

/	Interface
No Record	
There is a fault	
Dont Exist	

Clear all records	

On the History Errors page, press the 【OK】, and a prompt box will pop up. Use the 【left】 or the 【right】 to select "Yes" or "No". Select "No" and press the 【OK】 or directly press the 【BACK】 to return to the History Errors display interface, select "Yes" and press the 【OK】 to delete all historical fault records and return to the historical fault display interface . (All module faults are displayed in the same window, clear all faults)

3.3.6.5 Set New Password

On the repair page, by pressing the 【up】or the【down】, the item indicated by the arrow indicates the current selection, select " Set New Password ", and press the 【OK】to enter the password modification interface.

/	Interface
Interface modification	

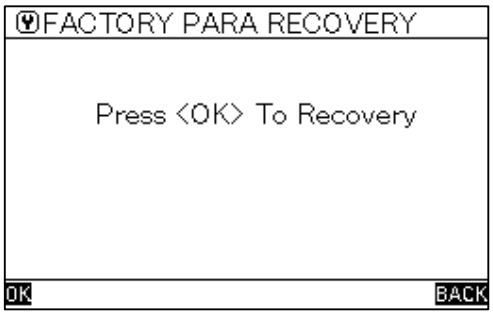
By pressing the 【left】or the 【right】 to select the digit to be entered for the password, the reversed digit indicates the current selection.

Select the password value to be input by pressing the 【up】or the【down】 (input range: 0-9 and A-Z).

After entering the 4-digit password, press the 【OK】to verify and compare it with the password stored in the host. If the password is the same, enter the Enter New Password page.

3.3.6.6 Factory Para Recovery

On the commissioning page, by pressing the 【up】or the【down】 the item indicated by the arrow indicates the current selection, select "restore factory settings", enter the loading default parameter interface through the 【OK】, and press 【OK】 to start Recovery, and the loading is successful as shown in the figure below.

/	Interface
Interface setting	
Loading interface