

TECHNICAL CATALOGUE

airH₂O 600

R32 / R410A SERIES

MODELS

SPLIT SYSTEM

RWM-(1.5-6.0)R3E / RWM-(8.0/10.0)N3E

RWD-(1.5-6.0)RW3E-220S(-K/6H)

RAS-(1.5-6)WH(V)RP2E / RAS-(8/10)WHNPE



Cooling & Heating



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1.1 General information

1.1.1 General notes

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This air to water heat pump has been designed for standard water heating for human beings. For use in other applications, please contact your Hitachi dealer or service contractor.

1.1.2 Introduction

Hitachi proudly announces the newest air-to-water heat pumps in its award-winning **airH2O 600** range.

airH2O 600 units produce heating and domestic hot water like any oil or gas boiler, but transforming renewable energy from the outside air into heat. Air to water heat pumps extract the free energy present in the air, which is enough to heat a home up to a comfortable temperature, even on the coldest winter day. Every kW of electricity used to power the heat pump can yield up to more than 5 kW of energy for heating; this provides savings of up to 80 % on heating expenses compared to a traditional fossil fuel boiler.

The new **airH2O 600** Series, based on state-of-the-art technology, does not only achieve an outstanding performance in space heating but also provides domestic hot water with high efficiency. Additionally, cooling operation for summer can also be provided installing the dedicated cooling kit accessory of Hitachi.

The system is simple to control; its new user controller (PC-ARFH3E) improves the acclaimed and successful design used with the existing LCD controller and provides a great deal of new functions like: live view, energy consumption data, fan coils control, weekly timer, wizard to set timer, override function, etc.

1.1.2.1 Overview of airH2O 600 System

◆ Split system - airH2O 600S and airH2O 600S Combi

It consists of one outdoor unit and one indoor unit. The outdoor unit extracts the heat present in the air, increases its refrigerant temperature and transmits it to the water circuit using the plate heat exchanger of the indoor unit, where the heat is taken to radiators (fan-coils), underfloor heating components or both (2nd temperature area).

Two types of indoor unit can be used in heating split systems:

airH2O 600S



The indoor unit of **airH2O 600S** is designed for space heating, in wall-mounted installation. It is convenient for new installations with low capacity requirements (well insulated installations, high efficiency radiators...).

airH2O 600S Combi



The indoor unit of **airH2O 600S Combi** is conceived as a floor standing unit. It is prepared for heating operation as well as for domestic hot water production. For this purpose, it has a built-in domestic hot water 220 litres tank. In line with **airH2O 600S** units, it meets the needs of installations with low capacity requirements.

Furthermore, new **airH2O 600S Combi** models have been designed for the UK market that meet the UK requirements referred in the UK Building Regulations.

Moreover, a new **airH2O 600S Combi** 6 kW model tailored for Nordic countries has been introduced, addressing the unique needs and climate demands of these regions.

1.1.2.2 Summary of operations

Space heating

airH2O 600 units are factory-supplied ready for space heating operation. Different heating installation configurations can be selected, providing a comfortable atmosphere all year long, even in the coldest climates:

- **Mono-valent system**

The air to water heat pump is sized to provide 100 % of the heating requirements on the coldest day the year.

- **Mono-energy system**

This is the most popular configuration. The air to water heat pump is sized to provide 80% of the heating requirements on the coldest days of the year. An auxiliary electric heater is used to provide the additional heating required on cold days. This option usually results in an ideal balance between installation costs and future energy consumption, as proven by its popularity in colder climates than ours, such as Sweden and Norway.

- **Alternating bi-valent system**

For installations with an existing heating system by boiler and when is needed to heat the supplied water temperature to the circuit up to high temperatures (80°C), the boiler can be configured to alternate with the air to water heat pump.

Selecting the different configuration types it is possible to adapt the system to all customer requirements, providing a wide application range from the simplest configuration to complete configuration: radiator, heating floor or both (2nd temperature area).

Domestic hot water production

For **airH2O 600S**, the Hitachi accessory “DHWT-(200/300)S-3.0H2E” can be used for the production of DHW.

In case of **airH2O 600S Combi** the domestic hot water tank is built in the indoor unit.

An electric heater is incorporated inside both remote and integrated tanks in order to allow an immediate heating of the domestic hot water in accordance with the user’s needs.

Space cooling

airH2O 600 units can also be operated in cooling operation. The dedicated cooling kit accessory has been designed for this purpose. Combining the heating only models with these cooling kits, the reversible models become available. In this case, combination with fan-coils, refreshing floor or both (2nd temperature area) can be applied.

Combination with solar panels

airH2O 600 system can be combined with solar panel. The solar combination enables to heat up the DHW by means of the sun. The solar combination is designed to transfer the heat from the solar panels (sun radiation) to the heat exchanger of DHW tank.

Swimming pool water heating operation

For summer session period, **airH2O 600** System can be used to heat up the water temperature of swimming pools up to a value between 24°C and 33°C.

1.2 Applied symbols

During normal design work or unit installation, greater attention must be paid in certain situations requiring particular care in order to avoid damage to the unit, the installation or the building or property.

Situations that pose a risk to the safety of those in the surrounding area or to the unit itself are clearly indicated in this manual.

A series of special symbols are used to clearly identify these situations.

Pay close attention to these symbols and to the messages following them, as your safety and that of others depends on it.



A2L

RISK OF EXPLOSION: *This symbol shows that this equipment uses an odourless low burning velocity refrigerant. This appliance is filled with R32. If the refrigerant is leaked, there is a possibility of ignition if it enters in contact with an external ignition source.*



DANGER

- *The text following this symbol contains information and instructions relating directly to your safety, in addition to hazards or unsafe practices which could result in severe personal injuries or death.*
- *Not taking these instructions into account could lead to serious, very serious or even fatal injuries to you and others.*

In the texts following the danger symbol you can also find information on safety procedures during unit installation.



CAUTION

- *The text following this symbol contains information and instructions relating directly to your safety, in addition to hazards or unsafe practices which could result in minor personal injury or product or property damage.*
- *Not taking these instructions into account could lead to minor injuries to you and others in the proximities of the unit.*
- *Not taking these instructions into account could lead to unit damage.*

In the texts following the caution symbol you can also find information on safety procedures during unit installation.



NOTE

- *The text following this symbol contains information or instructions that may be of use or that require a more thorough explanation.*
- *Instructions regarding inspections to be made on unit parts or systems may also be included.*

1.3 Norms and Regulations

Following Regulation EU No. 2024/573 on Certain Fluorinated Greenhouse gases, it is mandatory to fill in the label attached to the unit with the total amount of refrigerant charged on the installation.

Do not vent R32 / R410A into the atmosphere: R32 / R410A are fluorinated greenhouse gases covered by the Kyoto protocol global warming potential (GWP) R32=675 / R410A=2088

Tonnes of CO₂ equivalent of fluorinated greenhouse gases contained is calculated by indicated GWP * total charge (in kg indicated in the product label and divided by 1000).

1.3.1 Appropriate refrigerant

The refrigerant used in each unit is identified on the specification label and manuals of the unit. Hitachi shall not be held liable for any failure, trouble, malfunction or accident caused by units illegally charged with refrigerants other than the specified one.

1.3.2 Consequences of charging non-specified refrigerant

It may cause mechanical failure, malfunction and other accidents. It may cause operational failure of protection and safety devices of the system. It may also cause lubrication failure of the sliding part of the compressor due to deterioration of refrigerant oil.

In particular, hydrocarbon refrigerants (such as propane, R441A, R443A, GF-08, etc.) are not allowed, since these are combustible and may cause major accidents such as fire and explosion in case of improper handling.

Once a non-specified refrigerant has been charged, no further servicing (including draining of refrigerant) shall be performed, even in case of malfunction. Improper handling of refrigerant may be a cause of fire and explosion, and servicing in such cases may be considered an illegal act.

End clients and costumers shall be informed that servicing is not approved, and the installer who charged the non-specified refrigerant shall be asked to fix the unit.

Hitachi will accept no responsibility for units that have been charged with non-specified refrigerant once.

1.4 Classification and product guide

1.4.1 Classification of the units

1.4.1.1 Split system - outdoor unit

Unit type: outdoor unit (split system)									
Position-separating hyphen (fixed)									
Compressor power (HP): 1.5, 2, 2.5, 3, 3.5, 4, 5, 6, 8, 10									
For water combination									
Heat pump									
V: Single phase unit (~ 230 V 50 Hz)									
—: Three phase unit (3N~ 400 V 50 Hz)									
N: R410A refrigerant R: R32 refrigerant									
Premium series									
—: Series 0 2: Series 2									
Made in Europe									
RAS	-	X	W	H	(V)	(X)	P	(X)	E

1.4.1.2 Split system - indoor unit

◆ airH2O 600S

Unit type: airH2O 600S (split system - single water module (indoor unit) - medium/low temperature)					
Position-separating hyphen (fixed)					
Compressor power of the combined outdoor unit (HP): 1.5, 2.0, 2.5, 3.0, 3.5, 4.0, 5.0, 6.0, 8.0, 10.0					
N: R410A refrigerant					
R: R32 refrigerant					
Series 3					
Made in Europe					
RWM	-	X.X	(X)	3	E

◆ airH2O 600S Combi

Unit type: airH2O 600S Combi (split system - dual water module (indoor unit + domestic hot water tank) - medium/low temperature)										
Position-separating hyphen (fixed)										
Compressor power of the combined outdoor unit (HP): 1.5, 2.0, 2.5, 3.0, 3.5, 4.0, 5.0, 6.0										
R: R32 refrigerant										
Water-to-water DHW heat exchanger										
Series 3										
Made in Europe										
Position-separating hyphen (fixed)										
Tank model: 220 litres										
Tank material: stainless steel										
-K: Model for UK market										
-6H: 6 kW heater model										
RWD	-	X.X	R	W	3	E	-	220	S	(-X)

1.4.2 Product guide

Icons between brackets mean possible extra operations to the factory-supplied operations (additional accessories, field-supplied accessories or systems can be needed).

-  Heating operation
-  Additional heater (electrical heater accessory or boiler)
-  Domestic Hot Water (DHW)
-  UK market
-  Swimming pool application
-  Cooling operation
-  Solar combination
-  Integrated Wi-Fi

1.4.2.1 Split system - outdoor unit

◆ RAS-(1.5-6)WH(V)RP2E (R32 units)

			
Model	Power supply	Model code	Picture
RAS-1.5WHVRP2E	~ 230 V 50 Hz	7E353002	
RAS-2WHVRP2E		7E353003	
RAS-2.5WHVRP2E		7E353004	
RAS-3WHVRP2E		7E353005	
RAS-3.5WHVRP2E		7E350006	
RAS-4WHVRP2E	3N~ 400 V 50 Hz	7E350020	
RAS-5WHVRP2E		7E350021	
RAS-6WHVRP2E		7E350022	
RAS-3.5WHRP2E		7E350106	
RAS-4WHRP2E		7E350120	
RAS-5WHRP2E		7E350121	
RAS-6WHRP2E		7E350122	

◆ RAS-(8/10)WHNPE (R410A units)

			
Model	Power supply	Model code	Picture
RAS-8WHNPE	3N~ 400 V 50 Hz	7E350110	 
RAS-10WHNPE		7E350111	

1.4.2.2 Split system - indoor unit

◆ airH2O 600S - RWM-(1.5-6.0)R3E (R32 units)

			
Model	Power supply	Model code	Picture
RWM-1.5R3E	~ 230V 50Hz 3N~ 400V 50Hz	7E475215	
RWM-2.0R3E		7E475265	
RWM-2.5R3E		7E475266	
RWM-3.0R3E		7E475244	
RWM-3.5R3E		7E475206	
RWM-4.0R3E		7E475207	
RWM-5.0R3E		7E475208	
RWM-6.0R3E		7E475209	

For cooling operation, refer to the cooling kit accessory for airH2O 600S units.

◆ airH2O 600S - RWM-(8.0/10.0)N3E (R410A units)

			
Model	Power supply	Model code	Picture
RWM-8.0N3E	~ 230V 50Hz 3N~ 400V 50Hz	7E475076	
RWM-10.0N3E		7E475077	

For cooling operation, refer to the cooling kit accessory for **airH2O 600S** units.

◆ airH2O 600S Combi - RWD-(1.5-6.0)RW3E-220S(-K/6H) (R32 units)

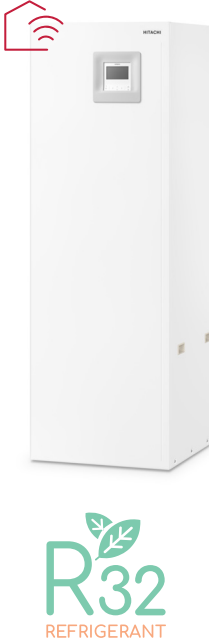
Standard model

			
Model	Power supply	Model code	Picture
RWD-1.5RW3E-220S	~ 230V 50Hz 3N~ 400V 50Hz	7E483563	 
RWD-2.0RW3E-220S		7E483571	
RWD-2.5RW3E-220S		7E483572	
RWD-3.0RW3E-220S		7E483526	
RWD-3.5RW3E-220S		7E483606	
RWD-4.0RW3E-220S		7E483607	
RWD-5.0RW3E-220S		7E483608	
RWD-6.0RW3E-220S		7E483609	

For cooling operation, refer to the cooling kit accessory for airH2O 600S Combi units.

Model for UK market



Model	Power supply	Model code	Picture
RWD-1.5RW3E-220S-K	~ 230V 50Hz 3N~ 400V 50Hz	7E483564	
RWD-2.0RW3E-220S-K		7E483574	
RWD-2.5RW3E-220S-K		7E483575	
RWD-3.0RW3E-220S-K		7E483573	
RWD-3.5RW3E-220S-K		7E483619	
RWD-4.0RW3E-220S-K		7E483620	
RWD-5.0RW3E-220S-K		7E483621	
RWD-6.0RW3E-220S-K		7E483622	

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For cooling operation, refer to the cooling kit accessory for airH2O 600S Combi units.

6 kW heater model

			
Model	Power supply	Model code	Picture
RWD-2.0RW3E-220S-6H		7E483616	
RWD-2.5RW3E-220S-6H	~ 230V 50Hz 3N~ 400V 50Hz	7E483617	
RWD-3.0RW3E-220S-6H		7E483618	



For cooling operation, refer to the cooling kit accessory for **airH2O 600S Combi** units.

1.4.2.3 Complementary system - Cascade Controller

Accessory	Name	Code	Figure
ATW-YCC-04	Cascade Controller New controller generation (26 languages)	7E549972	

1.4.3 Accessory code list

Model	Unit reference
airH2O 600S units (RWM-(1.5-10.0)(N/R)3E)	S
airH2O 600S Combi units (RWD-(1.5-6.0)RW3E-220S(-K/6H))	SC
Cascade Controller (ATW-YCC-04)	YCC-04
All models	A

1.4.3.1 Cooling kit accessories

Accessory	Compatible units	Name	Code	Figure
ATW-CKS-01	S	Cooling operation kit for airH2O 600S (For 1.5-3.0 HP)	7E549927	
ATW-CKS-02	S	Cooling operation kit for airH2O 600S (For 3.5-6.0 HP)	7E549928	
ATW-CKS-03	S	Cooling operation kit for airH2O 600S (For 8.0/10.0 HP)	7E549929	
ATW-CKSC-02	SC	Cooling operation kit for airH2O 600S Combi - Insulations + Jumper	7E549959	
ATW-CKSC-03	SC	Cooling operation kit for airH2O 600S Combi - Insulations + Jumper + Drain Pump	7E549960	

1.4.3.2 Control accessories

Accessory	Compatible units	Name	Code	Figure
PC-ARFH3E	S SC	Unit controller Wired room thermostat for airH2O 600 units	7E543026	
PC-ARFH3EB	S SC	Unit controller Wired room thermostat for airH2O 600 units (Black version)	7E543027	
PC-ARCHE	S SC	Compact wired thermostat	7E543022	
PC-ARFH1E1	A	Wired room thermostat (Languages EN, ES, DE, FR, IT, NL, SL)	7E543019	
PC-ARFH1E1-02	A	Wired room thermostat (Languages EN, DA, SV, FI, PT, HR, EL)	7E543020	
PC-ARFH1E1-03	A	Wired room thermostat (Languages EN, PL, UK, HU, RO, SL, CS)	7E543021	
ATW-RTU-04	A	Wireless ON/OFF thermostat (Receiver + Room thermostat)	7E543003	
ATW-RTU-06	A	Wireless Intelligent thermostat for 2nd circuit (Only Room thermostat. For Intelligent thermostat application). Can be combined with ATW-RTU-07.	7E543005	
ATW-RTU-07	A	Wireless Intelligent thermostat (Receiver + Room thermostat)	7E543015	

Accessory	Compatible units	Name	Code	Figure
ATW-KNX-02	S SC	KNX interface for airH2O 600 units	7E549925	
ATW-AOS-02	S SC	Auxiliary output signal box (Relay board for additional output signals)	7E549935	
HC-A16MB	S SC	MODBUS gateway for multi airH2O 600 systems (up to 8 airH2O 600 units max., with Cascade Controller 2 units max. or without Cascade Controller)	7E513210	
ATW-MBS-02	S SC	MODBUS gateway for single airH2O 600 system	7E549924	
ATW-FCP-03	S SC	Unit controller cover	7E549964	
ATW-EC-01	A	Extension cord for gateway Wifi ATW-IOT-02 (10 meters)	7E549973	

1.4.3.3 Temperature sensor accessories

Accessory	Compatible units	Name	Code	Figure
ATW-ITS-01	S SC	Indoor wired room temperature sensor	7E549932	
ATW-WTS-02Y	S SC	Universal water temperature sensor	9E500004	

1.4.3.4 Water circuit accessories

Accessory	Compatible units	Name	Code	Figure
ATW-2TK-07	S SC	2nd zone mixing kit (Wall mounted model)	7E549952	
ATW-2TK-08	SC	2nd zone mixing kit (Integrable in airH2O 600S Combi)	7E549965	
ATW-CP-05	SC	Active Anode (Cathodic Protection)	70549954	
DHWT-200S-3.0H2E	S	Domestic hot water tank (200 L)	70544002	
DHWT-300S-3.0H2E	S	Domestic hot water tank (300 L)	70544003	
ATW-HSK-01	S SC	Hydraulic separator	7E549905	

Accessory	Compatible units	Name	Code	Figure
ATW-AQT-01	S SC	Aquastat security	7E549907	
ATW-3WV-01	S SC	3-way valve (Internal thread and spring return)	7E549906	
ATW-WCV-01	S SC	Water check valve	9E500014	
ATW-DPOV-01	S SC	Differential pressure overflow valve	7E549916	

1.4.3.5 Outdoor unit accessories code list

Model	Ref.
RAS-(1.5-3)WHVRP2E	A
RAS-(3.5-6)WH(V)RP2E	B
RAS-(8/10)WHNPE	C

Accessory	Compatible units	Name	Code	Figure
DBS-12L	A	Drain discharge connection	60291491	
DBS-26	B C	Drain discharge connection	60299192	
DH-SP63A	A	Drain heater	60292335	
ATW-DH0-01	B	Drain heater	7E549975	

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2.1 Capacity tables

2.1.1 Nominal capacity-performance tables

◆ Considerations

- The heating capacity tables show the capacity and performance data in integrated values (with defrost correction factor included).
- The nominal heating and cooling capacities are based on the EN 14511 standard:
Piping length: 7.5 meters; Piping lift: 0 meters.

Keywords:

- *CAP: Nominal capacity (kW)*
- *COP: Coefficient of performance*
- *EER: Energy efficiency ratio*
- *DB: Dry bulb; WB: Wet bulb (°C)*
- *OAT: Outdoor ambient temperature (°C)*
- *WIT: Water inlet temperature (°C)*
- *WOT: Water outlet temperature (°C)*

2.1.1.1 Capacity-performance data

◆ airH2O 600 outdoor unit + airH2O 600S / airH2O 600S Combi

		HP		1.5 HP	2.0 HP	2.5 HP	3.0 HP
		Indoor unit		RAS-1.5WHVRP2E	RAS-2WHVRP2E	RAS-2.5WHVRP2E	RAS-3WHVRP2E
				RAS-1.5R3E	RAS-2.0R3E	RAS-2.5R3E	RAS-3.0R3E
				RWD-1.5RW3E-220S(-K)	RWD-2.0RW3E-220S(-K/6H)	RWD-2.5RW3E-220S(-K/6H)	RWD-3.0RW3E-220S(-K/6H)
OAT (DB/WB)	WIT / WOT	-	Unit	Heating operation			
7 / 6 °C	30 / 35 °C	CAP (Min./Nom./Max.)	kW	1.85 / 3.50 / 6.32	1.85 / 4.30 / 6.50	2.1 / 6.00 / 8.60	2.1 / 8.00 / 11.0
		COP (Nom.)	-	5.10	5.00	5.00	4.60
	47 / 55 °C	CAP (Nom./Max.)	kW	3.50 / 4.90	4.30 / 5.98	6.00 / 7.00	8.00 / 9.50
		COP (Nom.)	-	2.95	2.90	2.70	2.80
2 / 1°C	* / 35 °C	CAP (Nom.)	kW	4.00	4.50	5.30	5.80
		COP (Nom.)	-	4.00	4.00	3.59	3.05
-7 / -8 °C	30 / 35 °C	CAP (Nom./Max.)	kW	3.00 / 5.21	4.50 / 5.50	5.30 / 6.20	5.80 / 7.50
		COP (Nom.)	-	2.90	2.85	2.85	2.70
	47 / 55 °C	CAP (Nom./Max.)	kW	3.00 / 3.84	4.00 / 4.77	4.70 / 5.00	5.00 / 6.00
		COP (Nom.)	-	2.00	1.92	1.80	1.75
OAT (DB/WB)	WIT / WOT	-	Unit	Cooling operation (Using cooling kit accessory)			
35 / -- °C	12 / 7 °C	CAP (Nom./Max.)	kW	3.50 / 4.69	4.00 / 5.12	5.30 / 6.00	6.50 / 7.00
		EER (Nom.)	-	3.70	3.82	3.60	3.35
	23 / 18 °C	CAP (Nom./Max.)	kW	5.00 / 6.32	5.50 / 7.02	6.30 / 7.20	7.00 / 9.00
		EER (Nom.)	-	4.95	5.16	5.30	5.00
		HP		3.5 HP	4.0 HP	5.0 HP	6.0 HP
		Indoor unit		RAS-3.5WH(V)RP2E	RAS-4WH(V)RP2E	RAS-5WH(V)RP2E	RAS-6WH(V)RP2E
				RAS-3.5R3E	RAS-4.0R3E	RAS-5.0R3E	RAS-6.0R3E
				RWD-3.5RW3E-220S(-K)	RWD-4.0RW3E-220S(-K)	RWD-5.0RW3E-220S(-K)	RWD-6.0RW3E-220S(-K)
OAT (DB/WB)	WIT / WOT	-	Unit	Heating operation			
7 / 6 °C	30 / 35 °C	CAP (Min./Nom./Max.)	kW	3.7 / 8.5 / 10.5	3.7 / 10 / 12	4 / 12 / 14	4 / 14 / 16
		COP (Nom.)	-	4.67	4.6	4.83	4.35
	47 / 55 °C	CAP (Nom./Max.)	kW	8 / 10	10 / 12	12 / 14	14 / 16
		COP (Nom.)	-	2.4	2.3	2.55	2.68
2 / 1°C	* / 35 °C	CAP (Nom./Max.)	kW	8.5 / 8.5	9/ 10.5	10 / 12.5	10 / 15
		COP (Nom.)	-	3.6	3.5	3.44	3.44
-7 / -8 °C	30 / 35 °C	CAP (Nom./Max.)	kW	8.5 / 8.5	10 / 10.5	12 / 12	14 / 14.6
		COP (Nom.)	-	2.7	3	2.91	2.7
	47 / 55 °C	CAP (Nom./Max.)	kW	8 / 8.5	10 / 10	12 / 12	13.3 / 13.3
		COP (Nom.)	-	2	2.2	2.1	2.13
OAT (DB/WB)	WIT / WOT	-	Unit	Cooling operation (Using cooling kit accessory)			
35 / -- °C	12 / 7 °C	CAP (Nom./Max.)	kW	7.5 / 9.5	9 / 10.5	10 / 12	11.5 / 12.5
		EER (Nom.)	-	3.24	3.05	3	2.89
	23 / 18 °C	CAP (Nom./Max.)	kW	8.5 / 9.2	10 / 11	12 / 13	14 / 15
		EER (Nom.)	-	4.13	4.16	4.09	3.95

		HP		8.0 HP	10.0 HP
		Outdoor unit		RAS-8WHNPE	RAS-10WHNPE
		Indoor unit		RWM-8.0N3E	RWM-10.0N3E
				-	-
OAT (DB/WB)	WIT / WOT	-	Unit	Heating operation	
7 / 6 °C	30 / 35 °C	CAP (Min./Nom./Max.)	kW	9.0 / 20.0 / 25.5	10.0 / 24.0 / 32.0
		COP (Nom.)	-	4.30	4.29
	47 / 55 °C	CAP (Nom./Max.)	kW	20.0 / 24.0	24.0 / 25.5
		COP (Nom.)	-	2.72	2.65
2 / 1 °C	* / 35 °C	CAP (Nom.)	kW	12.3	13.0
		COP (Nom.)	-	3.41	3.31
-7 / -8 °C	30 / 35 °C	CAP (Nom./Max.)	kW	14.2 / 17.9	16.5 / 21.0
		COP (Nom.)	-	2.57	2.46
	47 / 55 °C	CAP (Nom./Max.)	kW	12.5 / 14.5	15.5 / 17.3
		COP (Nom.)	-	1.70	1.50
OAT (DB/WB)	WIT / WOT	-	Unit	Cooling operation (Using cooling kit accessory)	
35 / -- °C	12 / 7 °C	CAP (Nom./Max.)	kW	14.0 / 16.4	17.5 / 20.6
		EER (Nom.)	-	3.12	2.81
	23 / 18 °C	CAP (Nom./Max.)	kW	17.0 / 23.5	20.0 / 27.0
		EER (Nom.)	-	3.81	3.61

*: The test is performed with the fixed flow rate or with the ΔT obtained during the test at the corresponding standard rating conditions for units with variable flow rate.

◆ airH2O 600S Combi Domestic Hot Water tank performance

Tank	HP		(1.5-3.0) HP
	Outdoor unit model		RAS-(1.5-3)WHVRP2E
	Indoor unit model		RWD-(1.5-3.0)RW3E-220S(-K/6H)
220 litres	Load profile	-	L
	COPdhw (SCOPdhw)	-	3.10
	Heating up time	t_h	h:min
	Standby power input	Pes	W
	Mixed water at 40 °C	Vmax	l
	Ref hot water temperature	θ'_{wh}	°C
	Efficiency	η_{wh}	%
	Energy class	-	A+
Tank	HP		(3.5-4.0) HP
	Outdoor unit model		RAS-(3.5-4)WH(V)RP2E
	Indoor unit model		RWD-(3.5-4.0)RW3E-220S(-K/6H)
220 litres	Load profile	-	L
	COPdhw (SCOPdhw)	-	2.83
	Heating up time	t_h	h:min
	Standby power input	Pes	W
	Mixed water at 40 °C	Vmax	l
	Ref hot water temperature	θ'_{wh}	°C
	Efficiency	η_{wh}	%
	Energy class	-	A+
Tank	HP		(5.0-6.0) HP
	Outdoor unit model		RAS-(5-6)WH(V)RP2E
	Indoor unit model		RWD-(5.0-6.0)RW3E-220S(-K/6H)
220 litres	Load profile	-	L
	COPdhw (SCOPdhw)	-	2.83
	Heating up time	t_h	h:min
	Standby power input	Pes	W
	Mixed water at 40 °C	Vmax	l
	Ref hot water temperature	θ'_{wh}	°C
	Efficiency	η_{wh}	%
	Energy class	-	A+

2.2 ERP performance data

2.2.1 General considerations

- This appliance must be installed, maintained and dismantled by professionals. Do not pour contained refrigerant into the atmosphere since this refrigerant fluid is a fluorinated greenhouse gas regulated under European Regulation (EU) No 2024/573.
- Data with the mark (*) corresponds to the “Energy efficiency contribution (η_s)” due to the use of temperature control.
- **Data between brackets corresponds only to heating and cooling models (“Cooling kit” accessory needed).**

OTC control (Factory-supplied)		Wired room thermostat (PC-ARFH3E)	7E543026 (**)
		Wireless intelligent thermostat (ATW-RTU-07)	7E543015
		Wired room sensor (ATW-ITS-01)	7E549932
Temperature control class	II	Temperature control class	VI
Energy efficiency contribution	+2%	Energy efficiency contribution	+4%

 **NOTE**
(**) *Factory supplied.*

2.2.2 General ERP data for space heaters

2.2.2.1 Split system - airH2O 600S and airH2O 600S Combi

◆ AVERAGE climate

				HP		1.5 HP		2.0 HP		2.5 HP		3.0 HP	
				Outdoor unit		RAS-1.5WHVRP2E		RAS-2WHVRP2E		RAS-2.5WHVRP2E		RAS-3WHVRP2E	
				Indoor unit		RWM-1.5R3E		RWM-2.0R3E		RWM-2.5R3E		RWM-3.0R3E	
RWD-1.5RW3E-220S(-K)		RWD-2.0RW3E-220S(-K/6H)				RWD-2.5RW3E-220S(-K/6H)		RWD-3.0RW3E-220S(-K/6H)					
Water outlet temperature				35°C	55°C	35°C	55°C	35°C	55°C	35°C	55°C		
Product description	Air to water heat pump		-	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes		
	Heat pump combination heater		-	No	No	No	No	No	No	No	No		
	Low temperature heat pump		-	No	No	No	No	No	No	No	No		
	Complementary heater		-	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes		
Design capacity (P _{DESIGN})			kW	3.5	3.5	4	4	6	5	7	6		
Nominal energy efficiency (η _s)			%	175 (180)	125 (127)	175 (179)	125 (127)	175 (178)	126 (128)	175 (177)	125 (127)		
SCOP			-	4.45 (4.57)	3.19 (3.26)	4.44 (4.55)	3.19 (3.24)	4.44 (4.51)	3.23 (3.28)	4.44 (4.51)	3.20 (3.24)		
Nominal energy class			-	A+++	A++	A+++	A++	A+++	A++	A+++	A++		
Data for Packaged Fiche	Energy efficiency with OTC control (η _s) (*)		%	177 (182)	127 (129)	177 (181)	127 (129)	177 (180)	128 (130)	177 (179)	127 (129)		
	Energy class with OTC control		-	A+++	A++	A+++	A++	A+++	A++	A+++	A++		
	Energy efficiency with thermostats/sensors (η _s) (*)		%	179 (184)	129 (131)	179 (183)	129 (131)	179 (182)	130 (132)	179 (181)	129 (131)		
	Energy class with thermostats		-	A+++	A++	A+++	A++	A+++	A++	A+++	A++		
Supplementary capacity (P _{SUP})			kW	0	0	0	0.9	0.7	1.1	1.4	1		
Type of energy used			-	Electricity	Electricity	Electricity	Electricity	Electricity	Electricity	Electricity	Electricity		
Declared capacity (P _d) and coefficient of performance (COP _d) at partial load under the following outdoor temperatures:	Outdoor temperature (T _j) = -7°C	P _d	kW	3.10	3.10	3.54	3.50	5.10	4.42	5.90	5.10		
		COP _d	-	2.85	2.10	2.87	2.18	2.50	1.85	2.70	1.85		
	Outdoor temperature (T _j) = +2°C	P _d	kW	2.00	2.00	2.35	2.10	3.10	2.69	3.59	3.10		
		COP _d	-	4.55	3.05	4.43	2.90	4.45	3.15	4.30	3.05		
	Outdoor temperature (T _j) = +7°C	P _d	kW	3.00	2.43	3.00	2.43	3.00	2.43	3.20	2.00		
		COP _d	-	6.80	4.85	7.00	5.19	6.60	4.80	6.60	4.70		
	Outdoor temperature (T _j) = +12°C	P _d	kW	3.05	2.80	3.05	2.80	3.05	2.80	3.50	2.20		
		COP _d	-	7.81	7.00	7.95	7.07	8.89	6.80	9.70	7.40		
	Outdoor temperature (T _j) = Bivalent temperature (T _{biv})	P _d	kW	3.10	3.10	3.54	3.50	5.10	4.42	5.90	5.10		
		COP _d	-	2.85	2.10	2.87	2.18	2.50	1.85	2.70	1.85		
	Outdoor temperature (T _j) = Limit operation temperature (TOL)	P _d	kW	3.50	3.50	4.00	3.10	5.30	3.90	5.60	5.00		
		COP _d	-	2.58	2.55	2.75	1.90	2.50	1.70	2.30	1.50		
Bivalent temperature (T _{biv})			°C	-7	-7	-7	-7	-7	-7	-7	-7		
Limit operation temperature (TOL)			°C	-10	-10	-10	-10	-10	-10	-10	-10		
Water limit operation temperature (WTOL)			°C	55	55	55	55	55	55	55	55		
Degradation coefficient (C _d)			-	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9		
Annual energy consumption (Q _{HE})			kW·h	1576 (1532)	2414 (2370)	1862 (1818)	2563 (2520)	2682 (2638)	3192 (3149)	3101 (3057)	3718 (3674)		

ERP PERFORMANCE DATA
2
GENERAL DATA

			HP		3.5 HP		4.0 HP		5.0 HP		6.0 HP	
			Outdoor unit		RAS-3.5WH(V)RP2E		RAS-5WH(V)RP2E		RAS-3.5WH(V)RP2E		RAS-5WH(V)RP2E	
					RWM-3.5R3E		RWM-4.0R3E		RWM-5.0R3E		RWM-6.0R3E	
			Indoor unit		RWD-3.5RW3E-220S(-K)		RWD-4.0RW3E-220S(-K)		RWD-5.0RW3E-220S(-K)		RWD-6.0RW3E-220S(-K)	
Water outlet temperature			35°C	55°C	35°C	55°C	35°C	55°C	35°C	55°C		
Product description	Air to water heat pump	-	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes		
	Heat pump combination heater	-	No	No	No	No	No	No	No	No		
	Low temperature heat pump	-	No	No	No	No	No	No	No	No		
	Complementary heater	-	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes		
Design capacity (P _{DESIGN})		kW	12.1	12.1	12.1	12.1	13	14	13	14		
Nominal energy efficiency (η _s)		%	177 (178)	129 (129)	177 (178)	129 (129)	176 (178)	127 (128)	176 (178)	127 (128)		
SCOP		-	4.49 (4.54)	3.29 (3.31)	4.49 (4.54)	3.29 (3.31)	4.48 (4.52)	3.26 (3.28)	4.48 (4.52)	3.26 (3.28)		
Nominal energy class		-	A+++	A++	A+++	A++	A+++	A++	A+++	A++		
Data for Packaged Fiche	Energy efficiency with OTC control (η _s) (*)	%	179 (180)	131 (131)	179 (180)	131 (131)	178 (180)	129 (130)	178 (180)	129 (130)		
	Energy class with OTC control	-	A+++	A++	A+++	A++	A+++	A++	A+++	A++		
	Energy efficiency with thermostats/sensors (η _s) (*)	%	181 (182)	133 (133)	181 (182)	133 (133)	180 (182)	131 (132)	180 (182)	131 (132)		
	Energy class with thermostats	-	A+++	A++	A+++	A++	A+++	A++	A+++	A++		
Supplementary capacity (P _{SUP})		kW	0	1.5	0	1.5	0	1.6	0	1.6		
Type of energy used		-	Electricity	Electricity	Electricity	Electricity	Electricity	Electricity	Electricity	Electricity		
Declared capacity (P _d) and coefficient of performance (COP _d) at partial load under the following outdoor temperatures:	Outdoor temperature (Tj) = -7°C	P _d _h	kW	10.7	10.7	10.7	10.7	11.5	12.4	11.5	12.4	
		COP _d	-	2.96	2.15	2.96	2.15	2.91	2.09	2.91	2.09	
	Outdoor temperature (Tj) = +2°C	P _d _h	kW	6.51	6.51	6.51	6.51	7	7.55	7	7.55	
		COP _d	-	4.2	3.06	4.2	3.06	4.35	3.1	4.35	3.1	
	Outdoor temperature (Tj) = +7°C	P _d _h	kW	4.19	4.19	4.19	4.19	4.5	4.85	4.5	4.85	
		COP _d	-	6.13	4.56	6.13	4.56	5.82	4.34	5.82	4.34	
	Outdoor temperature (Tj) = +12°C	P _d _h	kW	3.99	3.65	3.99	3.65	4.1	4.23	4.1	4.23	
		COP _d	-	8.62	6.26	8.62	6.26	8.04	6.36	8.04	6.36	
	Outdoor temperature (Tj) = Bivalent temperature (T _{biv})	P _d _h	kW	10.7	10.7	10.7	10.7	11.5	12.4	11.5	12.4	
		COP _d	-	2.96	2.15	2.96	2.15	2.91	2.09	2.91	2.09	
	Outdoor temperature (Tj) = Limit operation temperature (TOL)	P _d _h	kW	12.1	10.6	12.1	10.6	13.0	12.4	13.0	12.4	
		COP _d	-	2.89	2.02	2.89	2.02	2.59	1.86	2.59	1.86	
Bivalent temperature (T _{biv})		°C	-7	-7	-7	-7	-7	-7	-7	-7		
Limit operation temperature (TOL)		°C	-10	-10	-10	-10	-10	-10	-10	-10		
Water limit operation temperature (WTOL)		°C	55	55	55	55	55	55	55	55		
Degradation coefficient (C _d _h)		-	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9		
Annual energy consumption (Q _{HE})		kW·h	5561 (5508)	7600 (7548)	5561 (5508)	7600 (7548)	5991 (5939)	8886 (8834)	5991 (5939)	8886 (8834)		

			HP		8.0 HP		10.0 HP	
			Outdoor unit		RAS-8WHNPE		RAS-10WHNPE	
					RWM-8.ON3E		RWM-10.ON3E	
			Indoor unit		-		-	
			Water outlet temperature		35°C	55°C	35°C	55°C
Product description	Air to water heat pump		-	Yes	Yes	Yes	Yes	
	Heat pump combination heater		-	No	No	No	No	
	Low temperature heat pump		-	No	No	No	No	
	Complementary heater		-	Yes	Yes	Yes	Yes	
Design capacity (P _{DESIGN})			kW	18.0	16.0	20.0	18.0	
Nominal energy efficiency (η _s)			%	150 (152)	120 (122)	141 (142)	116 (118)	
SCOP			-	3.83 (3.88)	3.08 (3.13)	3.60 (3.63)	2.98 (3.03)	
Nominal energy class			-	A++	A+	A+	A+	
Data for Packaged Fiche	Energy efficiency with OTC control (η _s) (*)		%	152 (154)	122 (124)	143 (144)	118 (120)	
	Energy class with OTC control		-	A++	A+	A+	A+	
	Energy efficiency with thermostats/sensors (η _s) (*)		%	153 (155)	123 (125)	144 (145)	119 (121)	
	Energy class with thermostats		-	A++	A+ (A++)	A+	A+	
Supplementary capacity (P _{SUP})			kW	2.0	3.9	2.0	4.0	
Type of energy used			-	Electricity	Electricity	Electricity	Electricity	
Declared capacity (Pdh) and coefficient of performance (COP _d) at partial load under the following outdoor temperatures:	Outdoor temperature (Tj) = -7°C	Pdh	kW	15.60	13.80	17.40	15.60	
		COP _d	-	2.50	1.65	2.30	1.65	
	Outdoor temperature (Tj) = +2°C	Pdh	kW	9.50	8.40	10.77	9.50	
		COP _d	-	3.85	3.10	3.60	3.10	
	Outdoor temperature (Tj) = +7°C	Pdh	kW	6.10	6.00	8.70	8.30	
		COP _d	-	5.40	4.76	5.10	4.35	
	Outdoor temperature (Tj) = +12°C	Pdh	kW	7.00	6.80	8.70	8.50	
		COP _d	-	4.65	5.10	4.90	4.60	
	Outdoor temperature (Tj) = Bivalent temperature (T _{biv})	Pdh	kW	15.60	13.80	17.40	15.60	
		COP _d	-	2.50	1.65	2.30	1.65	
	Outdoor temperature (Tj) = Limit operation temperature (TOL)	Pdh	kW	16.00	12.10	18.00	14.00	
		COP _d	-	2.40	1.50	2.10	1.45	
Bivalent temperature (T _{biv})			°C	-7	-7	-7	-7	
Limit operation temperature (TOL)			°C	-10	-10	-10	-10	
Water limit operation temperature (WTOL)			°C	55	55	55	55	
Degradation coefficient (Cdh)			-	0.9	0.9	0.9	0.9	
Annual energy consumption (Q _{HE})			kW·h	9513 (9382)	10452 (10320)	11410 (11278)	12210 (12078)	

◆ WARMER climate

		HP	1.5 HP	2.0 HP	2.5 HP	3.0 HP
		Outdoor unit	RAS-1.5WHVRP2E	RAS-2WHVRP2E	RAS-2.5WHVRP2E	RAS-3WHVRP2E
		Indoor unit	RWM-1.5R3E	RWM-2.0R3E	RWM-2.5R3E	RWM-3.0R3E
			RWD-1.5RW3E-220S(-K)	RWD-2.0RW3E-220S(-K)	RWD-2.5RW3E-220S(-K)	RWD-3.0RW3E-220S(-K)
Design capacity (P _{DESIGN})		kW	3.50	4.00	5.00	6.00
Nominal energy efficiency (η _s)		%	172 (181)	185 (194)	165 (171)	170 (175)
SCOP		-	4.38 (4.60)	4.69 (4.92)	4.19 (4.34)	4.33 (4.46)
Data for packaged fiche	Energy efficiency with OTC control (η _s) (*)	%	175 (185)	189 (198)	168 (174)	173 (178)
	Energy efficiency with thermostats (η _s) (*)	%	179 (188)	192 (202)	172 (178)	177 (182)
Annual energy consumption (Q _{HE})		kW·h	1068 (1016)	1139 (1087)	1593 (1540)	1851 (1799)

		HP	3.5 HP	4.0 HP	5.0 HP	6.0 HP
		Outdoor unit	RAS-3.5WH(V)RP2E	RAS-4WH(V)RP2E	RAS-5WH(V)RP2E	RAS-6WH(V)RP2E
		Indoor unit	RWM-3.5R3E	RWM-4.0R3E	RWM-5.0R3E	RWM-6.0R3E
			RWD-3.5RW3E-220S(-K)	RWD-4.0RW3E-220S(-K)	RWD-5.0RW3E-220S(-K)	RWD-6.0RW3E-220S(-K)
Design capacity (P _{DESIGN})		kW	12.1	12.1	14	14
Nominal energy efficiency (η _s)		%	167 (170)	167 (170)	167 (170)	167 (170)
SCOP		-	4.26 (4.33)	4.26 (4.33)	4.26 (4.33)	4.26 (4.33)
Data for packaged fiche	Energy efficiency with OTC control (η _s) (*)	%	169 (172)	169 (172)	169 (172)	169 (172)
	Energy efficiency with thermostats (η _s) (*)	%	171 (174)	171 (174)	171 (174)	171 (174)
Annual energy consumption (Q _{HE})		kW·h	3796 (3734)	3796 (3734)	4394 (4333)	4394 (4333)

		HP	8.0 HP	10.0 HP
		Outdoor unit	RAS-8WHNPE	RAS-10WHNPE
		Indoor unit	RWM-8.0N3E	RWM-10.0N3E
Design capacity (P _{DESIGN})		kW	16	18
Nominal energy efficiency (η _s)		%	178 (181)	173 (178)
SCOP		-	4.53 (4.6)	4.4 (4.53)
Data for packaged fiche	Energy efficiency with OTC control (η _s) (*)	%	180 (183)	175 (180)
	Energy efficiency with thermostats (η _s) (*)	%	181 (184)	176 (181)
Annual energy consumption (Q _{HE})		kW·h	4725 (4641)	5466 (5307)

◆ COLDER climate

		HP	1.5 HP	2.0 HP	2.5 HP	3.0 HP
		Outdoor unit	RAS-1.5WHVRP2E	RAS-2WHVRP2E	RAS-2.5WHVRP2E	RAS-3WHVRP2E
		Indoor unit	RWM-1.5R3E	RWM-2.0R3E	RWM-2.5R3E	RWM-3.0R3E
			RWD-1.5RW3E-220S(-K)	RWD-2.0RW3E-220S(-K)	RWD-2.5RW3E-220S(-K)	RWD-3.0RW3E-220S(-K)
Design capacity (P _{DESIGN})		kW	3.50	4.00	5.00	6.00
Nominal energy efficiency (η _s)		%	110 (111)	112 (113)	106 (107)	113 (113)
SCOP		-	2.84 (2.86)	2.88 (2.90)	2.74 (2.75)	2.90 (2.91)
Data for packaged fiche	Energy efficiency with OTC control (η _s) (*)	%	112 (113)	115 (116)	108 (109)	115 (115)
	Energy efficiency with thermostats (η _s) (*)	%	114 (115)	117 (118)	110 (111)	118 (118)
Annual energy consumption (Q _{HE})		kW·h	3195 (3169)	3359 (3333)	4640 (4613)	5110 (5024)

		HP	3.5 HP	4.0 HP	5.0 HP	6.0 HP
		Outdoor unit	RAS-3.5WH(V)RP2E	RAS-4WH(V)RP2E	RAS-5WH(V)RP2E	RAS-6WH(V)RP2E
		Indoor unit	RWM-3.5R3E	RWM-4.0R3E	RWM-5.0R3E	RWM-6.0R3E
			RWD-3.5RW3E-220S(-K)	RWD-4.0RW3E-220S(-K)	RWD-5.0RW3E-220S(-K)	RWD-6.0RW3E-220S(-K)
Design capacity (P _{DESIGN})		kW	12.1	12.1	14	14
Nominal energy efficiency (η _s)		%	106 (106)	106 (106)	104 (106)	104 (106)
SCOP		-	2.71 (2.73)	2.71 (2.73)	2.67 (2.68)	2.67 (2.68)
Data for packaged fiche	Energy efficiency with OTC control (η _s) (*)	%	108 (108)	108 (108)	106 (108)	106 (108)
	Energy efficiency with thermostats (η _s) (*)	%	110 (110)	110 (110)	108 (110)	108 (110)
Annual energy consumption (Q _{HE})		kW·h	9241 (9189)	9241 (9189)	10820 (10768)	10820 (10768)

		HP	8.0 HP	10.0 HP
		Outdoor unit	RAS-8WHNPE	RAS-10WHNPE
		Indoor unit	RWM-8.0N3E	RWM-10.0N3E
Design capacity (P _{DESIGN})		kW	16	18
Nominal energy efficiency (η _s)		%	109 (110)	107 (107)
SCOP		-	2.8 (2.83)	2.75 (2.75)
Data for packaged fiche	Energy efficiency with OTC control (η _s) (*)	%	111 (113)	109 (109)
	Energy efficiency with thermostats (η _s) (*)	%	112 (114)	110 (110)
Annual energy consumption (Q _{HE})		kW·h	13987 (13945)	15956 (15876)

2.2.2.2 ERP additional data - airH2O 600S and airH2O 600S Combi

	HP	1.5 HP	2.0 HP	2.5 HP	3.0 HP
	Outdoor unit	RAS-1.5WHVRP2E	RAS-2WHVRP2E	RAS-2.5WHVRP2E	RAS-3WHVRP2E
	Indoor unit	RWM-1.5R3E	RWM-2.0R3E	RWM-2.5R3E	RWM-3.0R3E
		RWD-1.5RW3E-220S(-K)	RWD-2.0RW3E-220S(-K)	RWD-2.5RW3E-220S(-K)	RWD-3.0RW3E-220S(-K)
Electrical power input in stand-by mode (Psb)	W	11.9	11.9	11.9	11.9
Electrical power input in thermostat-OFF mode (Pto)	W	0	0	0	0
Electrical power input in OFF mode (Poff)	W	11.9	11.9	11.9	11.9
Electrical power input in crankcase heater mode (Pck)	W	0	0	0	0
Sound power level of indoor unit (Lwa)	dB(A)	41	41	41	41
Sound power level of outdoor unit (Lwa)	dB(A)	50	50	51	51
Capacity control mode	-	Variable (Inverter)	Variable (Inverter)	Variable (Inverter)	Variable (Inverter)
Integrated supplementary heater	kW	3	3	3	3
Nominal outdoor air flow	m³/h	2436	2436	2682	2682

	HP	3.5 HP	4.0 HP	5.0 HP	6.0 HP
	Outdoor unit	RAS-3.5WH(V)RP2E	RAS-4WH(V)RP2E	RAS-5WH(V)RP2E	RAS-6WH(V)RP2E
	Indoor unit	RWM-3.5R3E	RWM-4.0R3E	RWM-5.0R3E	RWM-6.0R3E
		RWD-3.5RW3E-220S(-K)	RWD-4.0RW3E-220S(-K)	RWD-5.0RW3E-220S(-K)	RWD-6.0RW3E-220S(-K)
Electrical power input in stand-by mode (Psb)	W	14	14	14	14
Electrical power input in thermostat-OFF mode (Pto)	W	15	15	15	15
Electrical power input in OFF mode (Poff)	W	14	14	14	14
Electrical power input in crankcase heater mode (Pck)	W	0	0	0	0
Sound power level of indoor unit (Lwa)	dB(A)	41	41	41	41
Sound power level of outdoor unit (Lwa)	dB(A)	53	53	54	54
Capacity control mode	-	Variable (Inverter)	Variable (Inverter)	Variable (Inverter)	Variable (Inverter)
Integrated supplementary heater	kW	6	6	6	6
Nominal outdoor air flow	m³/h	6409	6409	6894	6894

	HP	8.0 HP	10.0 HP
	Outdoor unit	RAS-8WHNPE	RAS-10WHNPE
	Indoor unit	RWM-8.0N3E	RWM-10.0N3E
Electrical power input in stand-by mode (Psb)	W	36	36
Electrical power input in thermostat-OFF mode (Pto)	W	0	0
Electrical power input in OFF mode (Poff)	W	36	36
Electrical power input in crankcase heater mode (Pck)	W	0	0
Sound power level of indoor unit (Lwa)	dB(A)	47	47
Sound power level of outdoor unit (Lwa)	dB(A)	59	60
Capacity control mode	-	Variable (inverter)	Variable (inverter)
Integrated supplementary heater	kW	9.0	9.0
Nominal outdoor air flow	m³/h	7620	8040

2.2.3 General ERP data for combi heaters

2.2.3.1 Split system - airH2O 600S Combi

	HP	1.5 HP	2.0 HP	2.5 HP	3.0 HP
	Outdoor unit	RAS-1.5WHVRP2E	RAS-2WHVRP2E	RAS-2.5WHVRP2E	RAS-3WHVRP2E
	Indoor unit	RWD-1.5RW3E-220S(-K)	RWD-2.0RW3E-220S(-K)	RWD-2.5RW3E-220S(-K)	RWD-3.0RW3E-220S(-K)
Declared profile	-	L	L	L	L
Ability to work during OFF peak hours	-	Yes	Yes	Yes	Yes
AVERAGE climate					
Water heating energy efficiency (η_{wh})	%	126	126	126	126
COPdhw (SCOPdhw)	-	3.10	3.10	3.10	3.10
Water heating energy class	-	A+	A+	A+	A+
Daily electricity consumption	kW·h	2.22	2.22	2.22	2.22
Annual energy consumption	kW·h	810	810	810	810
WARMER climate					
Water heating energy efficiency (η_{wh})	%	141	141	141	141
COPdhw (SCOPdhw)	-	3.45	3.45	3.45	3.45
Daily energy consumption	kW·h	1.99	1.99	1.99	1.99
Annual energy consumption	kW·h	727	727	727	727
COLDER climate					
Water heating energy efficiency (η_{wh})	%	109	109	109	109
COPdhw (SCOPdhw)	-	2.69	2.69	2.69	2.69
Daily energy consumption	kW·h	2.56	2.56	2.56	2.56
Annual energy consumption	kW·h	936	936	936	936

	HP	3.5 HP	4.0 HP	5.0 HP	6.0 HP
	Outdoor unit	RAS-3.5WH(V)RP2E	RAS-4WH(V)RP2E	RAS-5WH(V)RP2E	RAS-6WH(V)RP2E
	Indoor unit	RWD-3.5RW3E-220S(-K)	RWD-4.0RW3E-220S(-K)	RWD-5.0RW3E-220S(-K)	RWD-6.0RW3E-220S(-K)
Declared profile	-	L	L	L	L
Ability to work during OFF peak hours	-	Yes	Yes	Yes	Yes
AVERAGE climate					
Water heating energy efficiency (η_{wh})	%	116	116	116	116
COPdhw (SCOPdhw)	-	2.83	2.83	2.83	2.83
Water heating energy class	-	A+	A+	A+	A+
Daily electricity consumption	kW·h	2.42	2.42	2.42	2.42
Annual energy consumption	kW·h	884	884	884	884
WARMER climate					
Water heating energy efficiency (η_{wh})	%	145	145	145	145
COPdhw (SCOPdhw)	-	3.52	3.52	3.52	3.52
Daily energy consumption	kW·h	1.93	1.93	1.93	1.93
Annual energy consumption	kW·h	706	706	706	706
COLDER climate					
Water heating energy efficiency (η_{wh})	%	93	93	93	93
COPdhw (SCOPdhw)	-	2.28	2.28	2.28	2.28
Daily energy consumption	kW·h	3.02	3.02	3.02	3.02
Annual energy consumption	kW·h	1102	1102	1102	1102

2.2.4 General ERP data for hot water storage tanks

Domestic hot water tank in combination with airH2O 600S.

Model		DHWT-200S-3.0H2E	DHWT-300S-3.0H2E
Storage Volume	l	194	264
Standing loss	W	47.3	62.8
Energy efficiency class	-	B	B

2.3 Cooling data (EN 14825)

For those models with cooling kit accessory.

2.3.1 Split system - airH2O 600S / airH2O 600S Combi

		HP		1.5 HP		2.0 HP		2.5 HP		3.0 HP	
		Outdoor unit		RAS-1.5WHVRP2E		RAS-2WHVRP2E		RAS-2.5WHVRP2E		RAS-3WHVRP2E	
		Indoor unit		RWM-1.5R3E		RWM-2.0R3E		RWM-2.5R3E		RWM-3.0R3E	
				RWD-1.5RW3E-220S(-K)		RWD-2.0RW3E-220S(-K)		RWD-2.5RW3E-220S(-K)		RWD-3.0RW3E-220S(-K)	
		Water outlet temperature		7℃	18℃	7℃	18℃	7℃	18℃	7℃	18℃
Product description	Outdoor side heat exchanger of chiller	-	Air to Water	Air to Water	Air to Water	Air to Water	Air to Water	Air to Water	Air to Water	Air to Water	
	Indoor side heat exchanger chiller	-	Water	Water	Water	Water	Water	Water	Water	Water	
	Type	-	Compressor driven vapour compression	Compressor driven vapour compression	Compressor driven vapour compression	Compressor driven vapour compression	Compressor driven vapour compression	Compressor driven vapour compression	Compressor driven vapour compression	Compressor driven vapour compression	
	Driver of compressor	-	Electric motor	Electric motor	Electric motor	Electric motor	Electric motor	Electric motor	Electric motor	Electric motor	
	Capacity Control		Variable	Variable	Variable	Variable	Variable	Variable	Variable	Variable	
	Water control		Fixed	Fixed	Fixed	Fixed	Fixed	Fixed	Fixed	Fixed	
Rated Cooling Capacity (PRATED,C)		kW	3.5	5.5	4.00	5.50	5.30	6.30	6.50	7.00	
Seasonal space cooling energy efficiency (ηS,C)		%	229	329	219	319	216	337	208	330	
Seasonal energy efficiency ratio cooling mode (SEER)		-	5.81	8.3	5.54	8.04	5.48	8.50	5.27	8.31	
Seasonal active energy ratio cooling mode (SEERON)		-	5.81	8.3	5.76	8.38	5.64	8.83	5.39	8.60	
Declared cooling capacity and efficiency ratio for part load at given outdoor temperatures Tj	Outdoor temperature (Tj) = 35℃	Pdc	kW	3.5	5	4.00	5.50	5.30	6.30	6.50	7.00
		EERd	-	4	4.95	3.80	5.40	3.60	5.30	3.35	4.80
	Outdoor temperature (Tj) = 30℃	Pdc	kW	2.45	3.55	2.95	4.05	3.91	4.64	4.79	5.16
		EERd	-	5	6.74	5.00	7.20	4.50	7.00	4.50	6.40
	Outdoor temperature (Tj) = 25℃	Pdc	kW	1.55	2.11	2.05	2.61	2.51	2.98	2.90	3.32
		EERd	-	6.45	9.12	6.45	9.60	6.30	9.90	6.00	10.0
	Outdoor temperature (Tj) = 20℃	Pdc	kW	2.38	2.5	2.88	2.51	2.88	2.65	3.40	3.60
		EERd	-	8	12.38	8.00	10.3	8.20	12.61	7.50	13.5
Degradation coefficient (Cdc)		-	0.9	0.9	0.90	0.90	0.90	0.90	0.90	0.90	
Annual energy consumption (QCE)		kW·h	361	361	433	410	581	445	740	505	

		HP		3.5 HP		4.0 HP		5.0 HP		6.0 HP			
		Outdoor unit		RAS-3.5WH(V)RP2E		RAS-4WH(V)RP2E		RAS-5WH(V)RP2E		RAS-6WH(V)RP2E			
		Indoor unit		RWM-3.5R3E		RWM-4.0R3E		RWM-5.0R3E		RWM-6.0R3E			
				RWD-3.5RW3E-220S(-K)		RWD-4.0RW3E-220S(-K)		RWD-5.0RW3E-220S(-K)		RWD-6.0RW3E-220S(-K)			
		Water outlet temperature		7℃		18℃		7℃		18℃		7℃	
Product description	Outdoor side heat exchanger of chiller		-	Air to Water	Air to Water	Air to Water	Air to Water	Air to Water	Air to Water	Air to Water	Air to Water	Air to Water	Air to Water
	Indoor side heat exchanger chiller		-	Water	Water	Water	Water	Water	Water	Water	Water	Water	Water
	Type		-	Compressor driven vapour compression	Compressor driven vapour compression	Compressor driven vapour compression	Compressor driven vapour compression	Compressor driven vapour compression	Compressor driven vapour compression	Compressor driven vapour compression	Compressor driven vapour compression	Compressor driven vapour compression	Compressor driven vapour compression
	Driver of compressor		-	Electric motor	Electric motor	Electric motor	Electric motor	Electric motor	Electric motor	Electric motor	Electric motor	Electric motor	Electric motor
	Capacity Control		-	Variable	Variable	Variable	Variable	Variable	Variable	Variable	Variable	Variable	Variable
	Water control		-	Fixed	Fixed	Fixed	Fixed	Fixed	Fixed	Fixed	Fixed	Fixed	Fixed
Rated Cooling Capacity (PRATED,C)			kW	7.5	8.5	9	10	10	12	11.5	14		
Seasonal space cooling energy efficiency (ηS,C)			%	188	299	188	301	185	301	177	295		
Seasonal energy efficiency ratio cooling mode (SEER)			-	4.77	7.56	4.76	7.61	4.71	7.59	4.49	7.46		
Seasonal active energy ratio cooling mode (SEERON)			-	4.92	7.9	4.89	7.9	4.82	7.83	4.58	7.66		
Declared cooling capacity and efficiency ratio for part load at given outdoor temperatures Tj	Outdoor temperature (Tj) = 35℃	Pdc	kW	7.5	8.5	9	10	10	12	11.5	14		
		EERd	-	3.24	4.13	3.05	4.16	2.95	4.09	2.89	3.95		
	Outdoor temperature (Tj) = 30℃	Pdc	kW	5.5	6.56	6.63	7.4	7.37	8.84	8.5	10.3		
		EERd	-	4.37	7.34	4.22	6.91	4.11	6.34	4.03	5.85		
	Outdoor temperature (Tj) = 25℃	Pdc	kW	3.55	6	4.26	6	4.74	6	5.4	6.29		
		EERd	-	5.7	8.49	5.7	8.49	5.57	8.49	4.94	8.45		
	Outdoor temperature (Tj) = 20℃	Pdc	kW	3.6	4.9	3.6	4.9	3.55	4.9	3.68	4.59		
		EERd	-	5.74	12.38	5.74	12.38	5.74	12.4	5.74	12.4		
Degradation coefficient (Cdc)			-	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9		
Annual energy consumption (QCE)			kW·h	949	675	1134	789	1275	949	1537	1126		

		HP		8.0 HP		10.0 HP	
		Outdoor unit		RAS-8WHNPE		RAS-10WHNPE	
		Indoor unit		RWM-8.0N3E		RWM-10.0N3E	
		Water outlet temperature		7℃	18℃	7℃	18℃
Product description	Outdoor side heat exchanger of chiller	-	Air to Water	Air to Water	Air to Water	Air to Water	
	Indoor side heat exchanger chiller	-	Water	Water	Water	Water	
	Type	-	Compressor driven vapour compression	Compressor driven vapour compression	Compressor driven vapour compression	Compressor driven vapour compression	
	Driver of compressor	-	Electric motor	Electric motor	Electric motor	Electric motor	
	Capacity Control	-	Variable	Variable	Variable	Variable	
	Water control	-	Fixed	Fixed	Fixed	Fixed	
Rated Cooling Capacity (PRATED,C)		kW	14.0	17.0	17.5	20.0	
Seasonal space cooling energy efficiency (ηS,C)		%	169	213	159	215	
Seasonal energy efficiency ratio cooling mode (SEER)		-	4.29	5.40	4.06	5.44	
Seasonal active energy ratio cooling mode (SEERON)		-	4.60	5.80	4.28	5.79	
Declared cooling capacity and efficiency ratio for part load at given outdoor temperatures Tj	Outdoor temperature (Tj) = 35℃	Pdc	kW	14.0	17.0	17.5	20.0
		EERd	-	3.12	3.81	2.81	3.61
	Outdoor temperature (Tj) = 30℃	Pdc	kW	10.32	12.53	12.9	14.74
		EERd	-	3.92	5.60	3.53	5.50
	Outdoor temperature (Tj) = 25℃	Pdc	kW	6.50	8.20	8.20	8.20
		EERd	-	5.30	6.50	4.87	6.50
	Outdoor temperature (Tj) = 20℃	Pdc	kW	8.00	8.50	8.00	8.50
		EERd	-	5.80	6.60	5.50	6.60
Degradation coefficient (Cdc)		-	0.90	0.90	0.90	0.90	
Annual energy consumption (QCE)		kW·h	1142	1102	1510	1286	

Additional cooling data

	HP		1.5 HP	2.0 HP	2.5 HP	3.0 HP
	Outdoor unit		RAS-1.5WHVRP2E	RAS-2WHVRP2E	RAS-2.5WHVRP2E	RAS-3WHVRP2E
	Indoor unit		RWM-1.5R3E	RWM-2.0R3E	RWM-2.5R3E	RWM-3.0R3E
			RWD-1.5RW3E-220S(-K)	RWD-2.0RW3E-220S(-K)	RWD-2.5RW3E-220S(-K)	RWD-3.0RW3E-220S(-K)
Electrical power input in stand-by mode cooling mode (Psb)	W		14	11.9	11.9	11.9
Electrical power input in thermostat-OFF cooling mode (Pto)	W		0.2	0	0	0
Electrical power input in OFF mode (Poff)	W		12	11.9	11.9	11.9
Electrical power input in crankcase heater in cooling mode (Pck)	W		0	0	0	0
Sound power level of indoor unit (Lwa)	dB(A)		37	37	37	37
Sound power level of outdoor unit (Lwa)	dB(A)		61	61	65	67
Capacity control mode	-		Variable (Inverter)	Variable (Inverter)	Variable (Inverter)	Variable (Inverter)
Nominal outdoor air flow	m³/h		2436	2436	2436	2682

	HP		3.5 HP	4.0 HP	5.0 HP	6.0 HP
	Outdoor unit		RAS-3.5WH(V)RP2E	RAS-4WH(V)RP2E	RAS-5WH(V)RP2E	RAS-6WH(V)RP2E
	Indoor unit		RWM-3.5R3E	RWM-4.0R3E	RWM-5.0R3E	RWM-6.0R3E
			RWD-3.5RW3E-220S(-K)	RWD-4.0RW3E-220S(-K)	RWD-5.0RW3E-220S(-K)	RWD-6.0RW3E-220S(-K)
Electrical power input in stand-by mode cooling mode (Psb)	W		14	14	14	14
Electrical power input in thermostat-OFF cooling mode (Pto)	W		15	15	15	15
Electrical power input in OFF mode (Poff)	W		14	14	14	14
Electrical power input in crankcase heater in cooling mode (Pck)	W		0	0	0	0
Sound power level of indoor unit (Lwa)	dB(A)		41	41	41	41
Sound power level of outdoor unit (Lwa)	dB(A)		62	62	63	63
Capacity control mode	-		Variable (Inverter)	Variable (Inverter)	Variable (Inverter)	Variable (Inverter)
Nominal outdoor air flow	m³/h		6894	6894	6894	6894

	HP		8.0 HP	10.0 HP
	Outdoor unit		RAS-8WHNPE	RAS-10WHNPE
	Indoor unit		RWM-8.0N3E	RWM-10.0N3E
Electrical power input in stand-by mode cooling mode (Psb)	W		36	36
Electrical power input in thermostat-OFF cooling mode (Pto)	W		0.0	0.0
Electrical power input in OFF mode (Poff)	W		36	36
Electrical power input in crankcase heater in cooling mode (Pck)	W		0.0	0.0
Sound power level of indoor unit (Lwa)	dB(A)		47	47
Sound power level of outdoor unit (Lwa)	dB(A)		73	74
Capacity control mode	-		Variable (Inverter)	Variable (Inverter)
Nominal outdoor air flow	m³/h		7620	8040

2.4 General specifications

2.4.1 Considerations

- The sound data is based on the following conditions:
 - ✓ Outdoor ambient temperature
 - Heating mode (DB/WB): 7/6°C
 - Cooling mode (Ta): 35°C
 - ✓ Water inlet/outlet temperature
 - Heating mode: 47/55°C (mark *1)
 - Cooling mode: 12/7°C (mark *2)
 - ✓ Distance of the unit from the measuring point: At 1 meter from the unit's front surface; 1.5 meter from floor level.
 - ✓ The sound pressure level is measured in an anechoic chamber, so reflected sound should be taken into consideration when installing the unit.
 - ✓ The sound power level is measured in a reverberant room, in accordance with the standard EN 12102. Used environment conditions are the same that specified in EN 14511 for performance test.
 - ✓ Sound power and sound pressure levels at part load condition are corresponding to Night shift function with capacity ratio set at 40% .
- *For specific details about data corresponding to the working range, please refer to the chapter "Working range".*

Keywords:

- *DB: Dry bulb*
- *WB: Wet bulb*

2.4.2 Split system - outdoor unit

Outdoor unit			RAS-1.5WHVRP2E	RAS-2WHVRP2E	RAS-2.5WHVRP2E	RAS-3WHVRP2E
Power supply			- ~ 230 V 50 Hz	~ 230 V 50 Hz	~ 230 V 50 Hz	~ 230 V 50 Hz
Heating noise level (sound power) - Nominal	(*1)	dB(A)	59	61	63	66
Heating noise level (sound power) - Part Load	(*1)	dB(A)	50	50	51	51
Cooling noise level (sound power) - Nominal	(*2)	dB(A)	61	61	65	67
Heating noise level (sound pressure) - Nominal	(*1)	dB(A)	44	50	53	53
Heating noise level (sound pressure) - Part Load	(*1)	dB(A)	37	37	37	37
Cooling noise level (sound pressure) - Nominal	(*2)	dB(A)	50	51	51	52
Air flow	m³/min		45.9	45.9	57	57
Cabinet colour (Munsell code)	-		White (RAL 9016)	White (RAL 9016)	White (RAL 9016)	White (RAL 9016)
Dimensions (H x W x D)	mm		628 x 882 x 305	628 x 882 x 305	628 x 882 x 305	628 x 882 x 305
Net weight	kg		44.5	44.5	44.5	44.5
Gross weight	kg		52	52	52	52
Piping diameter (liquid / gas)(*4)	mm (in.)		Ø 6.35 (1/4) / Ø 12.7 (1/2)	Ø 6.35 (1/4) / Ø 12.7 (1/2)	Ø 6.35 (1/4) / Ø 12.7 (1/2)	Ø 6.35 (1/4) / Ø 12.7 (1/2)
Minimum piping length (*5)	m		3	3	3	3
Maximum chargeless piping length	m		10	10	10	10
Additional refrigerant charge needed	g /m		15	15	15	15
Maximum piping length	m		50	50	40	40
Height difference between OU and IU(higher OU / lower OU)	m		30 / 20	30 / 20	30 / 20	30 / 20
Working range outdoor ambient temperature	Heating	°C (DB)	-20 ~ 25	-20 ~ 25	-20 ~ 25	-25 ~ 25
	Cooling	°C (DB)	10 ~ 46	10 ~ 46	10 ~ 46	10 ~ 46
	DHW	°C (DB)	-20 ~ 35	-20 ~ 35	-20 ~ 35	-25 ~ 35
Refrigerant	-		R32	R32	R32	R32
Refrigerant charge before shipment	kg		1.1	1.1	1.2	1.2
Charge-less piping length	m		10	10	10	10
Compressor type	-		Rotary DC Inverter driven	Rotary DC Inverter driven	Rotary DC Inverter driven	Rotary DC Inverter driven

(*4) See "Refrigerant and water piping" chapter.
(*5) In case of a piping length below 5 m (3 m ~ 5 m) remove 150 g of R32 refrigerant.

Outdoor unit			RAS-3.5WH(V)RP2E	RAS-4WH(V)RP2E	RAS-5WH(V)RP2E	RAS-6WH(V)RP2E
Power supply			- ~ 230 V 50 Hz / 3N~ 400 V 50 Hz	~ 230 V 50 Hz / 3N~ 400 V 50 Hz	~ 230 V 50 Hz / 3N~ 400 V 50 Hz	~ 230 V 50 Hz / 3N~ 400 V 50 Hz
Heating noise level (sound power) - Nominal		(*1) dB(A)	62	62	63	63
Heating noise level (sound power) - Part load		(*1) dB(A)	53	53	54	54
Cooling noise level (sound power) - Nominal		(*2) dB(A)	62	62	63	63
Heating noise level (sound pressure) - Nominal		(*1) dB(A)	56	57	58	59
Heating noise level (sound pressure) - Part load		(*1) dB(A)	41	41	42	42
Cooling noise level (sound pressure) - Nominal		(*2) dB(A)	56	57	58	59
Air flow		m³/min	107	107	115	115
Cabinet colour (Munsell code)		-	White RAL 9016	White RAL 9016	White RAL 9016	White RAL 9016
Dimensions (H x W x D)		mm	1220 x 430 x 1140	1220 x 430 x 1140	1220 x 430 x 1140	1220 x 430 x 1140
Net weight		kg	112	112	114	114
Gross weight		kg	124	124	126	126
Piping diameter (liquid / gas)(*3)	L ≤30m	mm (in.)	6.35 (1/4") / 15.88 (5/8") or 12.7 (1/2") (*6)	6.35 (1/4") / 15.88 (5/8") or 12.7 (1/2") (*6)	6.35 (1/4") / 15.88 (5/8") or 12.7 (1/2") (*6)	6.35 (1/4") / 15.88 (5/8") or 12.7 (1/2") (*6)
	L >30m		9.52 (3/8") / 15.88 (5/8")	9.52 (3/8") / 15.88 (5/8")	9.52 (3/8") / 15.88 (5/8")	9.52 (3/8") / 15.88 (5/8")
Minimum piping length		m	5	5	5	5
Maximum chargeless piping length	For heating only(*4)	m	10	10	10	10
	For cooling and heating		5	5	5	5
Additional refrigerant charge needed (*5)	L ≤30m	g/m	40	40	40	40
	L >30m		45	45	45	45
Maximum piping length		m	50	50	50	50
Height difference between OU and IU(higher OU / lower OU)		m	30/20	30/20	30/20	30/20
Working range outdoor ambient temperature	Heating	°C (DB)	-25~25	-25~25	-25~25	-25~25
	Cooling	°C (DB)	10~46	10~46	10~46	10~46
	DHW	°C (DB)	-25~43	-25~43	-25~43	-25~43
Refrigerant		-	R32	R32	R32	R32
Refrigerant charge before shipment	For heating only	kg	1.8	1.8	2.1	2.1
	For cooling and heating (*5)		1.8	1.8	2.1	2.1
Compressor type		-	Rotary DC Inverter driven	Rotary DC Inverter driven	Rotary DC Inverter driven	Rotary DC Inverter driven

(*3) See "*Refrigerant and water piping*" chapter.
(*4) If maximum Two is limited to 60°C by installer, chargeless length can be increased up to 15m. For distance above 15m, always apply the table, no matter Two limits.
(*5) For cooling and heating model add always 400g of refrigerant. For piping lengths over 5m, add the additional refrigerant charge needed listed on the table above on top of the initial 400g.
(*6) Only use gas pipe of 12.7mm (1/2") for Heat Only units from a piping length of 5m to 30m.

Outdoor unit			RAS-8WHNPE	RAS-10WHNPE
Power supply			- 3N~ 400 V 50 Hz	3N~ 400 V 50 Hz
Heating noise level (sound power) - Nominal			(*1) dB(A) 73	74
Heating noise level (sound power) - Part load			(*1) dB(A) 59	60
Cooling noise level (sound power) - Nominal			(*2) dB(A) 73	74
Heating noise level (sound pressure) - Nominal			(*1) dB(A) 59	60
Heating noise level (sound pressure) - Part load			(*1) dB(A) 52	52
Cooling noise level (sound pressure) - Nominal			(*2) dB(A) 57	58
Air flow			m³/min 80	90
Cabinet colour (Munsell code)			- Natural Gray (1.0Y 8.5/0.5)	Natural Gray (1.0Y 8.5/0.5)
Dimensions (H x W x D)			mm 1380 x 950 x 370	1380 x 950 x 370
Net weight			kg 137	139
Gross weight			kg 152	154
Piping diameter (liquid / gas)(*)			mm (in.) Ø 9.52 (3/8) / Ø 25.4 (1)	Ø 12.70 (1/2) / Ø 25.4 (1)
Minimum piping length			m 5	5
Maximum chargeless piping length			m 15	15
Additional refrigerant charge needed			g /m 65	65
Maximum piping length			m 70	70
Height difference between OU and IU(higher OU / lower OU)			m 30 / 20	30 / 20
Working range outdoor ambient temperature	Heating	°C (DB)	-25 ~ 25	-25 ~ 25
	Cooling	°C (DB)	10 ~ 46	10 ~ 46
	DHW	°C (DB)	-25 ~ 35	-25 ~ 35
Refrigerant			- R410A	R410A
Refrigerant charge before shipment			kg 5.0	5.3
Charge-less piping length			m 15	15
Compressor type			- Rotary DC Inverter driven	Rotary DC Inverter driven

(*) See "*Refrigerant and water piping*" chapter.

(**) If the piping length is less than 5 m, please consult the "*Refrigerant and water piping*" chapter for appropriate adjustment of the refrigerant charge.

2.4.3 Split system - indoor unit

2.4.3.1 airH2O 600S - RWM-(1.5-6.0)R3E

		Indoor unit	RWM-1.5R3E	RWM-2.0R3E	RWM-2.5R3E	RWM-3.0R3E	
Power supply		-	~ 230 V 50 Hz / 3N~ 400 V 50 Hz	~ 230 V 50 Hz / 3N~ 400 V 50 Hz	~ 230 V 50 Hz / 3N~ 400 V 50 Hz	~ 230 V 50 Hz / 3N~ 400 V 50 Hz	
Noise level (sound power)		dB(A)	41	41	41	41	
Noise level (sound pressure)		dB(A)	30	30	30	30	
Minimum water flow rate		m³/h	0.5	0.5	0.6	0.6	
Maximum water flow rate		m³/h	2.1	2.1	2.5	2.5	
Nominal water flow rate		WIT: 30 °C / WOT: 35 °C ΔT: 5 °C	m³/h	0.6	0.8	1	1.2
Cabinet	Material	-	Precoated galvanised steel	Precoated galvanised steel	Precoated galvanised steel	Precoated galvanised steel	
	Colour	-	White (RAL 9016)	White (RAL 9016)	White (RAL 9016)	White (RAL 9016)	
Unit dimensions	Height (with connections)	mm	712 (780)	712 (780)	712 (780)	712 (780)	
	Width	mm	450	450	450	450	
	Depth	mm	285	285	285	285	
Packaging dimensions	Height	mm	915	915	915	915	
	Width	mm	476	476	476	476	
	Depth	mm	539	539	539	539	
Packaging volume		m³	0.23	0.23	0.23	0.23	
Packaging materials		-	Wood - Carton - Plastic	Wood - Carton - Plastic	Wood - Carton - Plastic	Wood - Carton - Plastic	
Net weight		kg	34	34	36	36	
Gross weight		kg	43	43	45	45	
Refrigerant pipes connection	Connection type	-	Flare nut connection	Flare nut connection	Flare nut connection	Flare nut connection	
	Liquid pipe diameter	mm (in.)	Ø 6.35 (1/4)	Ø 6.35 (1/4)	Ø 6.35 (1/4)	Ø 6.35 (1/4)	
	Gas pipe diameter	mm (in.)	Ø 12.7 (1/2)	Ø 12.7 (1/2)	Ø 12.7 (1/2)	Ø 12.7 (1/2)	
Space heating pipes connection	Connection type	-	Screwed connection	Screwed connection	Screwed connection	Screwed connection	
	Shutdown valves	in.	G 1" (male) - G 1" (male)	G 1" (male) - G 1" (male)	G 1" (male) - G 1" (male)	G 1" (male) - G 1" (male)	
	Inlet pipe diameter	in.	G 1" (female)	G 1" (female)	G 1" (female)	G 1" (female)	
	Outlet pipe diameter	in.	G 1" (female)	G 1" (female)	G 1" (female)	G 1" (female)	

Indoor unit		RWM-3.5R3E	RWM-4.0R3E	RWM-5.0R3E	RWM-6.0R3E
Power supply		- ~ 230 V 50 Hz / 3N~ 400 V 50 Hz	~ 230 V 50 Hz / 3N~ 400 V 50 Hz	~ 230 V 50 Hz / 3N~ 400 V 50 Hz	~ 230 V 50 Hz / 3N~ 400 V 50 Hz
Noise level (sound power)		dB(A) 41	41	41	41
Noise level (sound pressure)		dB(A) 30	30	30	30
Minimum water flow rate		m³/h 1	1	1.1	1.2
Maximum water flow rate		m³/h 2.8	2.8	3	3
Nominal water flow rate WIT: 30 °C / WOT: 35 °C ΔT: 5 °C		m³/h 1.4	1.7	2.1	2.4
Cabinet	Material	-	Precoated galvanised steel	Precoated galvanised steel	Precoated galvanised steel
	Colour	-	White (RAL 9016)	White (RAL 9016)	White (RAL 9016)
Unit dimensions	Height (with connections)	mm 890 (970)	890 (970)	890 (970)	890 (970)
	Width	mm 520	520	520	520
	Depth	mm 370	370	370	370
Packaging dimensions	Height	mm 1120	1120	1120	1120
	Width	mm 555	555	555	555
	Depth	mm 610	610	610	610
Packaging volume		m³ 0.38	0.38	0.38	0.38
Packaging materials		-	Wood - Carton - Plastic	Wood - Carton - Plastic	Wood - Carton - Plastic
Net weight		kg 37	46	48	48
Gross weight		kg 61	61	63	63
Refrigerant pipes connection	Connection type	-	Flare nut connection	Flare nut connection	Flare nut connection
	Liquid pipe diameter	mm (in.)	Ø 6.35 (1/4)	Ø 6.35 (1/4)	Ø 6.35 (1/4)
	Gas pipe diameter	mm (in.)	Ø15.88 (5/8)	Ø15.88 (5/8)	Ø15.88 (5/8)
Space heating pipes connection	Connection type	-	Screwed connection	Screwed connection	Screwed connection
	Shutdown valves	in.	G 1" (male) - G 1" (male)	G 1" (male) - G 1" (male)	G 1" (male) - G 1" (male)
	Inlet pipe diameter	in.	G 1" (female)	G 1" (female)	G 1" (female)
	Outlet pipe diameter	in.	G 1" (female)	G 1" (female)	G 1" (female)

2.4.3.2 airH2O 600S - RWM-(8.0/10.0)N3E

		Indoor unit	RWM-8.0N3E	RWM-10.0N3E
Power supply		-	3N~ 400 V 50 Hz	3N~ 400 V 50 Hz
Noise level (sound power)		dB(A)	47	47
Minimum water flow rate		m³/h	2.0	2.2
Maximum water flow rate		m³/h	4.5	4.6
Nominal water flow rate		WIT: 30 °C / WOT: 35 °C ΔT: 5 °C m³/h	3.4	4.1
Cabinet	Material	-	Precoated galvanised steel	Precoated galvanised steel
	Colour	-	Pure white (RAL 9010)	Pure white (RAL 9010)
Unit dimensions	Height (with connections)	mm	890 (970)	890 (970)
	Width	mm	670	670
	Depth	mm	370	370
Packaging dimensions	Height	mm	1120	1120
	Width	mm	554	554
	Depth	mm	760	760
Packaging volume		m³	0.47	0.47
Packaging materials		-	Wood - Carton - Plastic	Wood - Carton - Plastic
Net weight		kg	60	62
Gross weight		kg	76	78
Refrigerant pipes connection	Connection type	-	Liquid pipe: Flare nut connection; Gas pipe: Brazed connection	
	Liquid pipe diameter	mm (in.)	Ø 9.52 (3/8)	Ø 12.7 (1/2)
	Gas pipe diameter	mm (in.)	Ø 25.4 (1)	Ø 25.4 (1)
Space heating pipes connection	Connection type	-	Screwed connection	Screwed connection
	Shutdown valves	in.	G 1-1/4" (male) - G 1-1/4" (male)	G 1-1/4" (male) - G 1-1/4" (male)
	Inlet pipe diameter	in.	G 1-1/4" (female)	G 1-1/4" (female)
	Outlet pipe diameter	in.	G 1-1/4" (female)	G 1-1/4" (female)

2.4.3.3 airH2O 600S Combi - RWD-(1.5-6.0)RW3E-220(-K/6H)

Indoor unit			RWD-1.5RW3E-220S(-K)	RWD-2.0RW3E-220S(-K/6H)	RWD-2.5RW3E-220S(-K/6H)	RWD-3.0RW3E-220S(-K/6H)
Power supply		-	~ 230 V 50 Hz / 3N~ 400 V 50 Hz	~ 230 V 50 Hz / 3N~ 400 V 50 Hz	~ 230 V 50 Hz / 3N~ 400 V 50 Hz	~ 230 V 50 Hz / 3N~ 400 V 50 Hz
Noise level (sound power)		dB(A)	41	41	41	41
Noise level (sound pressure)		dB(A)	30	30	30	30
Minimum water flow rate		m³/h	0.5	0.5	0.6	0.6
Maximum water flow rate		m³/h	2.2	2.2	2.7	2.7
Nominal water flow rate		WIT: 30 °C / WOT: 35 °C ΔT: 5 °C m³/h	0.6	0.8	1.0	1.4
Cabinet	Material	-	Precoated galvanised steel	Precoated galvanised steel	Precoated galvanised steel	Precoated galvanised steel
	Colour	-	White (RAL 9016)	White (RAL 9016)	White (RAL 9016)	White (RAL 9016)
Unit dimensions	Height (with connections)	mm	1796 (1897)(*)	1796 (1897)(*)	1796 (1897)(*)	1796 (1897)(*)
	Width	mm	595	595	595	595
	Depth	mm	590	590	590	590
Packaging dimensions	Height	mm	2028	2028	2028	2028
	Width	mm	670	670	670	670
	Depth	mm	655	655	655	655
Packaging volume		m³	0.9	0.9	0.9	0.9
Packaging materials		-	Wood - Carton - Plastic	Wood - Carton - Plastic	Wood - Carton - Plastic	Wood - Carton - Plastic
Net weight		kg	108	108	110	110
Gross weight		kg	121	121	123	123
Refrigerant pipes connection	Connection type	-	Flare nut connection	Flare nut connection	Flare nut connection	Flare nut connection
	Liquid pipe diameter	mm (in.)	Ø 6.35 (1/4)	Ø 6.35 (1/4)	Ø 6.35 (1/4)	Ø 6.35 (1/4)
	Gas pipe diameter	mm (in.)	Ø 12.7 (1/2)	Ø 12.7 (1/2)	Ø 12.7 (1/2)	Ø 12.7 (1/2)
Space heating pipes connection	Connection type	-	Screwed connection	Screwed connection	Screwed connection	Screwed connection
	Shut-off valves	in.	G 1" (male) - G 1" (male)	G 1" (male) - G 1" (male)	G 1" (male) - G 1" (male)	G 1" (male) - G 1" (male)
	Inlet pipe diameter	in.	G 1" (female)	G 1" (female)	G 1" (female)	G 1" (female)
	Outlet pipe diameter	in.	G 1" (female)	G 1" (female)	G 1" (female)	G 1" (female)
DHW pipes connection	Connection type	-	Screwed connection	Screwed connection	Screwed connection	Screwed connection
	Inlet pipe diameter	in.	G 3/4" (male)	G 3/4" (male)	G 3/4" (male)	G 3/4" (male)
	Outlet pipe diameter	in.	G 3/4" (male)	G 3/4" (male)	G 3/4" (male)	G 3/4" (male)

(*)Height of the unit with the minimum mounting foot height. This value can be adjusted up to +30 mm.

Indoor unit		RWD-3.5RW3E-220S(-K)	RWD-4.0RW3E-220S(-K)	RWD-5.0RW3E-220S(-K)	RWD-6.0RW3E-220S(-K)
Power supply		- ~ 230 V 50 Hz / 3N~ 400 V 50 Hz	~ 230 V 50 Hz / 3N~ 400 V 50 Hz	~ 230 V 50 Hz / 3N~ 400 V 50 Hz	~ 230 V 50 Hz / 3N~ 400 V 50 Hz
Noise level (sound power)		dB(A) 41	41	41	41
Noise level (sound pressure)		dB(A) 30	30	30	30
Minimum water flow rate		m³/h 1	1	1.1	1.2
Maximum water flow rate		m³/h 2.8	2.8	3	3
Nominal water flow rate		WIT: 30 °C / WOT: 35 °C ΔT: 5 °C m³/h 1.4	1.7	2.1	2.4
Cabinet	Material	-	Precoated galvanised steel	Precoated galvanised steel	Precoated galvanised steel
	Colour	-	White (RAL 9016)	White (RAL 9016)	White (RAL 9016)
Unit dimensions	Height (with connections)	mm 1796 (1897)(*)	1796 (1897)(*)	1796 (1897)(*)	1796 (1897)(*)
	Width	mm 595	595	595	595
	Depth	mm 590	590	590	590
Packaging dimensions	Height	mm 2028	2028	2028	2028
	Width	mm 670	670	670	670
	Depth	mm 655	655	655	655
Packaging volume		m³ 0.9	0.9	0.9	0.9
Packaging materials		-	Wood - Carton - Plastic	Wood - Carton - Plastic	Wood - Carton - Plastic
Net weight		kg 110	110	110	110
Gross weight		kg 123	123	123	123
Refrigerant pipes connection	Connection type	-	Flare nut connection	Flare nut connection	Flare nut connection
	Liquid pipe diameter	mm (in.) Ø 6.35 (1/4)	Ø 6.35 (1/4)	Ø 6.35 (1/4)	Ø 6.35 (1/4)
	Gas pipe diameter	mm (in.) Ø15.88 (5/8)	Ø15.88 (5/8)	Ø15.88 (5/8)	Ø15.88 (5/8)
Space heating pipes connection	Connection type	-	Screwed connection	Screwed connection	Screwed connection
	Shut-off valves	in. G 1" (male) - G 1" (male)	G 1" (male) - G 1" (male)	G 1" (male) - G 1" (male)	G 1" (male) - G 1" (male)
	Inlet pipe diameter	in. G 1" (female)	G 1" (female)	G 1" (female)	G 1" (female)
	Outlet pipe diameter	in. G 1" (female)	G 1" (female)	G 1" (female)	G 1" (female)
DHW pipes connection	Connection type	-	Screwed connection	Screwed connection	Screwed connection
	Inlet pipe diameter	in. G 3/4" (male)	G 3/4" (male)	G 3/4" (male)	G 3/4" (male)
	Outlet pipe diameter	in. G 3/4" (male)	G 3/4" (male)	G 3/4" (male)	G 3/4" (male)

(*)Height of the unit with the minimum mounting foot height. This value can be adjusted up to +30 mm.

2.4.4 Domestic Hot Water Tank

			Model	DHWT-200S-3.0H2E	DHWT-300S-3.0H2E
Casing	Color			White	White
	Material			Polypropylene jacked	Polypropylene jacked
Dimensions	Packing	Height	mm	1300	1880
		Width	mm	600	600
		Depth	mm	600	600
	Unit	Height	mm	1270	1750
		Width	mm	595	595
		Depth	mm	595	595
Weight	Unit		kg	53	63
	Packed unit		kg	63.5	73
Packing	Material			EPS CARTON	EPS CARTON
	Weight		kg	10.5	11
Main components	Tank	Water volume	l	194	282
		Material		Stainless Steel	Stainless Steel
		Max tank temperature	°C	75	75
		Max tank water pressure	bar	10	10
		Maximum heating coil water working temperature	°C	99	99
		Maximum heating coil water working pressure	bar	10	10
Tank	Insulation	Material		Polyurethane	Polyurethane
		Heat loss (*)	kW·h/day	1.128	1.512
		Min thickness	mm	50	50
Main components	Heat exchanger	Quantity		1	1
		Coil surface area	m²	1.4	1.8
	Booster heater	Quantity		1	1
		Heater rating	kW	3	3
	Piping connections	Type			Immersion heater type
Water inlet domestic connection		in.	3/4 (female)	3/4 (female)	
Water outlet domestic connection		in.	3/4 (female)	3/4 (female)	
Recirculation		in.	3/4 (female)	3/4 (female)	
In coil connection		in.	3/4 (female)	3/4 (female)	
Out coil connection		in.	3/4 (female)	3/4 (female)	
Thermometer				Yes	Yes
Mechanical thermostat (security)				Yes	Yes
Protection				-	-

(*): Heat loss according to EN 12897:2007

2.4.5 Complementary system - Cascade Controller

Cascade Controller - ATW-YCC-04	
Power supply	~ 230 V 50 Hz
Maximum current (with DHWT Electrical Heater) / Maximum current (Only Electrical BOX)	19 A / 5 A
Maximum input (with DHWT Electrical Heater) / Maximum input (Only Electrical BOX)	4.2 kW / 0.8 kW
Ambient temperature range in operation	0 to 40°C
Humidity range in operation	0 to 80% RH non-condensing
Product dimensions	490 x 360 x 100 mm
Packaging dimensions	510 x 380 x 150 mm
Net weight	5.45 kg
Colour of the cover	White, RAL 9016
Maximum diameter of power wiring harness	12 mm

2.5 Component data

2.5.1 Split system - outdoor unit

Outdoor unit		RAS-1.5WHVRP2E	RAS-2WHVRP2E	RAS-2.5WHVRP2E	RAS-3WHVRP2E
Air heat exchanger	Type	-	Multi-pass cross-finned tube	Multi-pass cross-finned tube	Multi-pass cross-finned tube
	Pipe material	-	Copper	Copper	Copper
	Outer diameter	mm	7	7	7
	Rows	-	2	2	2
	Number of tubes in the heat exchanger		30	30	30
	Fin material	-	Aluminium	Aluminium	Aluminium
	Fin pitch	-	1.45	1.45	1.45
	Maximum operating pressure	MPa	4.15	4.15	4.15
	Total front area	m²	0.51	0.51	0.51
	Number of heat exchanger per unit	-	1	1	1
Fan	Fan type	-	Direct drive propeller fan	Direct drive propeller fan	Direct drive propeller fan
	Fans per unit	-	1	1	1
	Outer diameter	mm	464	464	464
	Revolutions	rpm	966	966	966
	Nominal air flow	m³/min	45.9	45.9	57
Motor	Shell	-	Drip-proof type enclosure	Drip-proof type enclosure	Drip-proof type enclosure
	Starting	-	Direct current control	Direct current control	Direct current control
	Power	W	47	47	47
	Quantity	-	1	1	1
	Insulation class	-	E	E	E
Compressor	Model	-	GTD141UKQA8LTH	GTD141UKQA8LTH	GTD163UKQA8LTH
	Oil Type	-	ACS68R	ACS68R	ACS68R
	Quantity (litres)	-	0.75	0.75	0.75

Outdoor unit		RAS-3.5WH(V)RP2E	RAS-4WH(V)RP2E	RAS-5WH(V)RP2E	RAS-6WH(V)RP2E
Air heat exchanger	Type	-	Multi-pass cross-finned tube	Multi-pass cross-finned tube	Multi-pass cross-finned tube
	Pipe material	-	Copper	Copper	Copper
	Outer diameter	mm	7	7	7
	Rows	-	2	2	2.7
	Number of tubes in the heat exchanger		108	108	135
	Fin material	-	Aluminium	Aluminium	Aluminium
	Fin pitch	-	1.45	1.45	1.45
	Maximum operating pressure	MPa	4.5	4.5	4.5
	Total front area	m²	1.11	1.11	1.11
	Number of heat exchanger per unit	-	1	1	1
Fan	Fan type	-	Direct drive propeller fan	Direct drive propeller fan	Direct drive propeller fan
	Fans per unit	-	1	1	1
	Outer diameter	mm	627	627	627
	Revolutions	rpm	720	720	774
	Nominal air flow	m³/min	107	107	115
Motor	Shell	-	Isolated enclosure with IP54 protection	Isolated enclosure with IP54 protection	Isolated enclosure with IP54 protection
	Starting	-	Direct current control	Direct current control	Direct current control
	Power	W	367	367	367
	Quantity	-	1	1	1
	Insulation class	-	F	F	F
Compressor	Model	-	WHP11500GEDPC9EQ	WHP11500GEDPC9EQ	WHP11500GEDPC9EQ
	Oil Type	-	HAF68D1	HAF68D1	HAF68D1
	Quantity (litres)	-	1.65	1.65	1.65

Outdoor unit		RAS-8WHNPE	RAS-10WHNPE
Air heat exchanger	Type	- Multi-pass cross-finned tube	Multi-pass cross-finned tube
	Pipe material	- Copper	Copper
	Outer diameter	mm 7	7
	Rows	- 3	3
	Number of tubes in the heat exchanger	198	198
	Fin material	- Aluminium	Aluminium
	Fin pitch	- 1.4	1.4
	Maximum operating pressure	MPa 4.15	4.15
	Total front area	m² 1.35	1.35
	Number of heat exchanger per unit	- 1	1
Fan	Fan type	- Direct drive propeller fan	Direct drive propeller fan
	Fans per unit	- 2	2
	Outer diameter	mm 544	544
	Revolutions	rpm 586 / 717	644 / 787
	Nominal air flow	m³/min 127	134
Motor	Shell	- Drip-proof type enclosure	Drip-proof type enclosure
	Starting	- Direct current control	Direct current control
	Power	W 138 + 138	138 + 138
	Quantity	- 2	2
	Insulation class	- E	E
Compressor	Model	- DA50PHD-D1SE2	DA65PHD-D1SE2
	Oil Type	- FVC68D	FVC68D
	Quantity (litres)	- 1.90	1.90

2.5.2 Split system - indoor unit

2.5.2.1 airH2O 600S - RWM-(1.5-6.0)R3E

Indoor unit		RWM-1.5R3E	RWM-2.0R3E	RWM-2.5R3E	RWM-3.0R3E
Water heat exchanger	Type	-	Brazed plate	Brazed plate	Brazed plate
	Material	-	Stainless steel	Stainless steel	Stainless steel
	Transfer fluids	-	R32 - H2O	R32 - H2O	R32 - H2O
	Quantity	-	1	1	1
	Internal refrigerant volume	l	0.43	0.43	0.73
	Internal water volume	l	0.46	0.46	0.76
	Insulation material	-	NBR + PVC	NBR + PVC	NBR + PVC
Water pump	Model	-	UPM3 K 15-75 130 AZA V9 HIT	UPM3 K 15-75 130 AZA V9 HIT	UPM3 K 15-75 130 AZA V9 HIT
	Type	-	Inverter	Inverter	Inverter
	Control	-	PWM	PWM	PWM
	Power supply	-	~ 230 V 50 Hz	~ 230 V 50 Hz	~ 230 V 50 Hz
	Maximum lift pressure	mwp	7.5	7.5	7.5
	Maximum water flow	m³/h	4.0	4.0	4.0
	Maximum power input	W	60	60	60
	Piping	Water inlet	in.	G 1"	G 1"
		Water outlet	in.	G 1"	G 1"
Water electric heater	Inlet/outlet distance	mm	130	130	130
	Material	-	Stainless steel (Immersion heating element)	Stainless steel (Immersion heating element)	Stainless steel (Immersion heating element)
	Power supply	-	~ 230 V 50 Hz - 3N~ 400 V 50 Hz	~ 230 V 50 Hz - 3N~ 400 V 50 Hz	~ 230 V 50 Hz - 3N~ 400 V 50 Hz
	Maximum electric heater power	kW	3.0	3.0	3.0
	Regulated electric heater power (step 1/ step 2/ step 3)	kW	1.0 / 2.0 / 3.0	1.0 / 2.0 / 3.0	1.0 / 2.0 / 3.0
	Capillary thermostat	-	Yes (Cut-out: 90°C)	Yes (Cut-out: 90°C)	Yes (Cut-out: 90°C)
Expansion vessel	Surface thermostat	-	Manual reset, Non-adjustable (one per unit) 75°C±5%	Manual reset, Non-adjustable (one per unit) 75°C±5%	Manual reset, Non-adjustable (one per unit) 75°C±5%
	Material	-	Steel (with stainless/galvanized steel connections)	Steel (with stainless/galvanized steel connections)	Steel (with stainless/galvanized steel connections)
	Internal volume	l	6.0	6.0	6.0
	Working pressure	bar	3.0	3.0	3.0
Water strainer	Pre-loading pressure (Air side)	bar	1.0	1.0	1.0
	Type	-	Isolated water strainer (Filter ball)	Isolated water strainer (Filter ball)	Isolated water strainer (Filter ball)
	Material	-	Brass	Brass	Brass
	Piping connection	in.	Inlet: 1" DN32; Outlet: 1" DN32	Inlet: 1" DN32; Outlet: 1" DN32	Inlet: 1" DN32; Outlet: 1" DN32
	Mesh (hole size)	mm	0.7	0.7	0.7
Safety valve	Self-cleaning filter	-	Yes	Yes	Yes
		-	Yes (3 bar)	Yes (3 bar)	Yes (3 bar)
Water pressure sensor		-	Yes (from 0.5 bar up to 3 bar)	Yes (from 0.5 bar up to 3 bar)	Yes (from 0.5 bar up to 3 bar)
Shut-off valve		-	Yes (2 factory-supplied valves)	Yes (2 factory-supplied valves)	Yes (2 factory-supplied valves)
Air purger		-	Yes (x2)	Yes (x2)	Yes (x2)
Manometer		-	Yes	Yes	Yes
Unit controller		-	Yes (PC-ARFH3E)	Yes (PC-ARFH3E)	Yes (PC-ARFH3E)
IOT (Wifi receiver included)		-	Yes	Yes	Yes

Indoor unit		RWM-3.5R3E	RWM-4.0R3E	RWM-5.0R3E	RWM-6.0R3E
Water heat exchanger	Type	-	Brazed plate	Brazed plate	Brazed plate
	Material	-	Stainless steel	Stainless steel	Stainless steel
	Transfer fluids	-	R32 - H ₂ O	R32 - H ₂ O	R32 - H ₂ O
	Quantity	-	1	1	1
	Internal refrigerant volume	l	0.73	0.73	0.73
	Internal water volume	l	0.76	0.76	0.76
	Insulation material	-	NBR + PVC	NBR + PVC	NBR + PVC
Water pump	Model	-	UPM3L K 15-75 130 AZA V9 HIT	UPM3L K 15-75 130 AZA V9 HIT	UPM3L K 15-75 130 AZA V9 HIT
	Type	-	Inverter	Inverter	Inverter
	Control	-	PWM	PWM	PWM
	Power supply	-	~ 230 V 50 Hz	~ 230 V 50 Hz	~ 230 V 50 Hz
	Maximum lift pressure	mwp	7.5	7.5	7.5
	Maximum water flow	m ³ /h	4.0	4.0	4.0
	Maximum power input	W	75	75	75
	Piping	Water inlet	in.	G 1"	G 1"
		Water outlet	in.	G 1"	G 1"
	Inlet/outlet distance	mm	130	130	130
Water electric heater	Material	-	Stainless steel (Immersion heating element)	Stainless steel (Immersion heating element)	Stainless steel (Immersion heating element)
	Power supply	-	~ 230 V 50 Hz - 3N~ 400 V 50 Hz	~ 230 V 50 Hz - 3N~ 400 V 50 Hz	~ 230 V 50 Hz - 3N~ 400 V 50 Hz
	Maximum electric heater power	kW	6.0	6.0	6.0
	Regulated electric heater power (step 1/ step 2/ step 3)	kW	2.0 / 4.0 / 6.0	2.0 / 4.0 / 6.0	2.0 / 4.0 / 6.0
	Capillary thermostat	-	Yes (Cut-out: 90°C)	Yes (Cut-out: 90°C)	Yes (Cut-out: 90°C)
	Surface thermostat	-	Manual reset, Non-adjustable (one per unit) 85°C±5%	Manual reset, Non-adjustable (one per unit) 85°C±5%	Manual reset, Non-adjustable (one per unit) 85°C±5%
Expansion vessel	Material	-	Steel (with stainless/galvanized steel connections)	Steel (with stainless/galvanized steel connections)	Steel (with stainless/galvanized steel connections)
	Internal volume	l	6.0	6.0	6.0
	Working pressure	bar	3.0	3.0	3.0
	Pre-loading pressure (Air side)	bar	1.0	1.0	1.0
Water strainer	Type	-	Isolated water strainer (Filter ball)	Isolated water strainer (Filter ball)	Isolated water strainer (Filter ball)
	Material	-	Brass	Brass	Brass
	Piping connection	in.	Inlet: 1" DN32; Outlet: 1" DN32	Inlet: 1" DN32; Outlet: 1" DN32	Inlet: 1" DN32; Outlet: 1" DN32
	Mesh (hole size)	mm	0.7	0.7	0.7
	Self-cleaning filter	-	Yes	Yes	Yes
Safety valve		-	Yes (3 bar)	Yes (3 bar)	Yes (3 bar)
Water pressure sensor		-	Yes (from 0,5 bar up to 3 bar)	Yes (from 0,5 bar up to 3 bar)	Yes (from 0,5 bar up to 3 bar)
Shut-off valve		-	Yes (2 factory-supplied valves)	Yes (2 factory-supplied valves)	Yes (2 factory-supplied valves)
Air purger		-	Yes (x2)	Yes (x2)	Yes (x2)
Manometer		-	Yes	Yes	Yes
Unit controller		-	Yes (PC-ARFH3E)	Yes (PC-ARFH3E)	Yes (PC-ARFH3E)
IOT (Wifi receiver included)		-	Yes	Yes	Yes

2.5.2.2 airH2O 600S - RWM-(8.0/10.0)N3E

Indoor unit		RWM-8.0N3E	RWM-10.0N3E
Water heat exchanger	Type	- Brazed plate	Brazed plate
	Material	- Stainless steel	Stainless steel
	Transfer fluids	- R410A - H2O	R410A - H2O
	Quantity	- 1	1
	Internal refrigerant volume	l 3,19	3,91
	Internal water volume	l 3.28	4.00
	Insulation material	- NBR + PVC	NBR + PVC
Water pump	Model	- UPML GEO 25-105 180 3H PWM	UPML GEO 25-105 180 3H PWM
	Type	- Inverter	Inverter
	Control	- PWM	PWM
	Power supply	- ~ 230 V 50 Hz	~ 230 V 50 Hz
	Maximum lift pressure	mwp 10,5	10,5
	Maximum water flow	m³/h 5,5	5,5
	Maximum power input	W 140	140
	Piping	Water inlet	in. G 1-1/4"
		Water outlet	in. G 1-1/4"
		Inlet/outlet distance	mm 180
Water electric heater	Material	- Stainless steel (Immersion heating element)	Stainless steel (Immersion heating element)
	Power supply	- ~ 230 V 50 Hz 3N~ 400 V 50 Hz	~ 230 V 50 Hz 3N~ 400 V 50 Hz
	Maximum electric heater power	kW 9	9
	Regulated electric heater power (step 1/ step 2/ step 3)	kW 3.0 / 6.0 / 9.0	3.0 / 6.0 / 9.0
	Capillary thermostat	- Yes (Cut-out: 90°C)	Yes (Cut-out: 90°C)
	Surface thermostat	- Manual reset, Non-adjustable (one per unit) 75°C±5%	Manual reset, Non-adjustable (one per unit) 75°C±5%
Expansion vessel	Material	- Steel (with stainless/galvanized steel connections)	Steel (with stainless/galvanized steel connections)
	Internal volume	l 10	10
	Working pressure	bar 3	3
	Pre-loading pressure (Air side)	bar 1	1
Water strainer	Type	- Isolated water strainer (Filter ball)	Isolated water strainer (Filter ball)
	Material	- Brass	Brass
	Piping connection	in. Inlet: 1" DN32; Outlet: 1" DN32	Inlet: 1" DN32; Outlet: 1" DN32
	Mesh (hole size)	mm 0.7	0.7
	Self-cleaning filter	- Yes	Yes
Safety valve		- Yes (3 bar)	Yes (3 bar)
Water pressure sensor		- Yes (from 0,5 bar up to 3 bar)	Yes (from 0,5 bar up to 3 bar)
Shut-off valve		- Yes (2 factory-supplied valves)	Yes (2 factory-supplied valves)
Air purger		- Yes (x2)	Yes (x2)
Manometer		- Yes	Yes
Unit controller		- Yes (PC-ARFH3E)	Yes (PC-ARFH3E)
IOT (Wifi receiver included)		- Yes	Yes

2.5.2.3 airH2O 600S Combi - RWD-(1.5-6.0)RW3E-220(-K/6H)

Indoor unit			RWD-1.5RW3E-220S(-K)	RWD-2.0RW3E-220S(-K/6H)	RWD-2.5RW3E-220S(-K/6H)	RWD-3.0RW3E-220S(-K/6H)
Domestic hot water tank	Casing material		Stainless steel	Stainless steel	Stainless steel	Stainless steel
	Tank	Nominal water volume	l	220	220	220
		Net water volume	l	215	215	215
		Material	-	Duplex UNS 32205 (1.4462)	Duplex UNS 32205 (1.4462)	Duplex UNS 32205 (1.4462)
		Max. water temperature	°C	75	75	75
		Max. water pressure	bar	10	10	10
		Max. heating coil water temperature	°C	75	75	75
		Max. heating coil water pressure	bar	3	3	3
	Tank insulation	Material	-	Neopor	Neopor	Neopor
		Thickness	mm	50	50	50
		Heat loss (1)	kWh/24h	1.7	1.7	1.7
		Standing heat loss	W	71	71	71
	Heat exchanger	Quantity	-	1	1	1
		Coil surface area	m²	1.6	1.6	1.6
		Internal coil volume	l	7.2	7.2	7.2
	Tank's heater	Quantity	-	1	1	1
		Type	-	Immersion heater type	Immersion heater type	Immersion heater type
		Heater rating	kW	2.7	2.7	2.7
	Mechanical thermostat (adjustable and security)		-	Yes (adjustable 28~80°C; cut-out: 95°C)	Yes (adjustable 28~80°C; cut-out: 95°C)	Yes (adjustable 28~80°C; cut-out: 95°C)
Water heat exchanger	Type		-	Brazed plate	Brazed plate	Brazed plate
	Material		-	Stainless steel	Stainless steel	Stainless steel
	Transfer fluids		-	R32 - H2O	R32 - H2O	R32 - H2O
	Quantity		-	1	1	1
	Internal refrigerant volume		l	0.43	0.43	0.73
	Internal volume		l	0.46	0.46	0.76
	Insulation material		-	NBR + PVC	NBR + PVC	NBR + PVC
Water pump	Model		-	UPM3 K 15-75 130 AZA V9 HIT	UPM3 K 15-75 130 AZA V9 HIT	UPM3 K 15-75 130 AZA V9 HIT
	Type		-	Inverter	Inverter	Inverter
	Control		-	PWM	PWM	PWM
	Power supply		-	~ 230 V 50 Hz	~ 230 V 50 Hz	~ 230 V 50 Hz
	Maximum lift pressure		mwp	7.5	7.5	7.5
	Maximum water flow		m³/h	4.0	4.0	4.0
	Maximum power input		W	60	60	60
	Piping	Water inlet	in.	G 1"	G 1"	G 1"
		Water outlet	in.	G 1"	G 1"	G 1"
		Inlet/outlet distance	mm	130	130	130

GENERAL DATA

2

COMPONENT DATA

Indoor unit		RWD-1.5RW3E-220S(-K)	RWD-2.0RW3E-220S(-K/6H)	RWD-2.5RW3E-220S(-K/6H)	RWD-3.0RW3E-220S(-K/6H)
Water electric heater	Material	-	Stainless steel (Immersion heating element)	Stainless steel (Immersion heating element)	Stainless steel (Immersion heating element)
	Power supply	-	~ 230 V 50 Hz / 3N~ 400 V 50 Hz	~ 230 V 50 Hz / 3N~ 400 V 50 Hz	~ 230 V 50 Hz / 3N~ 400 V 50 Hz
	Maximum electric heater power	kW	3	3	3
	Regulated electric heater power (step 1/ step 2/ step 3)	kW	1.0/2.0/3.0	1.0/2.0/3.0	1.0/2.0/3.0
	Capillary thermostat		Yes (Cut-out: 90°C)	Yes (Cut-out: 90°C)	Yes (Cut-out: 90°C)
	Thermostat security	-	Manual reset, Non-adjustable (one per unit) 75°C±5%	Manual reset, Non-adjustable (one per unit) 75°C±5%	Manual reset, Non-adjustable (one per unit) 75°C±5%
Expansion vessel	Material	-	Steel (with stainless/galvanized steel connections)	Steel (with stainless/galvanized steel connections)	Steel (with stainless/galvanized steel connections)
	Internal volume	l	6	6	6
	Working pressure	bar	3	3	3
	Pre-loading pressure (Air side)	bar	1	1	1
Water strainer	Type	-	Isolated water strainer (Filter ball)	Isolated water strainer (Filter ball)	Isolated water strainer (Filter ball)
	Material	-	Brass	Brass	Brass
	Piping connection	in.	Inlet: Quick connections; Outlet: 1” DN32	Inlet: Quick connections; Outlet: 1” DN32	Inlet: Quick connections; Outlet: 1” DN32
	Mesh (hole size)	mm	0,7	0,7	0,7
	Self-cleaning (with back flush) filter	-	Yes	Yes	Yes
DHWT Pressure and temperature relief valve (2)		bar	7	7	7
		°C	96	96	96
Safety valve	-	Yes (3 bar)	Yes (3 bar)	Yes (3 bar)	Yes (3 bar)
Water pressure sensor	-	Yes (from 0.5 bar up to 3 bar)	Yes (from 0.5 bar up to 3 bar)	Yes (from 0.5 bar up to 3 bar)	Yes (from 0.5 bar up to 3 bar)
Unit drain port	-	Yes	Yes	Yes	Yes
DHW drain valve	-	Yes	Yes	Yes	Yes
Shut-off valve	-	Yes (2 factory-supplied valves)	Yes (2 factory-supplied valves)	Yes (2 factory-supplied valves)	Yes (2 factory-supplied valves)
Air purger	-	Yes (x2)	Yes (x2)	Yes (x2)	Yes (x2)
Manometer	-	Yes	Yes	Yes	Yes
Unit controller	-	Yes (PC-ARFH3E)	Yes (PC-ARFH3E)	Yes (PC-ARFH3E)	Yes (PC-ARFH3E)
IOT (Wifi receiver included)	-	Yes	Yes	Yes	Yes

(1) Based on a dT of 45K.
(2) Only for UK version.

Indoor unit			RWD-3.5RW3E-220S(-K)	RWD-4.0RW3E-220S(-K)	RWD-5.0RW3E-220S(-K)	RWD-6.0RW3E-220S(-K)
Domestic hot water tank	Casing material		Stainless steel	Stainless steel	Stainless steel	Stainless steel
	Tank	Nominal water volume	l	220	220	220
		Net water volume	l	215	215	215
		Material	-	Duplex UNS 32205 (1.4462)	Duplex UNS 32205 (1.4462)	Duplex UNS 32205 (1.4462)
		Max. water temperature	°C	75	75	75
		Max. water pressure	bar	10	10	10
		Max. heating coil water temperature	°C	75	75	75
		Max. heating coil water pressure	bar	3	3	3
	Tank insulation	Material	-	Neopor	Neopor	Neopor
		Thickness	mm	50	50	50
		Heat loss (1)	kWh/24h	1.7	1.7	1.7
		Standing heat loss	W	71	71	71
	Heat exchanger	Quantity	-	1	1	1
		Coil surface area	m²	1.6	1.6	1.6
		Internal coil volume	l	7.2	7.2	7.2
	Tank's heater	Quantity	-	1	1	1
		Type	-	Immersion heater type	Immersion heater type	Immersion heater type
		Heater rating	kW	2.7	2.7	2.7
	Mechanical thermostat (adjustable and security)		-	Yes (adjustable 28~80°C; cut-out: 95°C)	Yes (adjustable 28~80°C; cut-out: 95°C)	Yes (adjustable 28~80°C; cut-out: 95°C)
Water heat exchanger	Type		-	Brazed plate	Brazed plate	Brazed plate
	Material		-	Stainless steel	Stainless steel	Stainless steel
	Transfer fluids		-	R32 - H2O	R32 - H2O	R32 - H2O
	Quantity		-	1	1	1
	Internal refrigerant volume		l	0.73	0.73	0.73
	Internal volume		l	0.76	0.76	0.76
	Insulation material		-	NBR + PVC	NBR + PVC	NBR + PVC
Water pump	Model		-	UPM3L K 15-75 130 AZA V9 HIT	UPM3L K 15-75 130 AZA V9 HIT	UPM3L K 15-75 130 AZA V9 HIT
	Type		-	Inverter	Inverter	Inverter
	Control		-	PWM	PWM	PWM
	Power supply		-	~ 230 V 50 Hz	~ 230 V 50 Hz	~ 230 V 50 Hz
	Maximum lift pressure		mwp	7.5	7.5	7.5
	Maximum water flow		m³/h	4.0	4.0	4.0
	Maximum power input		W	75	75	75
	Piping	Water inlet	in.	G 1"	G 1"	G 1"
		Water outlet	in.	G 1"	G 1"	G 1"
		Inlet/outlet distance	mm	130	130	130
Water electric heater	Material		-	Stainless steel (Immersion heating element)	Stainless steel (Immersion heating element)	Stainless steel (Immersion heating element)
	Power supply		-	~ 230 V 50 Hz /3N~ 400 V 50 Hz	~ 230 V 50 Hz /3N~ 400 V 50 Hz	~ 230 V 50 Hz /3N~ 400 V 50 Hz
	Maximum electric heater power		kW	6	6	6
	Regulated electric heater power (step 1/ step 2/ step 3)		kW	2.0/4.0/6.0	2.0/4.0/6.0	2.0/4.0/6.0
	Capillary thermostat		-	Yes (Cut-out: 90°C)	Yes (Cut-out: 90°C)	Yes (Cut-out: 90°C)
	Thermostat security		-	Manual reset, Non-adjustable (one per unit) 75°C±5%	Manual reset, Non-adjustable (one per unit) 75°C±5%	Manual reset, Non-adjustable (one per unit) 75°C±5%

Indoor unit		RWD-3.5RW3E-220S(-K)	RWD-4.0RW3E-220S(-K)	RWD-5.0RW3E-220S(-K)	RWD-6.0RW3E-220S(-K)
Expansion vessel	Material	-	Steel (with stainless/galvanized steel connections)	Steel (with stainless/galvanized steel connections)	Steel (with stainless/galvanized steel connections)
	Internal volume	l	6	6	6
	Working pressure	bar	3	3	3
	Pre-loading pressure (Air side)	bar	1	1	1
Water strainer	Type	-	Isolated water strainer (Filter ball)	Isolated water strainer (Filter ball)	Isolated water strainer (Filter ball)
	Material	-	Brass	Brass	Brass
	Piping connection	in.	Inlet: Quick connections; Outlet: 1" DN32	Inlet: Quick connections; Outlet: 1" DN32	Inlet: Quick connections; Outlet: 1" DN32
	Mesh (hole size)	mm	0.7	0.7	0.7
	Self-cleaning (with back flush) filter	-	Yes	Yes	Yes
DHWT Pressure and temperature relief valve (2)	bar	7	7	7	7
	°C	96	96	96	96
Safety valve	-	Yes (3 bar)	Yes (3 bar)	Yes (3 bar)	Yes (3 bar)
Water pressure sensor	-	Yes (from 0,5 bar up to 3 bar)	Yes (from 0,5 bar up to 3 bar)	Yes (from 0,5 bar up to 3 bar)	Yes (from 0,5 bar up to 3 bar)
Unit drain port	-	Yes	Yes	Yes	Yes
DHW drain valve	-	Yes	Yes	Yes	Yes
Shut-off valve	-	Yes (2 factory-supplied valves)	Yes (2 factory-supplied valves)	Yes (2 factory-supplied valves)	Yes (2 factory-supplied valves)
Air purger	-	Yes (x2)	Yes (x2)	Yes (x2)	Yes (x2)
Manometer	-	Yes	Yes	Yes	Yes
Unit controller	-	Yes (PC-ARFH3E)	Yes (PC-ARFH3E)	Yes (PC-ARFH3E)	Yes (PC-ARFH3E)
IOT (Wifi receiver included)	-	Yes	Yes	Yes	Yes

(1) Based on a dT of 45K.
(2) Only for UK version.

2.6 Electrical data

2.6.1 Considerations

Key words:

- *U: Power supply.*
- *IPT: Total input power.*
- *STC: Starting current: Less than maximum current.*
- *RNC: Running current.*
- *MC: Maximum current.*

NOTE

- *Heating conditions: Inlet/outlet water temperature: 30/35°C; Outdoor ambient temperature (DB/WB): 7/6°C.*
- *The compressor data shown in the tables below are based on a combined capacity of 100% of the power supplied.*
- *The “Maximum current” shown in the above table is the maximum total unit running current at the following conditions:*
 - » *Supply Voltage: 90% of the rated voltage.*
 - » *Unit capacity: 100% at maximum operating conditions.*
- *The power supply cables must be sized to cover this maximum current value.*
- *Specifications in these tables are subject to change without notice in order that Hitachi may bring the latest innovations to their customers.*

2.6.2 Split system - outdoor unit

Model	Power supply	Applicable Voltage		Compressor and fan motors					MC (A)	Max. IPT (kW)
				Cooling		Heating				
		U max. (V)	U min. (V)	STC (A)	RNC (A)	IPT (KW)	RNC (A)	IPT (KW)		
RAS-1.5WHVRP2E	~ 230 V 50 Hz	253	207	-	6.3	1.3	3.4	0.7	12.6	2.27
RAS-2WHVRP2E					7.4	1.52	4.5	0.94	12.6	2.27
RAS-2.5WHVRP2E					9.4	1.92	6.7	1.4	16.5	3.01
RAS-3WHVRP2E					12.9	2.67	7.9	1.63	16.5	3.01
RAS-3.5WHVRP2E					9.2	2.11	9.3	2.12	28.6	5.91
RAS-4WHVRP2E					9.2	2.11	9.3	2.12	28.6	5.91
RAS-5WHVRP2E					12.6	2.87	12.7	2.9	28.6	5.91
RAS-6WHVRP2E					16	3.65	15	3.43	28.6	5.91
RAS-3.5WHRP2E	3N~ 400 V 50 Hz	440	360	-	3.4	2.11	3.4	2.12	16.1	9.12
RAS-4WHRP2E					3.4	2.11	3.4	2.12	16.1	9.12
RAS-5WHRP2E					4.6	2.87	4.6	2.9	16.1	9.12
RAS-6WHRP2E					5.8	3.65	5.5	3.43	16.1	9.12
RAS-8WHNPE					7.1	4.41	7.3	4.58	24	15.00
RAS-10WHNPE					9.8	6.15	8.8	5.51	24	15.00

2.6.2.1 airH2O 600S - RWM-(1.5-6.0)R3E

Model	Power supply	Applicable voltage		Operation mode	RNC (A)	IPT (kW)	MC (A)	Max. IPT (kW)
		U max. (V)	U min. (V)					
RWM-(1.5-3.0)R3E	~ 230 V 50 Hz	253	207	Without electric heater	0.6	0.06	0.64	0.06
				With electric heater	13.6	3.06	13.7	3.06
				With DHW tank heater	12.5	2.81	12.6	3.06
				With electric and DHW tank heaters	25.6	5.81	25.6	6.06
	3N~ 400 V 50 Hz	440	360	Without electric heater	0.6	0.06	0.6	0.06
				With electric heater	4.4	3.06	5.0	3.06
				With DHW tank heater	4.1	2.81	12.6	3.06
				With electric and DHW tank heaters	8.4	5.81	16.9	6.06
RWM-(3.5-6.0)R3E	~ 230 V 50 Hz	253	207	Without electric heater	0.6	0.08	0.66	0.08
				With electric heater	26.7	6.08	26.7	6.08
				With DHW tank heater	12.6	2.83	12.6	3.08
				With electric and DHW tank heaters	38.6	8.83	38.7	9.08
	3N~ 400 V 50 Hz	440	360	Without electric heater	0.6	0.08	0.7	0.08
				With electric heater	8.8	6.08	9.3	6.08
				With DHW tank heater	4.1	2.83	12.6	3.08
				With electric and DHW tank heaters	12.7	8.83	21.3	9.08

The data corresponding to DHW tank heater is calculated in combination with the domestic hot water tank accessory "DHWT-(200/300)S-3.0H2E".

2.6.2.2 airH2O 600S - RWM-(8.0/10.0)N3E

Model	Power supply	Applicable voltage		Operation mode	RNC (A)	IPT (kW)	MC (A)	Max. IPT (kW)
		U max. (V)	U min. (V)					
RWM-8.0N3E	3N~ 400 V 50 Hz	440	360	Without electric heater	1.1	0.14	1.16	0.14
				With electric heater	13.2	9.14	14.2	9.14
				With DHW tank heater	4.2	2.89	13.1	3.14
				With electric and DHW tank heaters	17.2	11.89	26.1	12.14
RWM-10.0N3E	3N~ 400 V 50 Hz	440	360	Without electric heater	1.1	0.14	1.16	0.14
				With electric heater	13.2	9.14	14.2	9.14
				With DHW tank heater	4.2	2.89	13.1	3.14
				With electric and DHW tank heaters	17.2	11.89	26.1	12.14

The data corresponding to DHW tank heater is calculated in combination with the domestic hot water tank accessory "DHWT-(200/300)S-3.0H2E".

2.6.2.3 airH2O 600S Combi - RWD-(1.5-6.0)RW3E-220S(-K/6H)

Model	Power supply	Applicable voltage		Operation mode	RNC (A)	IPT (kW)	MC (A)	Max. IPT (kW)
		U max. (V)	U min. (V)					
RWD-(1.5-3.0) RW3E-220S(-K)	~ 230 V 50 Hz	253	207	Without electric heater	0.6	0.06	0.64	0.06
				With electric heater	13.6	3.06	13.7	3.06
				With DHW tank heater	12.5	2.81	12.6	3.06
				With electric and DHW tank heaters	25.6	5.81	25.6	6.06
	3N~ 400 V 50 Hz	440	360	Without electric heater	0.6	0.06	0.6	0.06
				With electric heater	4.4	3.06	8.7	3.06
				With DHW tank heater	4.1	2.81	12.6	3.06
				With electric and DHW tank heaters	8.4	5.81	12.6	6.06
RWD-(2.0-3.0) RW3E-220S-6H	~ 230 V 50 Hz	253	207	Without electric heater	0.6	0.06	0.64	0.06
				With electric heater	26.7	6.06	26.7	6.06
				With DHW tank heater	12.5	2.81	12.6	3.06
				With electric and DHW tank heaters	38.6	8.81	38.7	9.06
	3N~ 400 V 50 Hz	440	360	Without electric heater	0.6	0.06	0.6	0.06
				With electric heater	8.7	6.06	17.3	6.06
				With DHW tank heater	4.1	2.81	12.6	3.06
				With electric and DHW tank heaters	12.7	8.81	17.3	9.06
RWD-(3.5-6.0) RW3E-220S(-K)	~ 230 V 50 Hz	253	207	Without electric heater	0.6	0.08	0.66	0.08
				With electric heater	26.7	6.08	26.7	6.08
				With DHW tank heater	12.6	2.83	12.6	3.08
				With electric and DHW tank heaters	38.6	8.83	38.7	9.08
	3N~ 400 V 50 Hz	440	360	Without electric heater	0.6	0.08	0.7	0.08
				With electric heater	8.8	6.08	17.3	6.08
				With DHW tank heater	4.1	2.83	12.6	3.08
				With electric and DHW tank heaters	12.7	8.83	17.3	9.08

2.6.3 Complementary system - Cascade Controller

Model	Main unit power		Applicable Voltage		MC [A]
	U [V]	F [Hz]	U max [V]	U min [V]	
ATW-YCC-04 (with DHW electric heater)	~ 230	50	253	207	16
ATW-YCC-04 (only EBOX)	~ 230	50	253	207	5

Capacity and selection data

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3.1 Maximum heating capacity table (kW) (standard humidity)

3.1.1 Split system - airH2O 600S / airH2O 600S Combi

System		Water outlet temp (°C)	Ambient temperature (°C WB)																			
			-20		-15		-10		-7		-2		2		7		12		15		20	
			CAP (kW)	IPT (kW)	CAP (kW)	IPT (kW)	CAP (kW)	IPT (kW)	CAP (kW)	IPT (kW)	CAP (kW)	IPT (kW)	CAP (kW)	IPT (kW)	CAP (kW)	IPT (kW)	CAP (kW)	IPT (kW)	CAP (kW)	IPT (kW)	CAP (kW)	IPT (kW)
RAS-1.5WHVRP2E + RWM-1.5R3E / RWD-1.5RW3E-220S(-K)		60	-	-	-	-	-	-	2.42	2.40	3.40	2.10	3.70	1.78	3.81	1.72	3.07	1.26	3.21	1.24	3.46	1.20
		55	-	-	-	-	3.53	1.91	3.84	1.95	4.23	2.02	4.63	2.07	4.90	1.73	5.63	1.78	5.82	1.70	6.12	1.56
		50	-	-	3.24	1.58	3.65	1.79	3.89	1.92	4.20	1.88	4.53	1.86	5.20	1.55	5.85	1.59	5.98	1.55	6.19	1.48
		45	1.25	1.62	3.61	1.76	3.81	1.84	3.93	1.88	4.17	1.75	4.43	1.65	5.49	1.37	6.06	1.40	6.14	1.40	6.27	1.40
		40	2.62	1.86	3.70	1.77	4.21	1.81	4.52	1.84	4.75	1.70	4.94	1.58	5.34	1.21	6.25	1.16	6.39	1.16	6.61	1.16
		35	3.53	1.90	3.88	1.77	4.71	1.79	5.21	1.80	5.34	1.64	5.44	1.52	6.40	1.40	6.45	0.92	6.64	0.92	6.96	0.92
		30	3.56	1.69	3.92	1.59	4.45	1.49	4.76	1.43	5.19	1.34	5.53	1.26	5.47	0.90	6.81	1.03	6.90	0.98	7.05	0.91
		25	-	-	-	-	-	-	-	-	-	-	5.11	1.24	7.21	0.98	7.01	0.89	5.46	0.69	5.46	0.69
		20	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
RAS-2WHVRP2E + RWM-2.0R3E / RWD-2.0RW3E-220S(-K/6H)		60	-	-	-	-	-	-	2.88	2.40	3.74	2.46	4.67	2.27	5.70	2.38	5.93	2.25	6.08	2.21	6.32	2.15
		55	-	-	-	-	4.02	1.99	4.77	2.19	4.88	2.24	5.35	2.28	5.98	2.17	7.12	2.32	7.21	2.19	7.36	1.96
		50	-	-	3.57	2.06	4.26	2.19	4.76	2.27	4.87	2.21	5.35	2.16	6.27	1.99	7.41	2.04	7.50	1.97	7.66	1.86
		45	3.12	2.49	3.97	2.29	4.39	2.32	4.74	2.35	4.87	2.18	5.35	2.04	6.56	1.80	7.70	1.75	7.80	1.75	7.96	1.75
		40	3.44	2.32	3.83	2.18	4.47	2.14	4.86	2.11	5.22	2.06	5.50	2.02	6.34	1.56	7.95	1.46	8.14	1.46	8.48	1.46
		35	3.74	2.50	4.20	2.08	4.99	1.96	5.49	1.89	5.57	1.95	5.65	1.99	6.99	1.69	8.19	1.18	8.49	1.18	8.99	1.18
		30	4.12	2.05	4.25	1.94	5.15	1.89	5.37	1.70	5.65	1.57	5.66	1.34	7.00	1.30	8.41	1.32	8.52	1.27	8.69	1.18
		25	-	-	-	-	-	-	-	-	-	-	5.92	1.56	8.19	1.21	9.25	1.20	7.71	0.99	7.71	0.99
		20	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
RAS-2.5WHVRP2E + RWM-2.5R3E / RWD-2.5RW3E-220S(-K/6H)		60	-	-	-	-	-	-	3.33	2.50	3.62	2.57	3.95	2.50	6.14	2.75	6.87	2.59	6.67	2.45	6.57	2.24
		55	-	-	-	-	4.51	2.50	5.30	2.62	5.28	2.70	5.81	2.76	8.19	2.97	8.49	3.00	8.06	2.81	8.46	2.88
		50	-	-	3.95	2.04	4.91	2.29	5.49	2.45	5.43	2.48	5.96	2.51	7.71	2.51	8.23	2.57	7.78	2.44	8.25	2.62
		45	3.80	2.14	4.39	2.27	5.19	2.27	5.67	2.27	5.58	2.27	6.10	2.27	7.23	2.05	7.83	2.11	8.21	2.29	8.83	2.60
		40	4.20	2.24	4.39	2.12	5.11	2.12	5.55	2.12	6.01	2.09	6.49	2.07	8.10	1.94	9.01	1.83	9.27	1.92	9.72	2.07
		35	4.64	2.16	5.00	2.13	5.75	2.17	6.20	2.20	6.55	2.08	6.94	1.99	8.60	1.89	11.35	1.85	10.67	1.70	10.80	1.70
		30	4.56	2.13	4.71	1.54	5.47	1.69	5.93	1.78	6.42	1.87	6.92	1.94	8.46	2.04	10.95	1.78	10.98	1.78	11.04	1.79
		25	-	-	-	-	-	-	-	-	-	-	6.94	1.58	8.90	1.66	8.81	1.24	10.02	1.37	12.02	1.59
		20	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
RAS-3WHVRP2E + RWM-3.0R3E / RWD-3.0RW3E-220S(-K/6H)		60	-	-	-	-	-	-	3.35	2.50	4.23	2.62	4.72	2.57	7.20	2.83	8.02	2.71	7.94	2.64	7.87	2.47
		55	-	-	-	-	4.84	2.57	6.00	2.80	6.49	3.09	7.09	3.32	9.50	3.06	10.76	3.46	10.46	3.28	11.13	3.35
		50	-	-	4.15	2.24	5.40	2.55	6.16	2.74	6.59	2.92	7.16	3.06	9.20	2.66	10.68	3.09	10.44	2.96	11.42	3.19
		45	4.21	2.38	4.61	2.49	5.67	2.60	6.31	2.67	6.69	2.75	7.22	2.81	8.91	2.27	10.39	2.64	11.23	2.87	12.64	3.26
		40	5.18	2.47	5.46	2.41	6.47	2.51	7.08	2.58	8.55	2.51	9.11	2.47	10.78	2.11	13.62	2.25	14.14	2.36	15.00	2.55
		35	5.61	2.36	6.06	2.34	6.96	2.43	7.50	2.48	8.91	2.28	9.38	2.13	11.00	1.95	15.43	2.00	14.53	1.85	14.53	1.85
		30	5.32	2.18	5.40	1.62	6.50	1.82	7.16	1.94	8.62	2.04	9.16	2.12	11.78	2.35	14.53	2.05	14.53	2.04	14.53	2.02
		25	-	-	-	-	-	-	-	-	-	-	10.25	1.90	11.87	1.95	11.84	1.56	13.15	1.74	15.51	2.04
		20	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

System		Water outlet temp (°C)	Ambient temperature (°C WB)																			
			-20		-15		-10		-7		-2		2		7		12		15		20	
			CAP (kW)	IPT (kW)	CAP (kW)	IPT (kW)	CAP (kW)	IPT (kW)	CAP (kW)	IPT (kW)	CAP (kW)	IPT (kW)	CAP (kW)	IPT (kW)	CAP (kW)	IPT (kW)	CAP (kW)	IPT (kW)	CAP (kW)	IPT (kW)	CAP (kW)	IPT (kW)
RAS-3.5WHVRP2E + RWM-3.5R3E / RWD-3.5RW3E-220S(-K)	65	-	-	-	-	-	-	-	-	8.04	5.67	8.30	5.36	8.63	5.21	9.78	3.91	9.78	3.91	9.78	3.91	
	60	-	-	-	-	7.79	4.09	8.49	4.37	8.65	4.78	8.60	4.46	9.75	4.82	10.02	5.04	10.02	5.04	10.02	5.04	
	55	4.02	3.94	5.90	4.19	7.91	4.30	8.50	4.24	8.59	4.12	8.50	3.97	10.00	4.24	10.08	4.04	10.08	4.04	10.08	4.04	
	50	4.62	4.42	5.86	4.13	7.80	4.30	8.61	4.28	8.62	3.90	8.80	3.48	10.28	3.51	10.20	3.26	10.20	3.26	10.20	3.26	
	45	5.22	4.91	5.82	4.08	7.68	4.31	8.80	4.45	8.27	3.42	8.50	2.62	10.31	2.79	9.98	2.50	9.98	2.50	9.98	2.50	
	40	5.67	4.39	6.61	3.85	8.47	3.93	8.64	3.67	8.15	3.03	8.50	2.67	10.00	2.69	10.22	2.16	10.22	2.16	10.22	2.16	
	35	6.12	3.88	7.41	3.63	8.95	3.48	8.50	3.11	8.57	2.77	8.50	2.36	10.50	2.29	10.46	1.82	10.46	1.82	10.46	1.82	
	30	5.41	3.19	7.25	3.51	8.28	3.47	8.59	3.38	8.56	2.97	8.63	2.49	9.94	2.14	10.31	2.13	10.31	2.13	10.31	2.13	
	25	-	-	-	-	-	-	-	-	-	-	8.57	1.98	10.36	1.89	10.08	1.50	10.08	1.50	10.08	1.50	
20	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	10.08	1.50		
RAS-4WHVRP2E + RWM-4.0R3E / RWD-4.0RW3E-220S(-K)	65	-	-	-	-	-	-	-	-	9.13	5.25	8.76	5.55	8.76	5.14	9.78	3.91	9.78	3.91	9.78	3.91	
	60	-	-	-	-	8.83	5.80	9.67	5.80	11.06	5.80	10.60	5.21	12.00	5.67	12.25	5.92	12.25	5.92	12.25	5.92	
	55	5.58	5.16	8.24	5.04	10.28	5.19	10.00	4.55	10.24	4.71	9.97	4.54	12.00	4.98	12.39	5.04	12.39	5.04	12.39	5.04	
	50	6.50	5.71	8.52	5.17	10.18	5.20	10.68	5.04	10.30	4.62	10.43	4.31	12.00	4.58	12.00	3.83	12.00	3.83	12.00	3.83	
	45	7.41	6.26	8.79	5.30	10.07	5.22	10.50	5.17	9.99	4.30	10.54	3.69	12.12	3.39	12.06	3.05	12.06	3.05	12.06	3.05	
	40	7.98	5.51	9.44	4.62	10.53	4.55	10.46	4.27	10.39	3.90	10.65	3.60	12.30	3.20	12.32	2.71	12.32	2.71	12.32	2.71	
	35	8.55	4.76	10.09	3.94	10.59	3.83	10.50	3.50	10.56	3.36	10.50	3.25	12.00	2.69	12.00	2.36	12.00	2.36	12.00	2.36	
	30	8.98	4.14	10.01	4.11	10.98	4.17	10.50	3.96	10.77	3.66	10.66	3.32	12.00	2.79	12.33	2.60	12.33	2.60	12.33	2.60	
	25	-	-	-	-	-	-	-	-	-	-	10.25	2.52	12.00	2.26	11.99	1.82	11.99	1.82	11.99	1.82	
20	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	11.99	1.82		
RAS-5WHVRP2E + RWM-5.0R3E / RWD-5.0RW3E-220S(-K)	65	-	-	-	-	-	-	-	-	9.35	3.35	11.85	4.61	12.76	6.45	12.51	5.50	12.51	5.50	12.51	5.50	
	60	-	-	-	-	10.62	6.12	11.59	6.12	13.22	6.12	11.95	5.12	12.54	5.56	13.65	5.00	13.65	5.00	13.65	5.00	
	55	7.84	5.96	11.34	6.92	11.79	6.14	12.00	5.65	12.08	5.54	12.00	5.39	14.00	5.48	13.74	4.48	13.74	4.48	13.74	4.48	
	50	8.40	6.09	10.53	6.99	11.69	6.26	12.39	5.83	12.56	5.22	12.50	4.67	14.31	4.71	14.32	4.24	14.32	4.24	14.32	4.24	
	45	8.95	6.22	9.72	7.07	11.17	6.13	12.04	5.56	12.47	4.63	12.96	3.95	14.70	4.21	13.81	3.71	13.81	3.71	13.81	3.71	
	40	9.33	5.43	10.92	6.17	12.10	5.56	12.26	4.92	12.77	4.46	12.62	3.89	14.27	3.72	13.93	3.29	13.93	3.29	13.93	3.29	
	35	9.71	4.63	11.34	5.04	11.80	4.51	12.00	4.10	12.45	4.07	12.50	4.05	14.00	3.30	14.04	2.88	14.04	2.88	14.04	2.88	
	30	9.71	4.83	8.91	4.38	11.06	4.24	12.35	4.15	12.11	3.77	12.94	3.67	14.00	3.56	14.00	2.86	14.00	2.86	14.00	2.86	
	25	-	-	-	-	-	-	-	-	-	-	12.43	3.23	13.92	2.60	13.96	2.34	13.96	2.34	13.96	2.34	
20	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	13.96	2.34		
RAS-6WHVRP2E + RWM-6.0R3E / RWD-6.0RW3E-220S(-K)	65	-	-	-	-	-	-	-	-	10.07	3.43	11.29	4.64	12.81	6.16	13.38	6.54	13.38	6.54	13.38	6.54	
	60	-	-	-	-	11.10	6.54	12.20	6.54	14.04	6.54	15.51	6.54	15.40	8.17	16.37	4.16	16.37	4.16	16.37	4.16	
	55	7.84	5.96	11.34	6.92	12.21	6.40	13.30	6.31	13.56	6.34	14.00	6.42	16.00	6.35	16.00	5.92	16.00	5.92	16.00	5.92	
	50	10.23	6.75	11.76	7.71	12.43	6.29	12.97	6.29	13.88	6.29	14.22	5.67	16.08	5.47	16.00	5.09	16.00	5.09	16.00	5.09	
	45	10.41	6.54	10.94	7.87	13.09	6.44	13.31	6.14	13.69	5.66	14.22	4.79	16.00	4.93	16.00	4.93	16.00	4.93	16.00	4.93	
	40	10.82	5.71	12.29	6.79	13.32	5.97	13.74	5.75	14.19	5.20	14.45	4.71	16.00	4.50	16.00	4.10	16.00	4.10	16.00	4.10	
	35	11.23	4.88	13.65	5.72	13.56	5.51	14.60	5.36	15.21	5.11	15.00	4.81	16.00	4.07	15.97	3.37	15.97	3.37	15.97	3.37	
	30	11.23	5.14	10.52	4.85	13.60	4.51	14.08	4.59	14.89	4.73	14.96	4.58	16.00	4.10	16.00	3.26	16.00	3.26	16.00	3.26	
	25	-	-	-	-	-	-	-	-	-	-	15.30	4.14	16.23	3.00	16.00	2.69	16.00	2.69	16.00	2.69	
20	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	16.00	2.69		

System		Water outlet temp (°C)	Ambient temperature (°C WB)																			
			-20		-15		-10		-7		-2		2		7		12		15		20	
			CAP (kW)	IPT (kW)	CAP (kW)	IPT (kW)	CAP (kW)	IPT (kW)	CAP (kW)	IPT (kW)	CAP (kW)	IPT (kW)	CAP (kW)	IPT (kW)	CAP (kW)	IPT (kW)	CAP (kW)	IPT (kW)	CAP (kW)	IPT (kW)	CAP (kW)	IPT (kW)
RAS-3.5WHRP2E + RWM-3.5R3E / RWD-3.5RW3E-220S(-K)	65	-	-	-	-	-	-	-	-	8.04	5.67	8.30	5.36	8.63	5.21	9.78	3.91	9.78	3.91	9.78	3.91	
	60	-	-	-	-	7.79	4.09	8.49	4.37	8.65	4.78	8.60	4.46	9.75	4.82	10.02	5.04	10.02	5.04	10.02	5.04	
	55	4.02	3.94	5.90	4.19	7.91	4.30	8.50	4.24	8.59	4.12	8.50	3.97	10.00	4.24	10.08	4.04	10.08	4.04	10.08	4.04	
	50	4.62	4.42	5.86	4.13	7.80	4.30	8.61	4.28	8.62	3.90	8.80	3.48	10.28	3.51	10.20	3.26	10.20	3.26	10.20	3.26	
	45	5.22	4.91	5.82	4.08	7.68	4.31	8.80	4.45	8.27	3.42	8.50	2.62	10.31	2.79	9.98	2.50	9.98	2.50	9.98	2.50	
	40	5.67	4.39	6.61	3.85	8.47	3.93	8.64	3.67	8.15	3.03	8.50	2.67	10.00	2.69	10.22	2.16	10.22	2.16	10.22	2.16	
	35	6.12	3.88	7.41	3.63	8.95	3.48	8.50	3.11	8.57	2.77	8.50	2.36	10.50	2.29	10.46	1.82	10.46	1.82	10.46	1.82	
	30	5.41	3.19	7.25	3.51	8.28	3.47	8.59	3.38	8.56	2.97	8.63	2.49	9.94	2.14	10.31	2.13	10.31	2.13	10.31	2.13	
	25	-	-	-	-	-	-	-	-	-	-	8.57	1.98	10.36	1.89	10.08	1.50	10.08	1.50	10.08	1.50	
	20	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	10.08	1.50	
RAS-4WHRP2E + RWM-4.0R3E / RWD-4.0RW3E-220S(-K)	65	-	-	-	-	-	-	-	-	9.13	5.25	8.76	5.55	8.76	5.14	9.78	3.91	9.78	3.91	9.78	3.91	
	60	-	-	-	-	8.83	5.80	9.67	5.80	11.06	5.80	10.60	5.21	12.00	5.67	12.25	5.92	12.25	5.92	12.25	5.92	
	55	5.58	5.16	8.24	5.04	10.28	5.19	10.00	4.55	10.24	4.71	9.97	4.54	12.00	4.98	12.39	5.04	12.39	5.04	12.39	5.04	
	50	6.50	5.71	8.52	5.17	10.18	5.20	10.68	5.04	10.30	4.62	10.43	4.31	12.00	4.58	12.00	3.83	12.00	3.83	12.00	3.83	
	45	7.41	6.26	8.79	5.30	10.07	5.22	10.50	5.17	9.99	4.30	10.54	3.69	12.12	3.39	12.06	3.05	12.06	3.05	12.06	3.05	
	40	7.98	5.51	9.44	4.62	10.53	4.55	10.46	4.27	10.39	3.90	10.65	3.60	12.30	3.20	12.32	2.71	12.32	2.71	12.32	2.71	
	35	8.55	4.76	10.09	3.94	10.59	3.83	10.50	3.50	10.56	3.36	10.50	3.25	12.00	2.69	12.00	2.36	12.00	2.36	12.00	2.36	
	30	8.98	4.14	10.01	4.11	10.98	4.17	10.50	3.96	10.77	3.66	10.66	3.32	12.00	2.79	12.33	2.60	12.33	2.60	12.33	2.60	
	25	-	-	-	-	-	-	-	-	-	-	10.25	2.52	12.00	2.26	11.99	1.82	11.99	1.82	11.99	1.82	
	20	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	11.99	1.82	
RAS-5WHRP2E + RWM-5.0R3E / RWD-5.0RW3E-220S(-K)	65	-	-	-	-	-	-	-	-	9.35	3.35	11.85	4.61	12.76	6.45	12.51	5.50	12.51	5.50	12.51	5.50	
	60	-	-	-	-	10.62	6.12	11.59	6.12	13.22	6.12	11.95	5.12	12.54	5.56	13.65	5.00	13.65	5.00	13.65	5.00	
	55	7.84	5.96	11.34	6.92	11.79	6.14	12.00	5.65	12.08	5.54	12.00	5.39	14.00	5.48	13.74	4.48	13.74	4.48	13.74	4.48	
	50	8.40	6.09	10.53	6.99	11.69	6.26	12.39	5.83	12.56	5.22	12.50	4.67	14.31	4.71	14.32	4.24	14.32	4.24	14.32	4.24	
	45	8.95	6.22	9.72	7.07	11.17	6.13	12.04	5.56	12.47	4.63	12.96	3.95	14.70	4.21	13.81	3.71	13.81	3.71	13.81	3.71	
	40	9.33	5.43	10.92	6.17	12.10	5.56	12.26	4.92	12.77	4.46	12.62	3.89	14.27	3.72	13.93	3.29	13.93	3.29	13.93	3.29	
	35	9.71	4.63	11.34	5.04	11.80	4.51	12.00	4.10	12.45	4.07	12.50	4.05	14.00	3.30	14.04	2.88	14.04	2.88	14.04	2.88	
	30	9.71	4.83	8.91	4.38	11.06	4.24	12.35	4.15	12.11	3.77	12.94	3.67	14.00	3.56	14.00	2.86	14.00	2.86	14.00	2.86	
	25	-	-	-	-	-	-	-	-	-	-	12.43	3.23	13.92	2.60	13.96	2.34	13.96	2.34	13.96	2.34	
	20	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	13.96	2.34	
RAS-6WHRP2E + RWM-6.0R3E / RWD-6.0RW3E-220S(-K)	65	-	-	-	-	-	-	-	-	10.07	3.43	11.29	4.64	12.81	6.16	13.38	6.54	13.38	6.54	13.38	6.54	
	60	-	-	-	-	11.10	6.54	12.20	6.54	14.04	6.54	15.51	6.54	15.40	8.17	16.37	4.16	16.37	4.16	16.37	4.16	
	55	7.84	5.96	11.34	6.92	12.21	6.40	13.30	6.31	13.56	6.34	14.00	6.42	16.00	6.35	16.00	5.92	16.00	5.92	16.00	5.92	
	50	10.23	6.75	11.76	7.71	12.43	6.29	12.97	6.29	13.88	6.29	14.22	5.67	16.08	5.47	16.00	5.09	16.00	5.09	16.00	5.09	
	45	10.41	6.54	10.94	7.87	13.09	6.44	13.31	6.14	13.69	5.66	14.22	4.79	16.00	4.93	16.00	4.93	16.00	4.93	16.00	4.93	
	40	10.82	5.71	12.29	6.79	13.32	5.97	13.74	5.75	14.19	5.20	14.45	4.71	16.00	4.50	16.00	4.10	16.00	4.10	16.00	4.10	
	35	11.23	4.88	13.65	5.72	13.56	5.51	14.60	5.36	15.21	5.11	15.00	4.81	16.00	4.07	15.97	3.37	15.97	3.37	15.97	3.37	
	30	11.23	5.14	10.52	4.85	13.60	4.51	14.08	4.59	14.89	4.73	14.96	4.58	16.00	4.10	16.00	3.26	16.00	3.26	16.00	3.26	
	25	-	-	-	-	-	-	-	-	-	-	15.30	4.14	16.23	3.00	16.00	2.69	16.00	2.69	16.00	2.69	
	20	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	16.00	2.69	

System	Water outlet temp (°C)	Ambient temperature (°C WB)																			
		-20		-15		-10		-7		-2		2		7		12		15		20	
		CAP (kW)	IPT (kW)	CAP (kW)	IPT (kW)	CAP (kW)	IPT (kW)	CAP (kW)	IPT (kW)	CAP (kW)	IPT (kW)	CAP (kW)	IPT (kW)	CAP (kW)	IPT (kW)	CAP (kW)	IPT (kW)	CAP (kW)	IPT (kW)	CAP (kW)	IPT (kW)
RAS-8WHNPE + RWM-8.0N3E	60	-	-	-	-	11.92	9.47	13.14	9.00	14.98	9.45	16.45	9.81	21.15	12.41	22.00	10.61	22.50	8.56	23.50	5.60
	55	-	-	-	-	12.79	8.88	14.50	9.67	15.30	8.15	15.95	6.93	24.00	9.60	24.50	9.07	24.80	8.37	25.10	7.13
	50	-	-	12.00	8.60	13.65	8.28	15.70	9.58	16.75	8.97	17.58	8.48	24.01	10.45	24.90	9.31	25.50	7.83	26.10	5.59
	45	10.28	7.73	12.71	8.12	15.14	8.51	16.60	8.74	17.66	7.69	18.50	6.85	25.00	7.94	26.00	7.65	26.50	6.97	26.90	5.85
	40	12.20	8.54	13.31	7.82	15.77	8.04	17.24	8.17	18.36	7.39	19.25	6.76	25.25	7.41	26.30	6.98	26.90	6.76	27.10	6.25
	35	14.00	9.15	14.50	7.84	16.39	7.57	17.90	7.61	19.06	7.08	20.00	6.67	25.50	6.89	26.50	6.31	27.10	6.00	27.90	5.53
	30	14.80	8.60	14.27	7.12	16.97	7.51	18.58	7.74	19.38	6.80	20.02	6.04	26.50	6.97	27.00	6.28	27.60	6.02	28.10	5.53
	25	15.90	7.81	16.20	7.19	17.22	7.12	19.11	7.66	19.96	6.78	20.64	6.07	27.10	6.95	27.50	6.11	28.00	5.78	28.50	5.23
	20	16.00	6.22	16.50	6.38	17.47	6.74	19.64	7.57	20.55	6.76	21.27	6.11	27.70	6.92	28.00	5.95	28.50	5.57	29.00	4.97
RAS-10WHNPE + RWM-10.0N3E	60	-	-	-	-	13.90	10.69	14.50	8.06	16.17	8.44	17.50	8.75	22.00	9.57	23.50	11.19	24.30	9.17	25.00	5.79
	55	-	-	-	-	15.76	13.87	17.30	12.36	18.61	10.71	19.50	9.29	25.52	10.65	26.00	10.83	26.50	9.58	27.20	7.42
	50	-	-	15.50	12.90	16.37	12.80	18.36	12.84	18.97	10.35	19.46	8.35	28.05	10.64	28.60	10.51	29.00	9.41	29.90	7.63
	45	13.00	8.67	14.81	9.52	17.12	10.71	18.50	11.42	19.89	9.24	21.00	7.50	32.00	10.67	33.00	10.64	33.20	9.78	33.60	8.40
	40	14.20	9.17	15.44	9.10	18.13	9.96	19.74	10.48	20.36	9.04	20.85	7.89	32.00	9.54	33.50	9.47	33.50	9.18	33.80	8.80
	35	15.10	9.44	16.07	8.67	18.50	8.90	21.00	9.55	21.00	8.91	21.70	8.68	32.00	8.42	34.00	8.29	34.70	8.25	34.90	7.97
	30	15.70	8.72	16.01	7.60	18.70	7.91	21.63	8.66	22.95	8.79	24.00	8.89	33.20	8.85	34.30	7.98	35.00	7.99	35.10	7.78
	25	16.40	8.63	16.35	7.41	18.80	7.63	22.03	8.48	23.74	8.90	25.11	9.24	33.50	8.70	34.50	6.90	35.80	7.02	36.20	6.88
	20	17.00	8.47	17.50	7.56	19.00	7.39	22.43	8.30	24.54	9.02	26.00	9.52	33.00	8.35	35.00	6.00	36.10	6.10	37.00	6.14

Maximum heating capacity table

- CAP: Capacity at compressor maximum frequency (kW). Capacity is valid for difference between water inlet and water outlet of 3°C - 8°C.
- IPT: Total input power (kW).

The table above shows the input power (IPT) at maximum capacity (CAP). Most of the time, the unit will run at partial load, so that the actual input power will be lower. The calculation of **airH2O 600** maximum capacity data at standard humidity conditions has been based on the most representative locations considering:

- Standard humidity condition.
- Short refrigerant piping length (7 m)
- Low installation altitude location (< 300 m)

The corrected factor above is given as an average value between different water outlet temperatures. Please do not use it for calculation, use the above capacity table with the corresponding ambient and outlet water temperature.

This defrost correction factor may increase due to severe climate conditions, such as high humidity conditions or operations in a transitional period. In these cases, a different defrost factor must be considered in order to ensure proper unit selection.

3.2 Maximum heating capacity table (kW) (high humidity)

3.2.1 Split system - airH2O 600S / airH2O 600S Combi

System		Water outlet temp (°C)	Ambient temperature (°C WB)																				
			-20		-15		-10		-7		-2		2		7		12		15		20		
			CAP (kW)	IPT (kW)	CAP (kW)	IPT (kW)	CAP (kW)	IPT (kW)	CAP (kW)	IPT (kW)	CAP (kW)	IPT (kW)	CAP (kW)	IPT (kW)	CAP (kW)	IPT (kW)	CAP (kW)	IPT (kW)	CAP (kW)	IPT (kW)	CAP (kW)	IPT (kW)	
RAS-1.5WHVRP2E	+	RWM-1.5R2E / RWD-1.5RW2E-220S(-K)	60	-	-	-	-	-	-	2.35	2.40	3.40	2.10	3.70	1.78	3.81	1.72	3.07	1.26	3.21	1.24	3.46	1.20
		55	-	-	-	-	3.44	1.91	3.74	1.95	4.23	2.02	4.63	2.07	4.90	1.73	5.63	1.78	5.82	1.70	6.12	1.56	
		50	-	-	3.16	1.58	3.55	1.79	3.79	1.92	4.20	1.88	4.53	1.86	5.20	1.55	5.85	1.59	5.98	1.55	6.19	1.48	
		45	1.22	1.62	3.51	1.76	3.71	1.84	3.83	1.88	4.17	1.75	4.43	1.65	5.49	1.37	6.06	1.40	6.14	1.40	6.27	1.40	
		40	2.62	1.86	3.70	1.77	4.21	1.81	4.52	1.84	4.75	1.70	4.94	1.58	5.34	1.21	6.25	1.16	6.39	1.16	6.61	1.16	
		35	3.53	1.90	3.88	1.77	4.71	1.79	5.21	1.80	5.34	1.64	5.44	1.52	6.40	1.40	6.45	0.92	6.64	0.92	6.96	0.92	
		30	3.56	1.69	3.92	1.59	4.45	1.49	4.76	1.43	5.19	1.34	5.53	1.26	5.47	0.90	6.81	1.03	6.90	0.98	7.05	0.91	
		25	-	-	-	-	-	-	-	-	-	-	5.11	1.24	7.21	0.98	7.01	0.89	5.46	0.69	5.46	0.69	
		20	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
RAS-2WHVRP2E	+	RWM-2.0R2E / RWD-2.0RW2E-220S(-K/6H)	60	-	-	-	-	-	-	2.59	2.40	3.74	2.46	4.67	2.27	5.70	2.38	5.93	2.25	6.08	2.21	6.32	2.15
		55	-	-	-	-	3.61	1.99	4.29	2.19	4.88	2.24	5.35	2.28	5.98	2.17	7.12	2.32	7.21	2.19	7.36	1.96	
		50	-	-	3.21	2.06	3.83	2.19	4.27	2.27	4.87	2.21	5.35	2.16	6.27	1.99	7.41	2.04	7.50	1.97	7.66	1.86	
		45	2.80	2.49	3.57	2.29	3.95	2.32	4.26	2.35	4.87	2.18	5.35	2.04	6.56	1.80	7.70	1.75	7.80	1.75	7.96	1.75	
		40	3.44	2.32	3.83	2.18	4.47	2.14	4.86	2.11	5.22	2.06	5.50	2.02	6.34	1.56	7.95	1.46	8.14	1.46	8.48	1.46	
		35	3.74	2.50	4.20	2.08	4.99	1.96	5.49	1.89	5.57	1.95	5.65	1.99	6.99	1.69	8.19	1.18	8.49	1.18	8.99	1.18	
		30	4.12	2.05	4.25	1.94	5.15	1.89	5.70	1.86	5.65	1.57	5.66	1.34	7.00	1.30	8.41	1.32	8.52	1.27	8.69	1.18	
		25	-	-	-	-	-	-	-	-	-	-	5.92	1.56	8.19	1.21	9.25	1.20	7.71	0.99	7.71	0.99	
		20	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
RAS-2.5WHVRP2E	+	RWM-2.5R2E / RWD-2.5RW2E-220S(-K/6H)	60	-	-	-	-	-	-	2.90	2.50	3.62	2.57	3.95	2.50	6.14	2.75	6.87	2.59	6.67	2.45	6.57	2.24
		55	-	-	-	-	3.93	2.50	4.62	2.62	5.28	2.70	5.81	2.76	8.19	2.97	8.49	3.00	8.06	2.81	8.46	2.88	
		50	-	-	3.44	2.04	4.27	2.29	4.78	2.45	5.43	2.48	5.96	2.51	7.71	2.51	8.23	2.57	7.78	2.44	8.25	2.62	
		45	3.31	2.14	3.82	2.27	4.52	2.27	4.93	2.27	5.58	2.27	6.10	2.27	7.23	2.05	7.83	2.11	8.21	2.29	8.83	2.60	
		40	3.91	2.24	4.08	2.12	4.76	2.12	5.16	2.12	5.72	2.09	6.17	2.07	7.71	1.94	8.57	1.83	8.82	1.92	9.24	2.07	
		35	4.32	2.16	4.65	2.13	5.35	2.17	5.76	2.20	6.23	2.08	6.60	1.99	8.18	1.89	10.80	1.85	10.15	1.70	10.28	1.70	
		30	4.24	2.13	4.38	1.54	5.09	1.69	5.52	1.78	6.11	1.87	6.58	1.94	8.05	2.04	10.42	1.78	10.45	1.78	10.51	1.79	
		25	-	-	-	-	-	-	-	-	-	-	6.60	1.58	8.47	1.66	8.38	1.24	9.53	1.37	11.44	1.59	
		20	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
RAS-3WHVRP2E	+	RWM-3.0R2E / RWD-3.0RW2E-220S(-K/6H)	60	-	-	-	-	-	-	2.91	2.50	3.85	2.62	4.29	2.57	6.55	2.83	7.29	2.71	7.22	2.64	7.17	2.47
		55	-	-	-	-	4.22	2.57	5.23	2.80	5.91	3.09	6.45	3.32	8.64	3.06	9.79	3.46	9.52	3.28	10.13	3.35	
		50	-	-	3.61	2.24	4.70	2.55	5.36	2.74	6.00	2.92	6.51	3.06	8.37	2.66	9.72	3.09	9.50	2.96	10.39	3.19	
		45	3.66	2.38	4.01	2.49	4.94	2.60	5.49	2.67	6.09	2.75	6.57	2.81	8.11	2.27	9.45	2.64	10.22	2.87	11.50	3.26	
		40	4.27	2.47	4.51	2.41	5.34	2.51	5.84	2.58	6.36	2.51	6.77	2.47	8.02	2.11	10.13	2.25	10.51	2.36	11.15	2.55	
		35	4.63	2.36	5.00	2.34	5.74	2.43	6.19	2.48	6.62	2.28	6.97	2.13	8.18	1.95	11.47	2.00	10.80	1.85	10.80	1.85	
		30	4.39	2.18	4.46	1.62	5.36	1.82	5.91	1.94	6.41	2.04	6.81	2.12	8.76	2.35	10.80	2.05	10.80	2.04	10.80	2.02	
		25	-	-	-	-	-	-	-	-	-	-	7.62	1.90	8.83	1.95	8.80	1.56	9.78	1.74	11.53	2.04	
		20	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

CAPACITY AND SELECTION DATA

3

MAXIMUM HEATING CAPACITY TABLE (kW) (HIGH HUMIDITY)

System		Water outlet temp (°C)	Ambient temperature (°C WB)																			
			-20		-15		-10		-7		-2		2		7		12		15		20	
			CAP (kW)	IPT (kW)	CAP (kW)	IPT (kW)	CAP (kW)	IPT (kW)	CAP (kW)	IPT (kW)	CAP (kW)	IPT (kW)	CAP (kW)	IPT (kW)	CAP (kW)	IPT (kW)	CAP (kW)	IPT (kW)	CAP (kW)	IPT (kW)	CAP (kW)	IPT (kW)
RAS-3.5WHVRP2E + RWM-3.5R3E / RWD-3.5RW3E-220S(-K)	65	-	-	-	-	-	-	-	-	8.04	5.67	8.30	5.36	8.63	5.21	9.78	3.91	9.78	3.91	9.78	3.91	
	60	-	-	-	-	7.79	4.09	8.49	4.37	8.65	4.78	8.60	4.46	9.75	4.82	10.02	5.04	10.02	5.04	10.02	5.04	
	55	4.02	3.94	5.90	4.19	7.91	4.30	8.50	4.24	8.59	4.12	8.50	3.97	10.00	4.24	10.08	4.04	10.08	4.04	10.08	4.04	
	50	4.62	4.42	5.86	4.13	7.80	4.30	8.61	4.28	8.62	3.90	8.80	3.48	10.28	3.51	10.20	3.26	10.20	3.26	10.20	3.26	
	45	5.22	4.91	5.82	4.08	7.68	4.31	8.80	4.45	8.27	3.42	8.50	2.62	10.31	2.79	9.98	2.50	9.98	2.50	9.98	2.50	
	40	5.67	4.39	6.61	3.85	8.47	3.93	8.64	3.67	8.15	3.03	8.50	2.67	10.00	2.69	10.22	2.16	10.22	2.16	10.22	2.16	
	35	6.12	3.88	7.41	3.63	8.95	3.48	8.50	3.11	8.57	2.77	8.50	2.36	10.50	2.29	10.46	1.82	10.46	1.82	10.46	1.82	
	30	5.41	3.19	7.25	3.51	8.28	3.47	8.59	3.38	8.56	2.97	8.63	2.49	9.94	2.14	10.31	2.13	10.31	2.13	10.31	2.13	
	25	-	-	-	-	-	-	-	-	-	-	8.57	1.98	10.36	1.89	10.08	1.50	10.08	1.50	10.08	1.50	
20	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	10.08	1.50		
RAS-4WHVRP2E + RWM-4.0R3E / RWD-4.0RW3E-220S(-K)	65	-	-	-	-	-	-	-	-	9.13	5.25	8.76	5.55	8.76	5.14	9.78	3.91	9.78	3.91	9.78	3.91	
	60	-	-	-	-	8.83	5.80	9.67	5.80	11.06	5.80	10.60	5.21	12.00	5.67	12.25	5.92	12.25	5.92	12.25	5.92	
	55	5.58	5.16	8.24	5.04	10.28	5.19	10.00	4.55	10.24	4.71	9.97	4.54	12.00	4.98	12.39	5.04	12.39	5.04	12.39	5.04	
	50	6.50	5.71	8.52	5.17	10.18	5.20	10.68	5.04	10.30	4.62	10.43	4.31	12.00	4.58	12.00	3.83	12.00	3.83	12.00	3.83	
	45	7.41	6.26	8.79	5.30	10.07	5.22	10.50	5.17	9.99	4.30	10.54	3.69	12.12	3.39	12.06	3.05	12.06	3.05	12.06	3.05	
	40	7.98	5.51	9.44	4.62	10.53	4.55	10.46	4.27	10.39	3.90	10.65	3.60	12.30	3.20	12.32	2.71	12.32	2.71	12.32	2.71	
	35	8.55	4.76	10.09	3.94	10.59	3.83	10.50	3.50	10.56	3.36	10.50	3.25	12.00	2.69	12.00	2.36	12.00	2.36	12.00	2.36	
	30	8.98	4.14	10.01	4.11	10.98	4.17	10.50	3.96	10.77	3.66	10.66	3.32	12.00	2.79	12.33	2.60	12.33	2.60	12.33	2.60	
	25	-	-	-	-	-	-	-	-	-	-	10.25	2.52	12.00	2.26	11.99	1.82	11.99	1.82	11.99	1.82	
20	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	11.99	1.82		
RAS-5WHVRP2E + RWM-5.0R3E / RWD-5.0RW3E-220S(-K)	65	-	-	-	-	-	-	-	-	9.35	3.35	11.85	4.61	12.76	6.45	12.51	5.50	12.51	5.50	12.51	5.50	
	60	-	-	-	-	10.62	6.12	11.59	6.12	13.22	6.12	11.95	5.12	12.54	5.56	13.65	5.00	13.65	5.00	13.65	5.00	
	55	7.84	5.96	11.34	6.92	11.79	6.14	12.00	5.65	12.08	5.54	12.00	5.39	14.00	5.48	13.74	4.48	13.74	4.48	13.74	4.48	
	50	8.40	6.09	10.53	6.99	11.69	6.26	12.39	5.83	12.56	5.22	12.50	4.67	14.31	4.71	14.32	4.24	14.32	4.24	14.32	4.24	
	45	8.95	6.22	9.72	7.07	11.17	6.13	12.04	5.56	12.47	4.63	12.96	3.95	14.70	4.21	13.81	3.71	13.81	3.71	13.81	3.71	
	40	9.33	5.43	10.92	6.17	12.10	5.56	12.26	4.92	12.77	4.46	12.62	3.89	14.27	3.72	13.93	3.29	13.93	3.29	13.93	3.29	
	35	9.71	4.63	11.34	5.04	11.80	4.51	12.00	4.10	12.45	4.07	12.50	4.05	14.00	3.30	14.04	2.88	14.04	2.88	14.04	2.88	
	30	9.71	4.83	8.91	4.38	11.06	4.24	12.35	4.15	12.11	3.77	12.94	3.67	14.00	3.56	14.00	2.86	14.00	2.86	14.00	2.86	
	25	-	-	-	-	-	-	-	-	-	-	12.43	3.23	13.92	2.60	13.96	2.34	13.96	2.34	13.96	2.34	
20	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	13.96	2.34		
RAS-6WHVRP2E + RWM-6.0R3E / RWD-6.0RW3E-220S(-K)	65	-	-	-	-	-	-	-	-	10.07	3.43	11.29	4.64	12.81	6.16	13.38	6.54	13.38	6.54	13.38	6.54	
	60	-	-	-	-	11.10	6.54	12.20	6.54	14.04	6.54	15.51	6.54	15.40	8.17	16.37	4.16	16.37	4.16	16.37	4.16	
	55	7.84	5.96	11.34	6.92	12.21	6.40	13.30	6.31	13.56	6.34	14.00	6.42	16.00	6.35	16.00	5.92	16.00	5.92	16.00	5.92	
	50	10.23	6.75	11.76	7.71	12.43	6.29	12.97	6.29	13.88	6.29	14.22	5.67	16.08	5.47	16.00	5.09	16.00	5.09	16.00	5.09	
	45	10.41	6.54	10.94	7.87	13.09	6.44	13.31	6.14	13.69	5.66	14.22	4.79	16.00	4.93	16.00	4.93	16.00	4.93	16.00	4.93	
	40	10.82	5.71	12.29	6.79	13.32	5.97	13.74	5.75	14.19	5.20	14.45	4.71	16.00	4.50	16.00	4.10	16.00	4.10	16.00	4.10	
	35	11.23	4.88	13.65	5.72	13.56	5.51	14.60	5.36	15.21	5.11	15.00	4.81	16.00	4.07	15.97	3.37	15.97	3.37	15.97	3.37	
	30	11.23	5.14	10.52	4.85	13.60	4.51	14.08	4.59	14.89	4.73	14.96	4.58	16.00	4.10	16.00	3.26	16.00	3.26	16.00	3.26	
	25	-	-	-	-	-	-	-	-	-	-	15.30	4.14	16.23	3.00	16.00	2.69	16.00	2.69	16.00	2.69	
20	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	16.00	2.69		

System		Water outlet temp (°C)	Ambient temperature (°C WB)																			
			-20		-15		-10		-7		-2		2		7		12		15		20	
			CAP (kW)	IPT (kW)	CAP (kW)	IPT (kW)	CAP (kW)	IPT (kW)	CAP (kW)	IPT (kW)	CAP (kW)	IPT (kW)	CAP (kW)	IPT (kW)	CAP (kW)	IPT (kW)	CAP (kW)	IPT (kW)	CAP (kW)	IPT (kW)	CAP (kW)	IPT (kW)
RAS-3.5WHRP2E + RWM-3.5R3E / RWD-3.5RW3E-220S(-K)	65	-	-	-	-	-	-	-	-	8.04	5.67	8.30	5.36	8.63	5.21	9.78	3.91	9.78	3.91	9.78	3.91	
	60	-	-	-	-	7.79	4.09	8.49	4.37	8.65	4.78	8.60	4.46	9.75	4.82	10.02	5.04	10.02	5.04	10.02	5.04	
	55	4.02	3.94	5.90	4.19	7.91	4.30	8.50	4.24	8.59	4.12	8.50	3.97	10.00	4.24	10.08	4.04	10.08	4.04	10.08	4.04	
	50	4.62	4.42	5.86	4.13	7.80	4.30	8.61	4.28	8.62	3.90	8.80	3.48	10.28	3.51	10.20	3.26	10.20	3.26	10.20	3.26	
	45	5.22	4.91	5.82	4.08	7.68	4.31	8.80	4.45	8.27	3.42	8.50	2.62	10.31	2.79	9.98	2.50	9.98	2.50	9.98	2.50	
	40	5.67	4.39	6.61	3.85	8.47	3.93	8.64	3.67	8.15	3.03	8.50	2.67	10.00	2.69	10.22	2.16	10.22	2.16	10.22	2.16	
	35	6.12	3.88	7.41	3.63	8.95	3.48	8.50	3.11	8.57	2.77	8.50	2.36	10.50	2.29	10.46	1.82	10.46	1.82	10.46	1.82	
	30	5.41	3.19	7.25	3.51	8.28	3.47	8.59	3.38	8.56	2.97	8.63	2.49	9.94	2.14	10.31	2.13	10.31	2.13	10.31	2.13	
	25	-	-	-	-	-	-	-	-	-	-	8.57	1.98	10.36	1.89	10.08	1.50	10.08	1.50	10.08	1.50	
20	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	10.08	1.50		
RAS-4WHRP2E + RWM-4.0R3E / RWD-4.0RW3E-220S(-K)	65	-	-	-	-	-	-	-	-	9.13	5.25	8.76	5.55	8.76	5.14	9.78	3.91	9.78	3.91	9.78	3.91	
	60	-	-	-	-	8.83	5.80	9.67	5.80	11.06	5.80	10.60	5.21	12.00	5.67	12.25	5.92	12.25	5.92	12.25	5.92	
	55	5.58	5.16	8.24	5.04	10.28	5.19	10.00	4.55	10.24	4.71	9.97	4.54	12.00	4.98	12.39	5.04	12.39	5.04	12.39	5.04	
	50	6.50	5.71	8.52	5.17	10.18	5.20	10.68	5.04	10.30	4.62	10.43	4.31	12.00	4.58	12.00	3.83	12.00	3.83	12.00	3.83	
	45	7.41	6.26	8.79	5.30	10.07	5.22	10.50	5.17	9.99	4.30	10.54	3.69	12.12	3.39	12.06	3.05	12.06	3.05	12.06	3.05	
	40	7.98	5.51	9.44	4.62	10.53	4.55	10.46	4.27	10.39	3.90	10.65	3.60	12.30	3.20	12.32	2.71	12.32	2.71	12.32	2.71	
	35	8.55	4.76	10.09	3.94	10.59	3.83	10.50	3.50	10.56	3.36	10.50	3.25	12.00	2.69	12.00	2.36	12.00	2.36	12.00	2.36	
	30	8.98	4.14	10.01	4.11	10.98	4.17	10.50	3.96	10.77	3.66	10.66	3.32	12.00	2.79	12.33	2.60	12.33	2.60	12.33	2.60	
	25	-	-	-	-	-	-	-	-	-	-	10.25	2.52	12.00	2.26	11.99	1.82	11.99	1.82	11.99	1.82	
20	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	11.99	1.82		
RAS-5WHRP2E + RWM-5.0R3E / RWD-5.0RW3E-220S(-K)	65	-	-	-	-	-	-	-	-	9.35	3.35	11.85	4.61	12.76	6.45	12.51	5.50	12.51	5.50	12.51	5.50	
	60	-	-	-	-	10.62	6.12	11.59	6.12	13.22	6.12	11.95	5.12	12.54	5.56	13.65	5.00	13.65	5.00	13.65	5.00	
	55	7.84	5.96	11.34	6.92	11.79	6.14	12.00	5.65	12.08	5.54	12.00	5.39	14.00	5.48	13.74	4.48	13.74	4.48	13.74	4.48	
	50	8.40	6.09	10.53	6.99	11.69	6.26	12.39	5.83	12.56	5.22	12.50	4.67	14.31	4.71	14.32	4.24	14.32	4.24	14.32	4.24	
	45	8.95	6.22	9.72	7.07	11.17	6.13	12.04	5.56	12.47	4.63	12.96	3.95	14.70	4.21	13.81	3.71	13.81	3.71	13.81	3.71	
	40	9.33	5.43	10.92	6.17	12.10	5.56	12.26	4.92	12.77	4.46	12.62	3.89	14.27	3.72	13.93	3.29	13.93	3.29	13.93	3.29	
	35	9.71	4.63	11.34	5.04	11.80	4.51	12.00	4.10	12.45	4.07	12.50	4.05	14.00	3.30	14.04	2.88	14.04	2.88	14.04	2.88	
	30	9.71	4.83	8.91	4.38	11.06	4.24	12.35	4.15	12.11	3.77	12.94	3.67	14.00	3.56	14.00	2.86	14.00	2.86	14.00	2.86	
	25	-	-	-	-	-	-	-	-	-	-	12.43	3.23	13.92	2.60	13.96	2.34	13.96	2.34	13.96	2.34	
20	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	13.96	2.34		
RAS-6WHRP2E + RWM-6.0R3E / RWD-6.0RW3E-220S(-K)	65	-	-	-	-	-	-	-	-	10.07	3.43	11.29	4.64	12.81	6.16	13.38	6.54	13.38	6.54	13.38	6.54	
	60	-	-	-	-	11.10	6.54	12.20	6.54	14.04	6.54	15.51	6.54	15.40	8.17	16.37	4.16	16.37	4.16	16.37	4.16	
	55	7.84	5.96	11.34	6.92	12.21	6.40	13.30	6.31	13.56	6.34	14.00	6.42	16.00	6.35	16.00	5.92	16.00	5.92	16.00	5.92	
	50	10.23	6.75	11.76	7.71	12.43	6.29	12.97	6.29	13.88	6.29	14.22	5.67	16.08	5.47	16.00	5.09	16.00	5.09	16.00	5.09	
	45	10.41	6.54	10.94	7.87	13.09	6.44	13.31	6.14	13.69	5.66	14.22	4.79	16.00	4.93	16.00	4.93	16.00	4.93	16.00	4.93	
	40	10.82	5.71	12.29	6.79	13.32	5.97	13.74	5.75	14.19	5.20	14.45	4.71	16.00	4.50	16.00	4.10	16.00	4.10	16.00	4.10	
	35	11.23	4.88	13.65	5.72	13.56	5.51	14.60	5.36	15.21	5.11	15.00	4.81	16.00	4.07	15.97	3.37	15.97	3.37	15.97	3.37	
	30	11.23	5.14	10.52	4.85	13.60	4.51	14.08	4.59	14.89	4.73	14.96	4.58	16.00	4.10	16.00	3.26	16.00	3.26	16.00	3.26	
	25	-	-	-	-	-	-	-	-	-	-	15.30	4.14	16.23	3.00	16.00	2.69	16.00	2.69	16.00	2.69	
20	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	16.00	2.69		

System		Water outlet temp (°C)	Ambient temperature (°C WB)																			
			-20		-15		-10		-7		-2		2		7		12		15		20	
			CAP (kW)	IPT (kW)	CAP (kW)	IPT (kW)	CAP (kW)	IPT (kW)	CAP (kW)	IPT (kW)	CAP (kW)	IPT (kW)	CAP (kW)	IPT (kW)	CAP (kW)	IPT (kW)	CAP (kW)	IPT (kW)	CAP (kW)	IPT (kW)	CAP (kW)	IPT (kW)
RAS-8WHNPE + RWM-8.0N1E	60	-	-	-	-	11.92	9.47	13.14	9.00	14.98	9.45	16.45	9.81	21.15	12.41	22.00	10.61	22.50	8.56	23.50	5.60	
	55	-	-	-	-	12.79	8.88	14.50	9.67	15.30	8.15	15.95	6.93	24.00	9.60	24.50	9.07	24.80	8.37	25.10	7.13	
	50	-	-	12.00	8.60	13.65	8.28	15.70	9.58	16.75	8.97	17.58	8.48	24.01	10.45	24.90	9.31	25.50	7.83	26.10	5.59	
	45	10.28	7.73	12.71	8.12	15.14	8.51	16.60	8.74	17.66	7.69	18.50	6.85	25.00	7.94	26.00	7.65	26.50	6.97	26.90	5.85	
	40	12.20	8.54	13.31	7.82	15.77	8.04	17.24	8.17	18.36	7.39	19.25	6.76	25.25	7.41	26.30	6.98	26.90	6.76	27.10	6.25	
	35	14.00	9.15	14.50	7.84	16.39	7.57	17.90	7.61	19.06	7.08	20.00	6.67	25.50	6.89	26.50	6.31	27.10	6.00	27.90	5.53	
	30	14.80	8.60	14.27	7.12	16.97	7.51	18.58	7.74	19.38	6.80	20.02	6.04	26.50	6.97	27.00	6.28	27.60	6.02	28.10	5.53	
	25	15.90	7.81	16.20	7.19	17.22	7.12	19.11	7.66	19.96	6.78	20.64	6.07	27.10	6.95	27.50	6.11	28.00	5.78	28.50	5.23	
20	16.00	6.22	16.50	6.38	17.47	6.74	19.64	7.57	20.55	6.76	21.27	6.11	27.70	6.92	28.00	5.95	28.50	5.57	29.00	4.97		
RAS-10WHNPE + RWM-10.0N1E	60	-	-	-	-	13.90	10.69	14.50	8.06	16.17	8.44	17.50	8.75	22.00	9.57	23.50	11.19	24.30	9.17	25.00	5.79	
	55	-	-	-	-	15.76	13.87	17.30	12.36	18.61	10.71	19.50	9.29	25.52	10.65	26.00	10.83	26.50	9.58	27.20	7.42	
	50	-	-	15.50	12.90	16.37	12.80	18.36	12.84	18.97	10.35	19.46	8.35	28.05	10.64	28.60	10.51	29.00	9.41	29.90	7.63	
	45	13.00	8.67	14.81	9.52	17.12	10.71	18.50	11.42	19.89	9.24	21.00	7.50	32.00	10.67	33.00	10.64	33.20	9.78	33.60	8.40	
	40	14.20	9.17	15.44	9.10	18.13	9.96	19.74	10.48	20.36	9.04	20.85	7.89	32.00	9.54	33.50	9.47	33.50	9.18	33.80	8.80	
	35	15.10	9.44	16.07	8.67	18.50	8.90	21.00	9.55	21.00	8.91	21.70	8.68	32.00	8.42	34.00	8.29	34.70	8.25	34.90	7.97	
	30	15.70	8.72	16.01	7.60	18.70	7.91	21.63	8.66	22.95	8.79	24.00	8.89	33.20	8.85	34.30	7.98	35.00	7.99	35.10	7.78	
	25	16.40	8.63	16.35	7.41	18.80	7.63	22.03	8.48	23.74	8.90	25.11	9.24	33.50	8.70	34.50	6.90	35.80	7.02	36.20	6.88	
20	17.00	8.47	17.50	7.56	19.00	7.39	22.43	8.30	24.54	9.02	26.00	9.52	33.00	8.35	35.00	6.00	36.10	6.10	37.00	6.14		

Maximum heating capacity table

- CAP: Capacity at compressor maximum frequency (kW). Capacity is valid for difference between water inlet and water outlet of 3°C - 8°C.
- IPT: Total input power (kW).

The table above shows the input power (IPT) at maximum capacity (CAP). Most of the time, the unit will run at partial load, so that the actual input power will be lower. The calculation of **airH2O 600** maximum capacity data at standard humidity conditions has been based on the most representative locations considering:

- Standard humidity condition.
- Short refrigerant piping length (7 m)
- Low installation altitude location (< 300 m)

The corrected factor above is given as an average value between different water outlet temperatures. Please do not use it for calculation, use the above capacity table with the corresponding ambient and outlet water temperature.

This defrost correction factor may increase due to severe climate conditions, such as high humidity conditions or operations in a transitional period. In these cases, a different defrost factor must be considered in order to ensure proper unit selection.

3.3 Maximum heating capacity table with heater (kW) (standard humidity)

3.3.1 Split system - airH2O 600S / airH2O 600S Combi

System		Water outlet temp (°C)	Ambient temperature (°C WB)																			
			-20		-15		-10		-7		-2		2		7		12		15		20	
			CAP (kW)	IPT (kW)	CAP (kW)	IPT (kW)	CAP (kW)	IPT (kW)	CAP (kW)	IPT (kW)	CAP (kW)	IPT (kW)	CAP (kW)	IPT (kW)	CAP (kW)	IPT (kW)	CAP (kW)	IPT (kW)	CAP (kW)	IPT (kW)	CAP (kW)	IPT (kW)
RAS-1.5WHVRP2E	+ RWM-1.5R3E / RWD-1.5RW3E-220S(-K)	60	-	-	-	-	6.53	4.91	5.42	5.40	6.40	5.10	6.70	4.78	6.81	4.72	6.07	4.26	6.21	4.24	6.46	4.20
		55	-	-	6.24	4.58	6.53	4.91	6.84	4.95	7.23	5.02	7.63	5.07	7.90	4.73	8.63	4.78	8.82	4.70	9.12	4.56
		50	4.25	4.62	6.24	4.58	6.65	4.79	6.89	4.92	7.20	4.88	7.53	4.86	8.20	4.55	8.85	4.59	8.98	4.55	9.19	4.48
		45	4.25	4.62	6.61	4.76	6.81	4.84	6.93	4.88	7.17	4.75	7.43	4.65	8.49	4.37	9.06	4.40	9.14	4.40	9.27	4.40
		40	5.62	4.86	6.70	4.77	7.21	4.81	7.52	4.84	7.75	4.70	7.94	4.58	8.34	4.21	9.25	4.16	9.39	4.16	9.61	4.16
		35	6.53	4.90	6.88	4.77	7.71	4.79	8.21	4.80	8.34	4.64	8.44	4.52	9.40	4.40	9.45	3.92	9.64	3.92	9.96	3.92
		30	6.56	4.69	6.92	4.59	7.45	4.49	7.76	4.43	8.19	4.34	8.53	4.26	8.47	3.90	9.81	4.03	9.90	3.98	10.05	3.91
		25	-	-	-	-	-	-	-	-	-	-	8.11	4.24	10.21	3.98	10.01	3.89	8.46	3.69	8.46	3.69
		20	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
RAS-2WHVRP2E	+ RWM-2.0R3E / RWD-2.0RW3E-220S(-K/6H)	60	-	-	-	-	7.02	4.99	5.88	5.40	6.74	5.46	7.67	5.27	8.70	5.38	8.93	5.25	9.08	5.21	9.32	5.15
		55	-	-	6.57	5.06	7.02	4.99	7.77	5.19	7.88	5.24	8.35	5.28	8.98	5.17	10.12	5.32	10.21	5.19	10.36	4.96
		50	6.12	5.49	6.57	5.06	7.26	5.19	7.76	5.27	7.87	5.21	8.35	5.16	9.27	4.99	10.41	5.04	10.50	4.97	10.66	4.86
		45	6.12	5.49	6.97	5.29	7.39	5.32	7.74	5.35	7.87	5.18	8.35	5.04	9.56	4.80	10.70	4.75	10.80	4.75	10.96	4.75
		40	6.44	5.32	6.83	5.18	7.47	5.14	7.86	5.11	8.22	5.06	8.50	5.02	9.34	4.56	10.95	4.46	11.14	4.46	11.48	4.46
		35	6.74	5.50	7.20	5.08	7.99	4.96	8.49	4.89	8.57	4.95	8.65	4.99	9.99	4.69	11.19	4.18	11.49	4.18	11.99	4.18
		30	7.12	5.05	7.25	4.94	8.15	4.89	8.37	4.70	8.65	4.57	8.66	4.34	10.00	4.30	11.41	4.32	11.52	4.27	11.69	4.18
		25	-	-	-	-	-	-	-	-	-	-	8.92	4.56	11.19	4.21	12.25	4.20	10.71	3.99	10.71	3.99
		20	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
RAS-2.5WHVRP2E	+ RWM-2.5R3E / RWD-2.5RW3E-220S(-K/6H)	60	-	-	-	-	7.51	5.50	6.33	5.50	6.62	5.57	6.95	5.50	9.14	5.75	9.87	5.59	9.67	5.45	9.57	5.24
		55	-	-	6.95	5.04	7.51	5.50	8.30	5.62	8.28	5.70	8.81	5.76	11.19	5.97	11.49	6.00	11.06	5.81	11.46	5.88
		50	6.80	5.14	6.95	5.04	7.91	5.29	8.49	5.45	8.43	5.48	8.96	5.51	10.71	5.51	11.23	5.57	10.78	5.44	11.25	5.62
		45	6.80	5.14	7.39	5.27	8.19	5.27	8.67	5.27	8.58	5.27	9.10	5.27	10.23	5.05	10.83	5.11	11.21	5.29	11.83	5.60
		40	7.20	5.24	7.39	5.12	8.11	5.12	8.55	5.12	9.01	5.09	9.49	5.07	11.10	4.94	12.01	4.83	12.27	4.92	12.72	5.07
		35	7.64	5.16	8.00	5.13	8.75	5.17	9.20	5.20	9.55	5.08	9.94	4.99	11.60	4.89	14.35	4.85	13.67	4.70	13.80	4.70
		30	7.56	5.13	7.71	4.54	8.47	4.69	8.93	4.78	9.42	4.87	9.92	4.94	11.46	5.04	13.95	4.78	13.98	4.78	14.04	4.79
		25	-	-	-	-	-	-	-	-	-	-	9.94	4.58	11.90	4.66	11.81	4.24	13.02	4.37	15.02	4.59
		20	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
RAS-3WHVRP2E	+ RWM-3.0R3E / RWD-3.0RW3E-220S(-K/6H)	60	-	-	-	-	7.84	5.57	6.35	5.50	7.23	5.62	7.72	5.57	10.20	5.83	11.02	5.71	10.94	5.64	10.87	5.47
		55	-	-	7.15	5.24	7.84	5.57	9.00	5.80	9.49	6.09	10.09	6.32	12.50	6.06	13.76	6.46	13.46	6.28	14.13	6.35
		50	7.21	5.38	7.15	5.24	8.40	5.55	9.16	5.74	9.59	5.92	10.16	6.06	12.20	5.66	13.68	6.09	13.44	5.96	14.42	6.19
		45	7.21	5.38	7.61	5.49	8.67	5.60	9.31	5.67	9.69	5.75	10.22	5.81	11.91	5.27	13.39	5.64	14.23	5.87	15.64	6.26
		40	8.18	5.47	8.46	5.41	9.47	5.51	10.08	5.58	11.55	5.51	12.11	5.47	13.78	5.11	16.62	5.25	17.14	5.36	18.00	5.55
		35	8.61	5.36	9.06	5.34	9.96	5.43	10.50	5.48	11.91	5.28	12.38	5.13	14.00	4.95	18.43	5.00	17.53	4.85	17.53	4.85
		30	8.32	5.18	8.40	4.62	9.50	4.82	10.16	4.94	11.62	5.04	12.16	5.12	14.78	5.35	17.53	5.05	17.53	5.04	17.53	5.02
		25	-	-	-	-	-	-	-	-	-	-	13.25	4.90	14.87	4.95	14.84	4.56	16.15	4.74	18.51	5.04
		20	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

System		Water outlet temp (°C)	Ambient temperature (°C WB)																			
			-20		-15		-10		-7		-2		2		7		12		15		20	
			CAP (kW)	IPT (kW)	CAP (kW)	IPT (kW)	CAP (kW)	IPT (kW)	CAP (kW)	IPT (kW)	CAP (kW)	IPT (kW)	CAP (kW)	IPT (kW)	CAP (kW)	IPT (kW)	CAP (kW)	IPT (kW)	CAP (kW)	IPT (kW)	CAP (kW)	IPT (kW)
RAS-3.5WHVRP2E + RWM-3.5R3E / RWD-3.5RW3E-220S(-K)	65	-	-	-	-	13.79	10.09	14.49	10.37	14.04	11.67	14.30	11.36	14.63	11.21	15.78	9.91	15.78	9.91	9.78	3.91	
	60	10.02	9.94	11.90	10.19	13.79	10.09	14.49	10.37	14.65	10.78	14.60	10.46	15.75	10.82	16.02	11.04	16.02	11.04	10.02	5.04	
	55	10.02	9.94	11.90	10.19	13.91	10.30	14.50	10.24	14.59	10.12	14.50	9.97	16.00	10.24	16.08	10.04	16.08	10.04	10.08	4.04	
	50	10.62	10.42	11.86	10.13	13.80	10.30	14.61	10.28	14.62	9.90	14.80	9.48	16.28	9.51	16.20	9.26	16.20	9.26	10.20	3.26	
	45	11.22	10.91	11.82	10.08	13.68	10.31	14.80	10.45	14.27	9.42	14.50	8.62	16.31	8.79	15.98	8.50	15.98	8.50	9.98	2.50	
	40	11.67	10.39	12.61	9.85	14.47	9.93	14.64	9.67	14.15	9.03	14.50	8.67	16.00	8.69	16.22	8.16	16.22	8.16	10.22	2.16	
	35	12.12	9.88	13.41	9.63	14.95	9.48	14.50	9.11	14.57	8.77	14.50	8.36	16.50	8.29	16.46	7.82	16.46	7.82	10.46	1.82	
	30	11.41	9.19	13.25	9.51	14.28	9.47	14.59	9.38	14.56	8.97	14.63	8.49	15.94	8.14	16.31	8.13	16.31	8.13	10.31	2.13	
	25	-	-	-	-	-	-	-	-	-	-	14.57	7.98	16.36	7.89	16.08	7.50	16.08	7.50	10.08	1.50	
	20	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	10.08	1.50	
RAS-4WHVRP2E + RWM-4.0R3E / RWD-4.0RW3E-220S(-K)	65	-	-	-	-	14.83	11.80	15.67	11.80	15.13	11.25	14.76	11.55	14.76	11.14	15.78	9.91	15.78	9.91	9.78	3.91	
	60	11.58	11.16	14.24	11.04	14.83	11.80	15.67	11.80	17.06	11.80	16.60	11.21	18.00	11.67	18.25	11.92	18.25	11.92	12.25	5.92	
	55	11.58	11.16	14.24	11.04	16.28	11.19	16.00	10.55	16.24	10.71	15.97	10.54	18.00	10.98	18.39	11.04	18.39	11.04	12.39	5.04	
	50	12.50	11.71	14.52	11.17	16.18	11.20	16.68	11.04	16.30	10.62	16.43	10.31	18.00	10.58	18.00	9.83	18.00	9.83	12.00	3.83	
	45	13.41	12.26	14.79	11.30	16.07	11.22	16.50	11.17	15.99	10.30	16.54	9.69	18.12	9.39	18.06	9.05	18.06	9.05	12.06	3.05	
	40	13.98	11.51	15.44	10.62	16.53	10.55	16.46	10.27	16.39	9.90	16.65	9.60	18.30	9.20	18.32	8.71	18.32	8.71	12.32	2.71	
	35	14.55	10.76	16.09	9.94	16.59	9.83	16.50	9.50	16.56	9.36	16.50	9.25	18.00	8.69	18.00	8.36	18.00	8.36	12.00	2.36	
	30	14.98	10.14	16.01	10.11	16.98	10.17	16.50	9.96	16.77	9.66	16.66	9.32	18.00	8.79	18.33	8.60	18.33	8.60	12.33	2.60	
	25	-	-	-	-	-	-	-	-	-	-	16.25	8.52	18.00	8.26	17.99	7.82	17.99	7.82	11.99	1.82	
	20	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	11.99	1.82	
RAS-5WHVRP2E + RWM-5.0R3E / RWD-5.0RW3E-220S(-K)	65	-	-	-	-	16.62	12.12	17.59	12.12	15.35	9.35	17.85	10.61	18.76	12.45	18.51	11.50	18.51	11.50	12.51	5.50	
	60	13.84	11.96	17.34	12.92	16.62	12.12	17.59	12.12	19.22	12.12	17.95	11.12	18.54	11.56	19.65	11.00	19.65	11.00	13.65	5.00	
	55	13.84	11.96	17.34	12.92	17.79	12.14	18.00	11.65	18.08	11.54	18.00	11.39	20.00	11.48	19.74	10.48	19.74	10.48	13.74	4.48	
	50	14.40	12.09	16.53	12.99	17.69	12.26	18.39	11.83	18.56	11.22	18.50	10.67	20.31	10.71	20.32	10.24	20.32	10.24	14.32	4.24	
	45	14.95	12.22	15.72	13.07	17.17	12.13	18.04	11.56	18.47	10.63	18.96	9.95	20.70	10.21	19.81	9.71	19.81	9.71	13.81	3.71	
	40	15.33	11.43	16.92	12.17	18.10	11.56	18.26	10.92	18.77	10.46	18.62	9.89	20.27	9.72	19.93	9.29	19.93	9.29	13.93	3.29	
	35	15.71	10.63	17.34	11.04	17.80	10.51	18.00	10.10	18.45	10.07	18.50	10.05	20.00	9.30	20.04	8.88	20.04	8.88	14.04	2.88	
	30	15.71	10.83	14.91	10.38	17.06	10.24	18.35	10.15	18.11	9.77	18.94	9.67	20.00	9.56	20.00	8.86	20.00	8.86	14.00	2.86	
	25	-	-	-	-	-	-	-	-	-	-	18.43	9.23	19.92	8.60	19.96	8.34	19.96	8.34	13.96	2.34	
	20	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	13.96	2.34	
RAS-6WHVRP2E + RWM-6.0R3E / RWD-6.0RW3E-220S(-K)	65	-	-	-	-	17.10	12.54	18.20	12.54	16.07	9.43	17.29	10.64	18.81	12.16	19.38	12.54	19.38	12.54	13.38	6.54	
	60	13.84	11.96	17.34	12.92	17.10	12.54	18.20	12.54	20.04	12.54	21.51	12.54	21.40	14.17	22.37	10.16	22.37	10.16	16.37	4.16	
	55	13.84	11.96	17.34	12.92	18.21	12.40	19.30	12.31	19.56	12.34	20.00	12.42	22.00	12.35	22.00	11.92	22.00	11.92	16.00	5.92	
	50	16.23	12.75	17.76	13.71	18.43	12.29	18.97	12.29	19.88	12.29	20.22	11.67	22.08	11.47	22.00	11.09	22.00	11.09	16.00	5.09	
	45	16.41	12.54	16.94	13.87	19.09	12.44	19.31	12.14	19.69	11.66	20.22	10.79	22.00	10.93	22.00	10.93	22.00	10.93	16.00	4.93	
	40	16.82	11.71	18.29	12.79	19.32	11.97	19.74	11.75	20.19	11.20	20.45	10.71	22.00	10.50	22.00	10.10	22.00	10.10	16.00	4.10	
	35	17.23	10.88	19.65	11.72	19.56	11.51	20.60	11.36	21.21	11.11	21.00	10.81	22.00	10.07	21.97	9.37	21.97	9.37	15.97	3.37	
	30	17.23	11.14	16.52	10.85	19.60	10.51	20.08	10.59	20.89	10.73	20.96	10.58	22.00	10.10	22.00	9.26	22.00	9.26	16.00	3.26	
	25	-	-	-	-	-	-	-	-	-	-	21.30	10.14	22.23	9.00	22.00	8.69	22.00	8.69	16.00	2.69	
	20	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	16.00	2.69	

System		Water outlet temp (°C)	Ambient temperature (°C WB)																			
			-20		-15		-10		-7		-2		2		7		12		15		20	
			CAP (kW)	IPT (kW)	CAP (kW)	IPT (kW)	CAP (kW)	IPT (kW)	CAP (kW)	IPT (kW)	CAP (kW)	IPT (kW)	CAP (kW)	IPT (kW)	CAP (kW)	IPT (kW)	CAP (kW)	IPT (kW)	CAP (kW)	IPT (kW)	CAP (kW)	IPT (kW)
RAS-3.5WHRP2E + RWM-3.5R3E / RWD-3.5RW3E-220S(-K)	65	-	-	-	-	13.79	10.09	14.49	10.37	14.04	11.67	14.30	11.36	14.63	11.21	15.78	9.91	15.78	9.91	9.78	3.91	
	60	10.02	9.94	11.90	10.19	13.79	10.09	14.49	10.37	14.65	10.78	14.60	10.46	15.75	10.82	16.02	11.04	16.02	11.04	10.02	5.04	
	55	10.02	9.94	11.90	10.19	13.91	10.30	14.50	10.24	14.59	10.12	14.50	9.97	16.00	10.24	16.08	10.04	16.08	10.04	10.08	4.04	
	50	10.62	10.42	11.86	10.13	13.80	10.30	14.61	10.28	14.62	9.90	14.80	9.48	16.28	9.51	16.20	9.26	16.20	9.26	10.20	3.26	
	45	11.22	10.91	11.82	10.08	13.68	10.31	14.80	10.45	14.27	9.42	14.50	8.62	16.31	8.79	15.98	8.50	15.98	8.50	9.98	2.50	
	40	11.67	10.39	12.61	9.85	14.47	9.93	14.64	9.67	14.15	9.03	14.50	8.67	16.00	8.69	16.22	8.16	16.22	8.16	10.22	2.16	
	35	12.12	9.88	13.41	9.63	14.95	9.48	14.50	9.11	14.57	8.77	14.50	8.36	16.50	8.29	16.46	7.82	16.46	7.82	10.46	1.82	
	30	11.41	9.19	13.25	9.51	14.28	9.47	14.59	9.38	14.56	8.97	14.63	8.49	15.94	8.14	16.31	8.13	16.31	8.13	10.31	2.13	
	25	-	-	-	-	-	-	-	-	-	-	14.57	7.98	16.36	7.89	16.08	7.50	16.08	7.50	10.08	1.50	
	20	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	10.08	1.50	
RAS-4WHRP2E + RWM-4.0R3E / RWD-4.0RW3E-220S(-K)	65	-	-	-	-	14.83	11.80	15.67	11.80	15.13	11.25	14.76	11.55	14.76	11.14	15.78	9.91	15.78	9.91	9.78	3.91	
	60	11.58	11.16	14.24	11.04	14.83	11.80	15.67	11.80	17.06	11.80	16.60	11.21	18.00	11.67	18.25	11.92	18.25	11.92	12.25	5.92	
	55	11.58	11.16	14.24	11.04	16.28	11.19	16.00	10.55	16.24	10.71	15.97	10.54	18.00	10.98	18.39	11.04	18.39	11.04	12.39	5.04	
	50	12.50	11.71	14.52	11.17	16.18	11.20	16.68	11.04	16.30	10.62	16.43	10.31	18.00	10.58	18.00	9.83	18.00	9.83	12.00	3.83	
	45	13.41	12.26	14.79	11.30	16.07	11.22	16.50	11.17	15.99	10.30	16.54	9.69	18.12	9.39	18.06	9.05	18.06	9.05	12.06	3.05	
	40	13.98	11.51	15.44	10.62	16.53	10.55	16.46	10.27	16.39	9.90	16.65	9.60	18.30	9.20	18.32	8.71	18.32	8.71	12.32	2.71	
	35	14.55	10.76	16.09	9.94	16.59	9.83	16.50	9.50	16.56	9.36	16.50	9.25	18.00	8.69	18.00	8.36	18.00	8.36	12.00	2.36	
	30	14.98	10.14	16.01	10.11	16.98	10.17	16.50	9.96	16.77	9.66	16.66	9.32	18.00	8.79	18.33	8.60	18.33	8.60	12.33	2.60	
	25	-	-	-	-	-	-	-	-	-	-	16.25	8.52	18.00	8.26	17.99	7.82	17.99	7.82	11.99	1.82	
	20	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	11.99	1.82	
RAS-5WHRP2E + RWM-5.0R3E / RWD-5.0RW3E-220S(-K)	65	-	-	-	-	16.62	12.12	17.59	12.12	15.35	9.35	17.85	10.61	18.76	12.45	18.51	11.50	18.51	11.50	12.51	5.50	
	60	13.84	11.96	17.34	12.92	16.62	12.12	17.59	12.12	19.22	12.12	17.95	11.12	18.54	11.56	19.65	11.00	19.65	11.00	13.65	5.00	
	55	13.84	11.96	17.34	12.92	17.79	12.14	18.00	11.65	18.08	11.54	18.00	11.39	20.00	11.48	19.74	10.48	19.74	10.48	13.74	4.48	
	50	14.40	12.09	16.53	12.99	17.69	12.26	18.39	11.83	18.56	11.22	18.50	10.67	20.31	10.71	20.32	10.24	20.32	10.24	14.32	4.24	
	45	14.95	12.22	15.72	13.07	17.17	12.13	18.04	11.56	18.47	10.63	18.96	9.95	20.70	10.21	19.81	9.71	19.81	9.71	13.81	3.71	
	40	15.33	11.43	16.92	12.17	18.10	11.56	18.26	10.92	18.77	10.46	18.62	9.89	20.27	9.72	19.93	9.29	19.93	9.29	13.93	3.29	
	35	15.71	10.63	17.34	11.04	17.80	10.51	18.00	10.10	18.45	10.07	18.50	10.05	20.00	9.30	20.04	8.88	20.04	8.88	14.04	2.88	
	30	15.71	10.83	14.91	10.38	17.06	10.24	18.35	10.15	18.11	9.77	18.94	9.67	20.00	9.56	20.00	8.86	20.00	8.86	14.00	2.86	
	25	-	-	-	-	-	-	-	-	-	-	18.43	9.23	19.92	8.60	19.96	8.34	19.96	8.34	13.96	2.34	
	20	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	13.96	2.34	
RAS-6WHRP2E + RWM-6.0R3E / RWD-6.0RW3E-220S(-K)	65	-	-	-	-	17.10	12.54	18.20	12.54	16.07	9.43	17.29	10.64	18.81	12.16	19.38	12.54	19.38	12.54	13.38	6.54	
	60	13.84	11.96	17.34	12.92	17.10	12.54	18.20	12.54	20.04	12.54	21.51	12.54	21.40	14.17	22.37	10.16	22.37	10.16	16.37	4.16	
	55	13.84	11.96	17.34	12.92	18.21	12.40	19.30	12.31	19.56	12.34	20.00	12.42	22.00	12.35	22.00	11.92	22.00	11.92	16.00	5.92	
	50	16.23	12.75	17.76	13.71	18.43	12.29	18.97	12.29	19.88	12.29	20.22	11.67	22.08	11.47	22.00	11.09	22.00	11.09	16.00	5.09	
	45	16.41	12.54	16.94	13.87	19.09	12.44	19.31	12.14	19.69	11.66	20.22	10.79	22.00	10.93	22.00	10.93	22.00	10.93	16.00	4.93	
	40	16.82	11.71	18.29	12.79	19.32	11.97	19.74	11.75	20.19	11.20	20.45	10.71	22.00	10.50	22.00	10.10	22.00	10.10	16.00	4.10	
	35	17.23	10.88	19.65	11.72	19.56	11.51	20.60	11.36	21.21	11.11	21.00	10.81	22.00	10.07	21.97	9.37	21.97	9.37	15.97	3.37	
	30	17.23	11.14	16.52	10.85	19.60	10.51	20.08	10.59	20.89	10.73	20.96	10.58	22.00	10.10	22.00	9.26	22.00	9.26	16.00	3.26	
	25	-	-	-	-	-	-	-	-	-	-	21.30	10.14	22.23	9.00	22.00	8.69	22.00	8.69	16.00	2.69	
	20	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	16.00	2.69	

System		Ambient temperature (°C WB)																			
		-20		-15		-10		-7		-2		2		7		12		15		20	
		CAP (kW)	IPT (kW)	CAP (kW)	IPT (kW)	CAP (kW)	IPT (kW)	CAP (kW)	IPT (kW)	CAP (kW)	IPT (kW)	CAP (kW)	IPT (kW)	CAP (kW)	IPT (kW)	CAP (kW)	IPT (kW)	CAP (kW)	IPT (kW)	CAP (kW)	IPT (kW)
RAS-8WHNPE + RWM-8.0N3E	60	-	-	-	-	17.92	15.47	19.14	15.00	20.98	15.45	22.45	15.81	27.15	18.41	28.00	16.61	28.50	14.56	29.50	11.60
	55	-	-	18.00	14.60	18.79	14.88	20.50	15.67	21.30	14.15	21.95	12.93	30.00	15.60	30.50	15.07	30.80	14.37	31.10	13.13
	50	16.28	13.73	18.00	14.60	19.65	14.28	21.70	15.58	22.75	14.97	23.58	14.48	30.01	16.45	30.90	15.31	31.50	13.83	32.10	11.59
	45	16.28	13.73	18.71	14.12	21.14	14.51	22.60	14.74	23.66	13.69	24.50	12.85	31.00	13.94	32.00	13.65	32.50	12.97	32.90	11.85
	40	18.20	14.54	19.31	13.82	21.77	14.04	23.24	14.17	24.36	13.39	25.25	12.76	31.25	13.41	32.30	12.98	32.90	12.76	33.10	12.25
	35	20.00	15.15	20.50	13.84	22.39	13.57	23.90	13.61	25.06	13.08	26.00	12.67	31.50	12.89	32.50	12.31	33.10	12.00	33.90	11.53
	30	20.80	14.60	20.27	13.12	22.97	13.51	24.58	13.74	25.38	12.80	26.02	12.04	32.50	12.97	33.00	12.28	33.60	12.02	34.10	11.53
	25	21.90	13.81	22.20	13.19	23.22	13.12	25.11	13.66	25.96	12.78	26.64	12.07	33.10	12.95	33.50	12.11	34.00	11.78	34.50	11.23
	20	22.00	12.22	22.50	12.38	23.47	12.74	25.64	13.57	26.55	12.76	27.27	12.11	33.70	12.92	34.00	11.95	34.50	11.57	35.00	10.97
RAS-10WHNPE + RWM-10.0N3E	60	-	-	-	-	19.90	16.69	20.50	14.06	22.17	14.44	23.50	14.75	28.00	15.57	29.50	17.19	30.30	15.17	31.00	11.79
	55	-	-	21.50	18.90	21.76	19.87	23.30	18.36	24.61	16.71	25.50	15.29	31.52	16.65	32.00	16.83	32.50	15.58	33.20	13.42
	50	19.00	14.67	21.50	18.90	22.37	18.80	24.36	18.84	24.97	16.35	25.46	14.35	34.05	16.64	34.60	16.51	35.00	15.41	35.90	13.63
	45	19.00	14.67	20.81	15.52	23.12	16.71	24.50	17.42	25.89	15.24	27.00	13.50	38.00	16.67	39.00	16.64	39.20	15.78	39.60	14.40
	40	20.20	15.17	21.44	15.10	24.13	15.96	25.74	16.48	26.36	15.04	26.85	13.89	38.00	15.54	39.50	15.47	39.50	15.18	39.80	14.80
	35	21.10	15.44	22.07	14.67	24.50	14.90	27.00	15.55	27.00	14.91	27.70	14.68	38.00	14.42	40.00	14.29	40.70	14.25	40.90	13.97
	30	21.70	14.72	22.01	13.60	24.70	13.91	27.63	14.66	28.95	14.79	30.00	14.89	39.20	14.85	40.30	13.98	41.00	13.99	41.10	13.78
	25	22.40	14.63	22.35	13.41	24.80	13.63	28.03	14.48	29.74	14.90	31.11	15.24	39.50	14.70	40.50	12.90	41.80	13.02	42.20	12.88
	20	23.00	14.47	23.50	13.56	25.00	13.39	28.43	14.30	30.54	15.02	32.00	15.52	39.00	14.35	41.00	12.00	42.10	12.10	43.00	12.14

3.4 Maximum heating capacity table with heater (kW) (high humidity)

3.4.1 Split system - airH2O 600S / airH2O 600S Combi

System		Water outlet temp (°C)	Ambient temperature (°C WB)																			
			-20		-15		-10		-7		-2		2		7		12		15		20	
			CAP (kW)	IPT (kW)	CAP (kW)	IPT (kW)	CAP (kW)	IPT (kW)	CAP (kW)	IPT (kW)	CAP (kW)	IPT (kW)	CAP (kW)	IPT (kW)	CAP (kW)	IPT (kW)	CAP (kW)	IPT (kW)	CAP (kW)	IPT (kW)	CAP (kW)	IPT (kW)
RAS-1.5WHVRP2E + RWM-1.5R3E / RWD-1.5RW3E-220S(-K)	60	-	-	-	-	6.44	4.91	5.35	5.40	6.40	5.10	6.70	4.78	6.81	4.72	6.07	4.26	6.21	4.24	6.46	4.20	
	55	-	-	6.16	4.58	6.44	4.91	6.74	4.95	7.23	5.02	7.63	5.07	7.90	4.73	8.63	4.78	8.82	4.70	9.12	4.56	
	50	4.22	4.62	6.16	4.58	6.55	4.79	6.79	4.92	7.20	4.88	7.53	4.86	8.20	4.55	8.85	4.59	8.98	4.55	9.19	4.48	
	45	4.22	4.62	6.51	4.76	6.71	4.84	6.83	4.88	7.17	4.75	7.43	4.65	8.49	4.37	9.06	4.40	9.14	4.40	9.27	4.40	
	40	5.62	4.86	6.70	4.77	7.21	4.81	7.52	4.84	7.75	4.70	7.94	4.58	8.34	4.21	9.25	4.16	9.39	4.16	9.61	4.16	
	35	6.53	4.90	6.88	4.77	7.71	4.79	8.21	4.80	8.34	4.64	8.44	4.52	9.40	4.40	9.45	3.92	9.64	3.92	9.96	3.92	
	30	6.56	4.69	6.92	4.59	7.45	4.49	7.76	4.43	8.19	4.34	8.53	4.26	8.47	3.90	9.81	4.03	9.90	3.98	10.05	3.91	
	25	-	-	-	-	-	-	-	-	-	-	8.11	4.24	10.21	3.98	10.01	3.89	8.46	3.69	8.46	3.69	
20	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		
RAS-2WHVRP2E + RWM-2.0R3E / RWD-2.0RW3E-220S(-K/6H)	60	-	-	-	-	6.61	4.99	5.59	5.40	6.74	5.46	7.67	5.27	8.70	5.38	8.93	5.25	9.08	5.21	9.32	5.15	
	55	-	-	6.21	5.06	6.61	4.99	7.29	5.19	7.88	5.24	8.35	5.28	8.98	5.17	10.12	5.32	10.21	5.19	10.36	4.96	
	50	5.80	5.49	6.21	5.06	6.83	5.19	7.27	5.27	7.87	5.21	8.35	5.16	9.27	4.99	10.41	5.04	10.50	4.97	10.66	4.86	
	45	5.80	5.49	6.57	5.29	6.95	5.32	7.26	5.35	7.87	5.18	8.35	5.04	9.56	4.80	10.70	4.75	10.80	4.75	10.96	4.75	
	40	6.44	5.32	6.83	5.18	7.47	5.14	7.86	5.11	8.22	5.06	8.50	5.02	9.34	4.56	10.95	4.46	11.14	4.46	11.48	4.46	
	35	6.74	5.50	7.20	5.08	7.99	4.96	8.49	4.89	8.57	4.95	8.65	4.99	9.99	4.69	11.19	4.18	11.49	4.18	11.99	4.18	
	30	7.12	5.05	7.25	4.94	8.15	4.89	8.70	4.86	8.65	4.57	8.66	4.34	10.00	4.30	11.41	4.32	11.52	4.27	11.69	4.18	
	25	-	-	-	-	-	-	-	-	-	-	8.92	4.56	11.19	4.21	12.25	4.20	10.71	3.99	10.71	3.99	
20	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		
RAS-2.5WHVRP2E + RWM-2.5R3E / RWD-2.5RW3E-220S(-K/6H)	60	-	-	-	-	6.93	5.50	5.90	5.50	6.62	5.57	6.95	5.50	9.14	5.75	9.87	5.59	9.67	5.45	9.57	5.24	
	55	-	-	6.44	5.04	6.93	5.50	7.62	5.62	8.28	5.70	8.81	5.76	11.19	5.97	11.49	6.00	11.06	5.81	11.46	5.88	
	50	6.31	5.14	6.44	5.04	7.27	5.29	7.78	5.45	8.43	5.48	8.96	5.51	10.71	5.51	11.23	5.57	10.78	5.44	11.25	5.62	
	45	6.31	5.14	6.82	5.27	7.52	5.27	7.93	5.27	8.58	5.27	9.10	5.27	10.23	5.05	10.83	5.11	11.21	5.29	11.83	5.60	
	40	6.91	5.24	7.08	5.12	7.76	5.12	8.16	5.12	8.72	5.09	9.17	5.07	10.71	4.94	11.57	4.83	11.82	4.92	12.24	5.07	
	35	7.32	5.16	7.65	5.13	8.35	5.17	8.76	5.20	9.23	5.08	9.60	4.99	11.18	4.89	13.80	4.85	13.15	4.70	13.28	4.70	
	30	7.24	5.13	7.38	4.54	8.09	4.69	8.52	4.78	9.11	4.87	9.58	4.94	11.05	5.04	13.42	4.78	13.45	4.78	13.51	4.79	
	25	-	-	-	-	-	-	-	-	-	-	9.60	4.58	11.47	4.66	11.38	4.24	12.53	4.37	14.44	4.59	
20	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		
RAS-3WHVRP2E + RWM-3.0R3E / RWD-3.0RW3E-220S(-K/6H)	60	-	-	-	-	7.22	5.57	5.91	5.50	6.85	5.62	7.29	5.57	9.55	5.83	10.29	5.71	10.22	5.64	10.17	5.47	
	55	-	-	6.61	5.24	7.22	5.57	8.23	5.80	8.91	6.09	9.45	6.32	11.64	6.06	12.79	6.46	12.52	6.28	13.13	6.35	
	50	6.66	5.38	6.61	5.24	7.70	5.55	8.36	5.74	9.00	5.92	9.51	6.06	11.37	5.66	12.72	6.09	12.50	5.96	13.39	6.19	
	45	6.66	5.38	7.01	5.49	7.94	5.60	8.49	5.67	9.09	5.75	9.57	5.81	11.11	5.27	12.45	5.64	13.22	5.87	14.50	6.26	
	40	7.27	5.47	7.51	5.41	8.34	5.51	8.84	5.58	9.36	5.51	9.77	5.47	11.02	5.11	13.13	5.25	13.51	5.36	14.15	5.55	
	35	7.63	5.36	8.00	5.34	8.74	5.43	9.19	5.48	9.62	5.28	9.97	5.13	11.18	4.95	14.47	5.00	13.80	4.85	13.80	4.85	
	30	7.39	5.18	7.46	4.62	8.36	4.82	8.91	4.94	9.41	5.04	9.81	5.12	11.76	5.35	13.80	5.05	13.80	5.04	13.80	5.02	
	25	-	-	-	-	-	-	-	-	-	-	10.62	4.90	11.83	4.95	11.80	4.56	12.78	4.74	14.53	5.04	
20	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		

CAPACITY AND SELECTION DATA

3

MAXIMUM HEATING CAPACITY TABLE WITH HEATER (KW) (HIGH HUMIDITY)

System		Water outlet temp (°C)	Ambient temperature (°C WB)																			
			-20		-15		-10		-7		-2		2		7		12		15		20	
			CAP (kW)	IPT (kW)	CAP (kW)	IPT (kW)	CAP (kW)	IPT (kW)	CAP (kW)	IPT (kW)	CAP (kW)	IPT (kW)	CAP (kW)	IPT (kW)	CAP (kW)	IPT (kW)	CAP (kW)	IPT (kW)	CAP (kW)	IPT (kW)	CAP (kW)	IPT (kW)
RAS-3.5WHVRP2E + RWM-3.5R3E / RWD-3.5RW3E-220S(-K)	65	-	-	-	-	13.79	10.09	14.49	10.37	14.04	11.67	14.30	11.36	14.63	11.21	15.78	9.91	15.78	9.91	9.78	3.91	
	60	10.02	9.94	11.90	10.19	13.79	10.09	14.49	10.37	14.65	10.78	14.60	10.46	15.75	10.82	16.02	11.04	16.02	11.04	10.02	5.04	
	55	10.02	9.94	11.90	10.19	13.91	10.30	14.50	10.24	14.59	10.12	14.50	9.97	16.00	10.24	16.08	10.04	16.08	10.04	10.08	4.04	
	50	10.62	10.42	11.86	10.13	13.80	10.30	14.61	10.28	14.62	9.90	14.80	9.48	16.28	9.51	16.20	9.26	16.20	9.26	10.20	3.26	
	45	11.22	10.91	11.82	10.08	13.68	10.31	14.80	10.45	14.27	9.42	14.50	8.62	16.31	8.79	15.98	8.50	15.98	8.50	9.98	2.50	
	40	11.67	10.39	12.61	9.85	14.47	9.93	14.64	9.67	14.15	9.03	14.50	8.67	16.00	8.69	16.22	8.16	16.22	8.16	10.22	2.16	
	35	12.12	9.88	13.41	9.63	14.95	9.48	14.50	9.11	14.57	8.77	14.50	8.36	16.50	8.29	16.46	7.82	16.46	7.82	10.46	1.82	
	30	11.41	9.19	13.25	9.51	14.28	9.47	14.59	9.38	14.56	8.97	14.63	8.49	15.94	8.14	16.31	8.13	16.31	8.13	10.31	2.13	
	25	-	-	-	-	-	-	-	-	-	-	14.57	7.98	16.36	7.89	16.08	7.50	16.08	7.50	10.08	1.50	
	20	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	10.08	1.50	
RAS-4WHVRP2E + RWM-4.0R3E / RWD-4.0RW3E-220S(-K)	65	-	-	-	-	14.83	11.80	15.67	11.80	15.13	11.25	14.76	11.55	14.76	11.14	15.78	9.91	15.78	9.91	9.78	3.91	
	60	11.58	11.16	14.24	11.04	14.83	11.80	15.67	11.80	17.06	11.80	16.60	11.21	18.00	11.67	18.25	11.92	18.25	11.92	12.25	5.92	
	55	11.58	11.16	14.24	11.04	16.28	11.19	16.00	10.55	16.24	10.71	15.97	10.54	18.00	10.98	18.39	11.04	18.39	11.04	12.39	5.04	
	50	12.50	11.71	14.52	11.17	16.18	11.20	16.68	11.04	16.30	10.62	16.43	10.31	18.00	10.58	18.00	9.83	18.00	9.83	12.00	3.83	
	45	13.41	12.26	14.79	11.30	16.07	11.22	16.50	11.17	15.99	10.30	16.54	9.69	18.12	9.39	18.06	9.05	18.06	9.05	12.06	3.05	
	40	13.98	11.51	15.44	10.62	16.53	10.55	16.46	10.27	16.39	9.90	16.65	9.60	18.30	9.20	18.32	8.71	18.32	8.71	12.32	2.71	
	35	14.55	10.76	16.09	9.94	16.59	9.83	16.50	9.50	16.56	9.36	16.50	9.25	18.00	8.69	18.00	8.36	18.00	8.36	12.00	2.36	
	30	14.98	10.14	16.01	10.11	16.98	10.17	16.50	9.96	16.77	9.66	16.66	9.32	18.00	8.79	18.33	8.60	18.33	8.60	12.33	2.60	
	25	-	-	-	-	-	-	-	-	-	-	16.25	8.52	18.00	8.26	17.99	7.82	17.99	7.82	11.99	1.82	
	20	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	11.99	1.82	
RAS-5WHVRP2E + RWM-5.0R3E / RWD-5.0RW3E-220S(-K)	65	-	-	-	-	16.62	12.12	17.59	12.12	15.35	9.35	17.85	10.61	18.76	12.45	18.51	11.50	18.51	11.50	12.51	5.50	
	60	13.84	11.96	17.34	12.92	16.62	12.12	17.59	12.12	19.22	12.12	17.95	11.12	18.54	11.56	19.65	11.00	19.65	11.00	13.65	5.00	
	55	13.84	11.96	17.34	12.92	17.79	12.14	18.00	11.65	18.08	11.54	18.00	11.39	20.00	11.48	19.74	10.48	19.74	10.48	13.74	4.48	
	50	14.40	12.09	16.53	12.99	17.69	12.26	18.39	11.83	18.56	11.22	18.50	10.67	20.31	10.71	20.32	10.24	20.32	10.24	14.32	4.24	
	45	14.95	12.22	15.72	13.07	17.17	12.13	18.04	11.56	18.47	10.63	18.96	9.95	20.70	10.21	19.81	9.71	19.81	9.71	13.81	3.71	
	40	15.33	11.43	16.92	12.17	18.10	11.56	18.26	10.92	18.77	10.46	18.62	9.89	20.27	9.72	19.93	9.29	19.93	9.29	13.93	3.29	
	35	15.71	10.63	17.34	11.04	17.80	10.51	18.00	10.10	18.45	10.07	18.50	10.05	20.00	9.30	20.04	8.88	20.04	8.88	14.04	2.88	
	30	15.71	10.83	14.91	10.38	17.06	10.24	18.35	10.15	18.11	9.77	18.94	9.67	20.00	9.56	20.00	8.86	20.00	8.86	14.00	2.86	
	25	-	-	-	-	-	-	-	-	-	-	18.43	9.23	19.92	8.60	19.96	8.34	19.96	8.34	13.96	2.34	
	20	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	13.96	2.34	
RAS-6WHVRP2E + RWM-6.0R3E / RWD-6.0RW3E-220S(-K)	65	-	-	-	-	17.10	12.54	18.20	12.54	16.07	9.43	17.29	10.64	18.81	12.16	19.38	12.54	19.38	12.54	13.38	6.54	
	60	13.84	11.96	17.34	12.92	17.10	12.54	18.20	12.54	20.04	12.54	21.51	12.54	21.40	14.17	22.37	10.16	22.37	10.16	16.37	4.16	
	55	13.84	11.96	17.34	12.92	18.21	12.40	19.30	12.31	19.56	12.34	20.00	12.42	22.00	12.35	22.00	11.92	22.00	11.92	16.00	5.92	
	50	16.23	12.75	17.76	13.71	18.43	12.29	18.97	12.29	19.88	12.29	20.22	11.67	22.08	11.47	22.00	11.09	22.00	11.09	16.00	5.09	
	45	16.41	12.54	16.94	13.87	19.09	12.44	19.31	12.14	19.69	11.66	20.22	10.79	22.00	10.93	22.00	10.93	22.00	10.93	16.00	4.93	
	40	16.82	11.71	18.29	12.79	19.32	11.97	19.74	11.75	20.19	11.20	20.45	10.71	22.00	10.50	22.00	10.10	22.00	10.10	16.00	4.10	
	35	17.23	10.88	19.65	11.72	19.56	11.51	20.60	11.36	21.21	11.11	21.00	10.81	22.00	10.07	21.97	9.37	21.97	9.37	15.97	3.37	
	30	17.23	11.14	16.52	10.85	19.60	10.51	20.08	10.59	20.89	10.73	20.96	10.58	22.00	10.10	22.00	9.26	22.00	9.26	16.00	3.26	
	25	-	-	-	-	-	-	-	-	-	-	21.30	10.14	22.23	9.00	22.00	8.69	22.00	8.69	16.00	2.69	
	20	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	16.00	2.69	

CAPACITY AND SELECTION DATA 3 MAXIMUM HEATING CAPACITY TABLE WITH HEATER (kW) (HIGH HUMIDITY)

System		Water outlet temp (°C)	Ambient temperature (°C WB)																			
			-20		-15		-10		-7		-2		2		7		12		15		20	
			CAP (kW)	IPT (kW)	CAP (kW)	IPT (kW)	CAP (kW)	IPT (kW)	CAP (kW)	IPT (kW)	CAP (kW)	IPT (kW)	CAP (kW)	IPT (kW)	CAP (kW)	IPT (kW)	CAP (kW)	IPT (kW)	CAP (kW)	IPT (kW)	CAP (kW)	IPT (kW)
RAS-3.5WHRP2E + RWM-3.5R3E / RWD-3.5RW3E-220S(-K)	65	-	-	-	-	13.79	10.09	14.49	10.37	14.04	11.67	14.30	11.36	14.63	11.21	15.78	9.91	15.78	9.91	9.78	3.91	
	60	10.02	9.94	11.90	10.19	13.79	10.09	14.49	10.37	14.65	10.78	14.60	10.46	15.75	10.82	16.02	11.04	16.02	11.04	10.02	5.04	
	55	10.02	9.94	11.90	10.19	13.91	10.30	14.50	10.24	14.59	10.12	14.50	9.97	16.00	10.24	16.08	10.04	16.08	10.04	10.08	4.04	
	50	10.62	10.42	11.86	10.13	13.80	10.30	14.61	10.28	14.62	9.90	14.80	9.48	16.28	9.51	16.20	9.26	16.20	9.26	10.20	3.26	
	45	11.22	10.91	11.82	10.08	13.68	10.31	14.80	10.45	14.27	9.42	14.50	8.62	16.31	8.79	15.98	8.50	15.98	8.50	9.98	2.50	
	40	11.67	10.39	12.61	9.85	14.47	9.93	14.64	9.67	14.15	9.03	14.50	8.67	16.00	8.69	16.22	8.16	16.22	8.16	10.22	2.16	
	35	12.12	9.88	13.41	9.63	14.95	9.48	14.50	9.11	14.57	8.77	14.50	8.36	16.50	8.29	16.46	7.82	16.46	7.82	10.46	1.82	
	30	11.41	9.19	13.25	9.51	14.28	9.47	14.59	9.38	14.56	8.97	14.63	8.49	15.94	8.14	16.31	8.13	16.31	8.13	10.31	2.13	
	25	-	-	-	-	-	-	-	-	-	-	14.57	7.98	16.36	7.89	16.08	7.50	16.08	7.50	10.08	1.50	
	20	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	10.08	1.50	
RAS-4WHRP2E + RWM-4.0R3E / RWD-4.0RW3E-220S(-K)	65	-	-	-	-	14.83	11.80	15.67	11.80	15.13	11.25	14.76	11.55	14.76	11.14	15.78	9.91	15.78	9.91	9.78	3.91	
	60	11.58	11.16	14.24	11.04	14.83	11.80	15.67	11.80	17.06	11.80	16.60	11.21	18.00	11.67	18.25	11.92	18.25	11.92	12.25	5.92	
	55	11.58	11.16	14.24	11.04	16.28	11.19	16.00	10.55	16.24	10.71	15.97	10.54	18.00	10.98	18.39	11.04	18.39	11.04	12.39	5.04	
	50	12.50	11.71	14.52	11.17	16.18	11.20	16.68	11.04	16.30	10.62	16.43	10.31	18.00	10.58	18.00	9.83	18.00	9.83	12.00	3.83	
	45	13.41	12.26	14.79	11.30	16.07	11.22	16.50	11.17	15.99	10.30	16.54	9.69	18.12	9.39	18.06	9.05	18.06	9.05	12.06	3.05	
	40	13.98	11.51	15.44	10.62	16.53	10.55	16.46	10.27	16.39	9.90	16.65	9.60	18.30	9.20	18.32	8.71	18.32	8.71	12.32	2.71	
	35	14.55	10.76	16.09	9.94	16.59	9.83	16.50	9.50	16.56	9.36	16.50	9.25	18.00	8.69	18.00	8.36	18.00	8.36	12.00	2.36	
	30	14.98	10.14	16.01	10.11	16.98	10.17	16.50	9.96	16.77	9.66	16.66	9.32	18.00	8.79	18.33	8.60	18.33	8.60	12.33	2.60	
	25	-	-	-	-	-	-	-	-	-	-	16.25	8.52	18.00	8.26	17.99	7.82	17.99	7.82	11.99	1.82	
	20	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	11.99	1.82	
RAS-5WHRP2E + RWM-5.0R3E / RWD-5.0RW3E-220S(-K)	65	-	-	-	-	16.62	12.12	17.59	12.12	15.35	9.35	17.85	10.61	18.76	12.45	18.51	11.50	18.51	11.50	12.51	5.50	
	60	13.84	11.96	17.34	12.92	16.62	12.12	17.59	12.12	19.22	12.12	17.95	11.12	18.54	11.56	19.65	11.00	19.65	11.00	13.65	5.00	
	55	13.84	11.96	17.34	12.92	17.79	12.14	18.00	11.65	18.08	11.54	18.00	11.39	20.00	11.48	19.74	10.48	19.74	10.48	13.74	4.48	
	50	14.40	12.09	16.53	12.99	17.69	12.26	18.39	11.83	18.56	11.22	18.50	10.67	20.31	10.71	20.32	10.24	20.32	10.24	14.32	4.24	
	45	14.95	12.22	15.72	13.07	17.17	12.13	18.04	11.56	18.47	10.63	18.96	9.95	20.70	10.21	19.81	9.71	19.81	9.71	13.81	3.71	
	40	15.33	11.43	16.92	12.17	18.10	11.56	18.26	10.92	18.77	10.46	18.62	9.89	20.27	9.72	19.93	9.29	19.93	9.29	13.93	3.29	
	35	15.71	10.63	17.34	11.04	17.80	10.51	18.00	10.10	18.45	10.07	18.50	10.05	20.00	9.30	20.04	8.88	20.04	8.88	14.04	2.88	
	30	15.71	10.83	14.91	10.38	17.06	10.24	18.35	10.15	18.11	9.77	18.94	9.67	20.00	9.56	20.00	8.86	20.00	8.86	14.00	2.86	
	25	-	-	-	-	-	-	-	-	-	-	18.43	9.23	19.92	8.60	19.96	8.34	19.96	8.34	13.96	2.34	
	20	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	13.96	2.34	
RAS-6WHRP2E + RWM-6.0R3E / RWD-6.0RW3E-220S(-K)	65	-	-	-	-	17.10	12.54	18.20	12.54	16.07	9.43	17.29	10.64	18.81	12.16	19.38	12.54	19.38	12.54	13.38	6.54	
	60	13.84	11.96	17.34	12.92	17.10	12.54	18.20	12.54	20.04	12.54	21.51	12.54	21.40	14.17	22.37	10.16	22.37	10.16	16.37	4.16	
	55	13.84	11.96	17.34	12.92	18.21	12.40	19.30	12.31	19.56	12.34	20.00	12.42	22.00	12.35	22.00	11.92	22.00	11.92	16.00	5.92	
	50	16.23	12.75	17.76	13.71	18.43	12.29	18.97	12.29	19.88	12.29	20.22	11.67	22.08	11.47	22.00	11.09	22.00	11.09	16.00	5.09	
	45	16.41	12.54	16.94	13.87	19.09	12.44	19.31	12.14	19.69	11.66	20.22	10.79	22.00	10.93	22.00	10.93	22.00	10.93	16.00	4.93	
	40	16.82	11.71	18.29	12.79	19.32	11.97	19.74	11.75	20.19	11.20	20.45	10.71	22.00	10.50	22.00	10.10	22.00	10.10	16.00	4.10	
	35	17.23	10.88	19.65	11.72	19.56	11.51	20.60	11.36	21.21	11.11	21.00	10.81	22.00	10.07	21.97	9.37	21.97	9.37	15.97	3.37	
	30	17.23	11.14	16.52	10.85	19.60	10.51	20.08	10.59	20.89	10.73	20.96	10.58	22.00	10.10	22.00	9.26	22.00	9.26	16.00	3.26	
	25	-	-	-	-	-	-	-	-	-	-	21.30	10.14	22.23	9.00	22.00	8.69	22.00	8.69	16.00	2.69	
	20	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	16.00	2.69	

System		Water outlet temp (°C)	Ambient temperature (°C WB)																			
			-20		-15		-10		-7		-2		2		7		12		15		20	
			CAP (kW)	IPT (kW)	CAP (kW)	IPT (kW)	CAP (kW)	IPT (kW)	CAP (kW)	IPT (kW)	CAP (kW)	IPT (kW)	CAP (kW)	IPT (kW)	CAP (kW)	IPT (kW)	CAP (kW)	IPT (kW)	CAP (kW)	IPT (kW)	CAP (kW)	IPT (kW)
RAS-8WHNPE + RWM-8.ON3E	60	-	-	-	-	17.92	15.47	19.14	15.00	20.98	15.45	22.45	15.81	27.15	18.41	28.00	16.61	28.50	14.56	29.50	11.60	
	55	-	-	18.00	14.60	18.79	14.88	20.50	15.67	21.30	14.15	21.95	12.93	30.00	15.60	30.50	15.07	30.80	14.37	31.10	13.13	
	50	16.28	13.73	18.00	14.60	19.65	14.28	21.70	15.58	22.75	14.97	23.58	14.48	30.01	16.45	30.90	15.31	31.50	13.83	32.10	11.59	
	45	16.28	13.73	18.71	14.12	21.14	14.51	22.60	14.74	23.66	13.69	24.50	12.85	31.00	13.94	32.00	13.65	32.50	12.97	32.90	11.85	
	40	18.20	14.54	19.31	13.82	21.77	14.04	23.24	14.17	24.36	13.39	25.25	12.76	31.25	13.41	32.30	12.98	32.90	12.76	33.10	12.25	
	35	20.00	15.15	20.50	13.84	22.39	13.57	23.90	13.61	25.06	13.08	26.00	12.67	31.50	12.89	32.50	12.31	33.10	12.00	33.90	11.53	
	30	20.80	14.60	20.27	13.12	22.97	13.51	24.58	13.74	25.38	12.80	26.02	12.04	32.50	12.97	33.00	12.28	33.60	12.02	34.10	11.53	
	25	21.90	13.81	22.20	13.19	23.22	13.12	25.11	13.66	25.96	12.78	26.64	12.07	33.10	12.95	33.50	12.11	34.00	11.78	34.50	11.23	
RAS-10WHNPE + RWM-10.ON3E	20	22.00	12.22	22.50	12.38	23.47	12.74	25.64	13.57	26.55	12.76	27.27	12.11	33.70	12.92	34.00	11.95	34.50	11.57	35.00	10.97	
	60	-	-	-	-	19.90	16.69	20.50	14.06	22.17	14.44	23.50	14.75	28.00	15.57	29.50	17.19	30.30	15.17	31.00	11.79	
	55	-	-	21.50	18.90	21.76	19.87	23.30	18.36	24.61	16.71	25.50	15.29	31.52	16.65	32.00	16.83	32.50	15.58	33.20	13.42	
	50	19.00	14.67	21.50	18.90	22.37	18.80	24.36	18.84	24.97	16.35	25.46	14.35	34.05	16.64	34.60	16.51	35.00	15.41	35.90	13.63	
	45	19.00	14.67	20.81	15.52	23.12	16.71	24.50	17.42	25.89	15.24	27.00	13.50	38.00	16.67	39.00	16.64	39.20	15.78	39.60	14.40	
	40	20.20	15.17	21.44	15.10	24.13	15.96	25.74	16.48	26.36	15.04	26.85	13.89	38.00	15.54	39.50	15.47	39.50	15.18	39.80	14.80	
	35	21.10	15.44	22.07	14.67	24.50	14.90	27.00	15.55	27.00	14.91	27.70	14.68	38.00	14.42	40.00	14.29	40.70	14.25	40.90	13.97	
	30	21.70	14.72	22.01	13.60	24.70	13.91	27.63	14.66	28.95	14.79	30.00	14.89	39.20	14.85	40.30	13.98	41.00	13.99	41.10	13.78	
RAS-10WHNPE + RWM-10.ON3E	25	22.40	14.63	22.35	13.41	24.80	13.63	28.03	14.48	29.74	14.90	31.11	15.24	39.50	14.70	40.50	12.90	41.80	13.02	42.20	12.88	
	20	23.00	14.47	23.50	13.56	25.00	13.39	28.43	14.30	30.54	15.02	32.00	15.52	39.00	14.35	41.00	12.00	42.10	12.10	43.00	12.14	

3.5 Maximum cooling capacity table (kW)

3.5.1 Split system - airH2O 600S / airH2O 600S Combi

System		Water outlet temp (°C)	Ambient temperature (°C WB)															
			10		15		20		25		30		35		40		45	
			CAP (kW)	IPT (kW)	CAP (kW)	IPT (kW)	CAP (kW)	IPT (kW)	CAP (kW)	IPT (kW)	CAP (kW)	IPT (kW)	CAP (kW)	IPT (kW)	CAP (kW)	IPT (kW)	CAP (kW)	IPT (kW)
RAS-1.5WHVRP2E + RWM-1.5R3E / RWD-1.5RW3E-220S(-K)	22	-	-	8.53	1.21	7.70	1.21	7.79	1.12	6.97	1.28	6.08	1.32	6.35	1.44	6.39	1.45	
	18	-	-	7.97	0.99	7.21	0.99	8.66	0.92	6.94	0.85	6.32	1.16	5.85	1.29	5.78	1.31	
	15	7.41	0.97	7.41	0.97	6.70	0.97	7.64	0.90	6.34	0.94	5.85	1.21	5.37	1.34	5.30	1.36	
	10	6.47	0.93	6.47	0.93	5.85	0.93	5.94	0.87	5.33	1.09	5.07	1.28	4.58	1.41	4.51	1.43	
	7	5.68	0.84	5.68	0.84	5.68	0.84	4.98	0.77	4.83	0.98	4.69	1.21	3.94	1.42	3.88	1.44	
	5	-	-	4.69	1.26	4.21	1.26	4.45	1.19	3.78	1.19	3.76	1.28	3.61	1.41	3.35	1.61	
RAS-2WHVRP2E + RWM-2.0R3E / RWD-2.0RW3E-220S(-K/6H)	22	-	-	8.53	1.21	8.53	1.21	8.55	1.21	7.79	1.43	6.86	1.45	7.05	1.55	7.07	1.57	
	18	-	-	7.97	0.99	7.97	0.99	9.21	0.99	7.63	0.92	7.02	1.23	6.47	1.39	6.39	1.42	
	15	7.41	0.97	7.41	0.97	7.41	0.97	8.22	0.97	6.98	1.02	6.49	1.29	5.95	1.44	5.87	1.47	
	10	6.47	0.93	6.47	0.93	6.47	0.93	6.58	0.93	5.90	1.18	5.60	1.39	5.07	1.53	4.99	1.55	
	7	5.68	0.84	5.68	0.84	5.68	0.84	5.45	0.84	5.27	1.07	5.12	1.31	4.35	1.53	4.29	1.56	
	5	-	-	4.69	1.26	4.69	1.26	4.91	1.26	4.25	1.29	4.15	1.39	3.99	1.53	3.70	1.75	
RAS-2.5WHVRP2E + RWM-2.5R3E / RWD-2.5RW3E-220S(-K/6H)	22	-	-	9.92	1.95	9.92	1.95	9.94	1.69	8.37	1.56	7.33	1.70	7.37	1.77	7.42	1.84	
	18	-	-	11.64	1.47	7.85	1.47	7.91	1.31	7.58	1.30	7.11	1.49	7.24	1.63	7.40	1.79	
	15	8.81	1.46	8.31	1.46	7.43	1.46	7.20	1.32	6.96	1.35	6.60	1.51	6.59	1.63	6.59	1.77	
	10	7.62	1.45	6.91	1.45	6.72	1.45	6.01	1.32	5.92	1.44	5.75	1.55	5.52	1.64	5.24	1.74	
	7	7.91	1.35	7.91	1.35	7.91	1.35	6.75	1.22	5.67	1.37	5.74	1.63	5.19	1.73	4.53	1.84	
	5	-	-	5.63	1.30	5.51	1.56	5.30	1.43	4.59	1.50	4.25	1.68	4.25	1.80	4.26	1.94	
RAS-3WHVRP2E + RWM-3.0R3E / RWD-3.0RW3E-220S(-K/6H)	22	-	-	11.45	1.95	11.43	1.95	11.48	1.95	9.25	1.71	8.05	1.87	8.17	1.94	8.31	2.03	
	18	-	-	11.64	1.47	8.52	1.47	8.57	1.47	8.44	1.50	8.20	1.70	8.20	1.82	8.21	1.96	
	15	8.81	1.46	8.81	1.46	8.11	1.46	7.84	1.46	7.73	1.53	7.51	1.70	7.42	1.81	7.31	1.94	
	10	7.62	1.45	7.62	1.45	7.42	1.45	6.62	1.45	6.54	1.59	6.35	1.71	6.10	1.80	5.81	1.91	
	7	7.91	1.35	7.91	1.35	7.91	1.35	7.45	1.35	6.19	1.53	6.27	1.77	5.71	1.89	5.04	2.04	
	5	-	-	6.29	1.42	6.15	1.56	5.93	1.56	5.22	1.63	4.76	1.85	4.79	1.99	4.82	2.15	

System		Water outlet temp (°C)	Ambient temperature (°C WB)															
			10		15		20		25		30		35		40		45	
			CAP (kW)	IPT (kW)	CAP (kW)	IPT (kW)	CAP (kW)	IPT (kW)	CAP (kW)	IPT (kW)	CAP (kW)	IPT (kW)	CAP (kW)	IPT (kW)	CAP (kW)	IPT (kW)	CAP (kW)	IPT (kW)
RAS-3.5WHVRP2E	+ RWM-3.5R3E / RWD-3.5RW3E-220S(-K)	22	-	-	10.24	2.04	10.20	2.14	9.63	1.98	9.68	2.08	10.05	2.49	10.19	2.85	9.12	2.94
		18	-	-	10.06	2.02	9.94	2.07	9.70	1.99	9.91	2.00	9.50	2.86	8.74	3.14	8.11	3.37
		15	9.89	1.99	9.89	1.99	9.76	2.03	9.63	2.00	9.65	2.01	9.63	2.80	8.40	3.16	7.39	3.46
		10	9.62	1.93	9.62	1.93	9.46	1.95	9.52	2.01	9.22	2.04	9.45	2.70	7.83	3.20	6.21	3.61
		7	9.85	2.36	9.85	2.36	9.50	2.45	9.57	2.50	9.52	2.52	9.50	2.71	8.21	3.22	6.49	3.83
		5	-	-	8.40	2.19	8.58	2.24	8.04	2.10	8.65	2.18	8.37	2.67	7.58	3.06	5.75	3.39
RAS-4WHVRP2E	+ RWM-4.0R3E / RWD-4.0RW3E-220S(-K)	22	-	-	10.85	2.17	10.85	2.33	10.47	2.15	10.17	2.22	10.78	2.71	10.93	3.11	9.80	3.22
		18	-	-	10.60	2.10	10.49	2.17	10.48	2.09	10.82	2.14	11.00	3.09	9.60	3.38	8.77	3.65
		15	10.52	2.10	10.52	2.10	10.40	2.15	10.42	2.12	10.51	2.14	10.56	3.01	9.21	3.40	8.03	3.74
		10	10.40	2.10	10.40	2.10	10.26	2.12	10.32	2.16	10.00	2.16	10.33	2.89	8.56	3.43	6.79	3.90
		7	10.71	2.57	10.71	2.57	10.34	2.66	10.41	2.68	10.35	2.67	10.50	2.91	9.02	3.45	7.25	4.08
		5	-	-	9.05	2.36	9.26	2.41	8.66	2.24	9.34	2.31	8.84	2.82	8.01	3.23	6.32	3.56
RAS-5WHVRP2E	+ RWM-5.0R3E / RWD-5.0RW3E-220S(-K)	22	-	-	14.00	2.21	14.00	2.25	14.00	2.47	14.00	2.88	13.12	3.08	11.92	3.12	12.43	3.69
		18	-	-	13.37	1.69	13.41	1.78	12.97	2.38	12.95	2.58	13.00	3.23	11.95	3.21	8.75	3.44
		15	14.06	2.08	14.06	2.08	13.58	2.18	13.06	2.88	12.67	3.08	12.34	3.37	10.67	3.21	8.11	3.42
		10	12.59	2.36	12.59	2.36	12.20	2.68	12.03	3.10	11.86	3.57	12.37	3.85	11.27	4.14	9.60	4.37
		7	12.96	2.66	12.96	2.66	13.26	3.06	12.69	3.17	12.65	3.78	12.00	4.19	11.62	4.04	9.38	4.39
		5	-	-	13.21	3.90	12.70	3.95	12.49	4.09	12.28	4.24	11.72	4.27	10.20	4.31	7.22	4.32
RAS-6WHVRP2E	+ RWM-6.0R3E / RWD-6.0RW3E-220S(-K)	22	-	-	15.79	2.50	15.79	2.56	15.26	2.70	15.30	3.13	14.23	3.30	12.93	3.33	11.50	3.47
		18	-	-	16.53	2.30	16.15	2.39	15.31	3.31	14.43	3.27	15.00	3.95	13.28	3.68	8.75	3.44
		15	17.19	2.84	17.19	2.84	16.00	2.87	15.24	3.75	14.05	3.75	14.38	4.06	12.02	3.68	9.43	3.87
		10	14.92	3.27	14.92	3.27	13.63	3.23	13.48	3.50	13.33	4.01	13.76	4.27	11.27	4.14	9.60	4.37
		7	14.51	3.15	14.51	3.15	14.87	3.54	13.93	3.63	13.74	4.36	12.50	4.56	11.62	4.04	10.82	4.86
		5	-	-	14.00	4.14	13.47	4.19	13.26	4.33	13.05	4.47	11.72	4.27	10.94	4.57	8.44	4.92

System		Water outlet temp (°C)	Ambient temperature (°C WB)															
			10		15		20		25		30		35		40		45	
			CAP (kW)	IPT (kW)	CAP (kW)	IPT (kW)	CAP (kW)	IPT (kW)	CAP (kW)	IPT (kW)	CAP (kW)	IPT (kW)	CAP (kW)	IPT (kW)	CAP (kW)	IPT (kW)	CAP (kW)	IPT (kW)
RAS-3.5WHRP2E + RWM-3.5R3E / RWD-3.5RW3E-220S(-K)	22	-	-	10.24	2.04	10.20	2.14	9.63	1.98	9.68	2.08	10.05	2.49	10.19	2.85	9.12	2.94	
	18	-	-	10.06	2.02	9.94	2.07	9.70	1.99	9.91	2.00	9.50	2.86	8.74	3.14	8.11	3.37	
	15	9.89	1.99	9.89	1.99	9.76	2.03	9.63	2.00	9.65	2.01	9.63	2.80	8.40	3.16	7.39	3.46	
	10	9.62	1.93	9.62	1.93	9.46	1.95	9.52	2.01	9.22	2.04	9.45	2.70	7.83	3.20	6.21	3.61	
	7	9.85	2.36	9.85	2.36	9.50	2.45	9.57	2.50	9.52	2.52	9.50	2.71	8.21	3.22	6.49	3.83	
	5	-	-	8.40	2.19	8.58	2.24	8.04	2.10	8.65	2.18	8.37	2.67	7.58	3.06	5.75	3.39	
RAS-4WHRP2E + RWM-4.0R3E / RWD-4.0RW3E-220S(-K)	22	-	-	10.85	2.17	10.85	2.33	10.47	2.15	10.17	2.22	10.78	2.71	10.93	3.11	9.80	3.22	
	18	-	-	10.60	2.10	10.49	2.17	10.48	2.09	10.82	2.14	11.00	3.09	9.60	3.38	8.77	3.65	
	15	10.52	2.10	10.52	2.10	10.40	2.15	10.42	2.12	10.51	2.14	10.56	3.01	9.21	3.40	8.03	3.74	
	10	10.40	2.10	10.40	2.10	10.26	2.12	10.32	2.16	10.00	2.16	10.33	2.89	8.56	3.43	6.79	3.90	
	7	10.71	2.57	10.71	2.57	10.34	2.66	10.41	2.68	10.35	2.67	10.50	2.91	9.02	3.45	7.25	4.08	
	5	-	-	9.05	2.36	9.26	2.41	8.66	2.24	9.34	2.31	8.84	2.82	8.01	3.23	6.32	3.56	
RAS-5WHRP2E + RWM-5.0R3E / RWD-5.0RW3E-220S(-K)	22	-	-	14.00	2.21	14.00	2.25	14.00	2.47	14.00	2.88	13.12	3.08	11.92	3.12	12.43	3.69	
	18	-	-	13.37	1.69	13.41	1.78	12.97	2.38	12.95	2.58	13.00	3.23	11.95	3.21	8.75	3.44	
	15	14.06	2.08	14.06	2.08	13.58	2.18	13.06	2.88	12.67	3.08	12.34	3.37	10.67	3.21	8.11	3.42	
	10	12.59	2.36	12.59	2.36	12.20	2.68	12.03	3.10	11.86	3.57	12.37	3.85	11.27	4.14	9.60	4.37	
	7	12.96	2.66	12.96	2.66	13.26	3.06	12.69	3.17	12.65	3.78	12.00	4.19	11.62	4.04	9.38	4.39	
	5	-	-	13.21	3.90	12.70	3.95	12.49	4.09	12.28	4.24	11.72	4.27	10.20	4.31	7.22	4.32	
RAS-6WHRP2E + RWM-6.0R3E / RWD-6.0RW3E-220S(-K)	22	-	-	15.79	2.50	15.79	2.56	15.26	2.70	15.30	3.13	14.23	3.30	12.93	3.33	11.50	3.47	
	18	-	-	16.53	2.30	16.15	2.39	15.31	3.31	14.43	3.27	15.00	3.95	13.28	3.68	8.75	3.44	
	15	17.19	2.84	17.19	2.84	16.00	2.87	15.24	3.75	14.05	3.75	14.38	4.06	12.02	3.68	9.43	3.87	
	10	14.92	3.27	14.92	3.27	13.63	3.23	13.48	3.50	13.33	4.01	13.76	4.27	11.27	4.14	9.60	4.37	
	7	14.51	3.15	14.51	3.15	14.87	3.54	13.93	3.63	13.74	4.36	12.50	4.56	11.62	4.04	10.82	4.86	
	5	-	-	14.00	4.14	13.47	4.19	13.26	4.33	13.05	4.47	11.72	4.27	10.94	4.57	8.44	4.92	

System		Water outlet temp (°C)	Ambient temperature (°C WB)															
			10		15		20		25		30		35		40		45	
			CAP (kW)	IPT (kW)	CAP (kW)	IPT (kW)	CAP (kW)	IPT (kW)	CAP (kW)	IPT (kW)	CAP (kW)	IPT (kW)	CAP (kW)	IPT (kW)	CAP (kW)	IPT (kW)	CAP (kW)	IPT (kW)
RAS-8WHNPE + RWM-8.0N3E	22	-	-	-	-	-	-	25.80	6.62	25.00	7.05	24.20	7.49	23.40	7.93	22.60	8.37	
	18	-	-	-	-	25.10	6.28	24.60	6.65	24.00	7.06	23.50	7.12	22.25	7.76	21.00	8.40	
	15	23.20	5.04	22.99	5.43	22.79	5.82	22.58	6.22	21.85	6.79	21.11	7.37	20.37	7.95	19.64	8.53	
	10	21.10	5.15	20.47	5.26	19.85	5.38	19.22	5.49	18.75	6.31	18.29	7.12	17.83	7.94	17.36	8.76	
	7	20.20	4.93	19.70	4.99	19.20	5.05	17.20	5.06	16.70	5.76	16.40	6.31	16.20	7.60	16.00	8.89	
	5	-	-	18.50	4.93	17.83	5.62	17.17	6.31	16.50	7.00	15.83	7.69	15.17	8.37	14.50	9.06	
RAS-10WHNPE + RWM-10.0N3E	22	-	-	-	-	-	-	28.60	6.65	27.70	7.39	26.80	8.13	25.90	8.87	25.00	9.62	
	18	-	-	-	-	28.50	6.33	28.00	6.67	27.50	7.64	27.00	8.71	25.00	9.35	23.00	10.00	
	15	26.00	6.67	26.07	6.69	26.13	6.71	26.20	6.73	25.06	7.63	23.92	8.54	22.78	9.44	21.64	10.34	
	10	25.30	6.66	24.60	6.72	23.90	6.78	23.20	6.84	22.24	7.86	21.28	8.87	20.32	9.89	19.36	10.91	
	7	24.00	6.49	23.40	6.50	22.80	6.51	21.40	6.90	21.00	7.78	20.60	8.96	19.30	10.10	18.00	11.25	
	5	-	-	21.00	6.36	20.33	7.19	19.67	8.02	19.00	8.85	18.33	9.68	17.67	10.51	17.00	11.33	

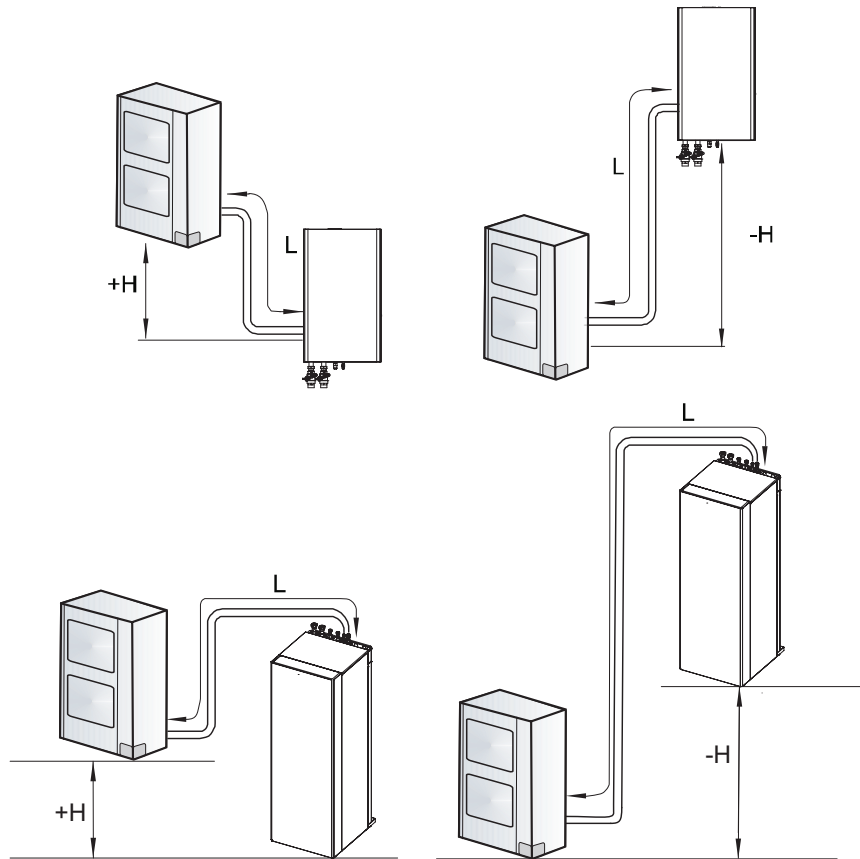
Maximum cooling capacity tables:

- CAP: Capacity at compressor maximum frequency. Capacity is valid for difference between water inlet and water outlet of 3-8°C.
- IPT: Total input power.

3.6 Correction factors

3.6.1 Piping length correction factor for split system

The correction factor is based on the equivalent piping length in metres (EL) and the height difference between outdoor unit and indoor unit in metres (H).



H: Height difference between indoor unit and outdoor unit (m).

- ✓ $H > 0$: Outdoor unit is placed higher than indoor unit (m).
- ✓ $H < 0$: Outdoor unit is placed lower than indoor unit (m).

L: Actual one-way piping length between indoor unit and outdoor unit (m).

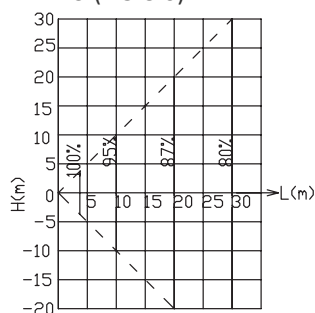
EL: Equivalent one-way piping length between indoor unit and outdoor unit (m).

- ✓ One 90° elbow is 0.5 m.
- ✓ One 180° bend is 1.5 m.

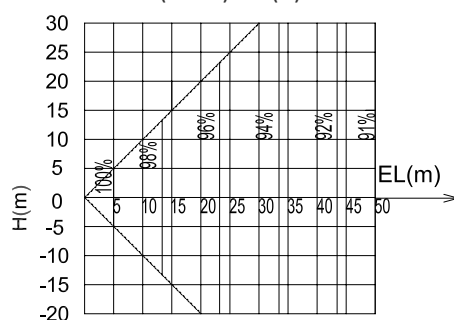
◆ Heating piping length correction factor

Heating

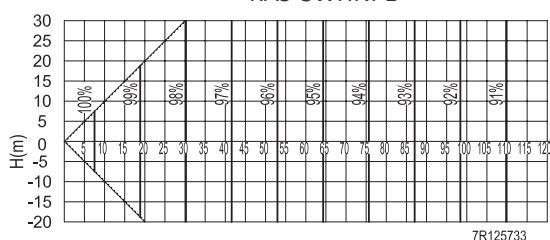
RAS-(1.5-3.0)WHVRP2E



RAS-(3.5-6)WH(V)RP2E

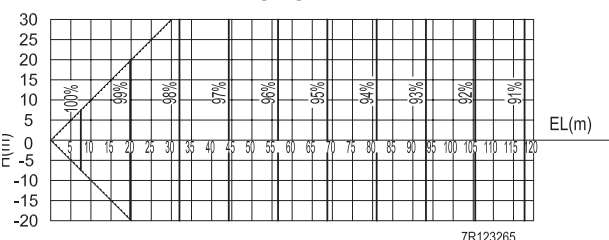


RAS-8WHNPE



7R125733

RAS-10WHNPE

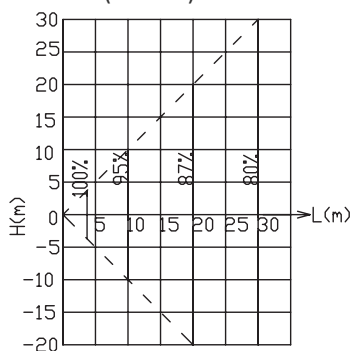


7R123265

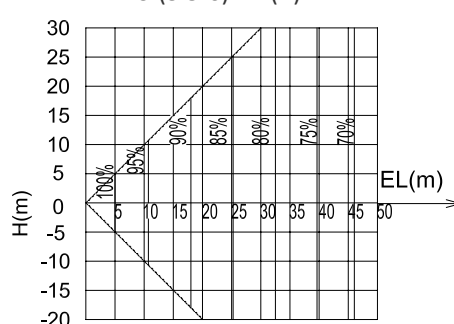
◆ Cooling piping length correction factor

Cooling

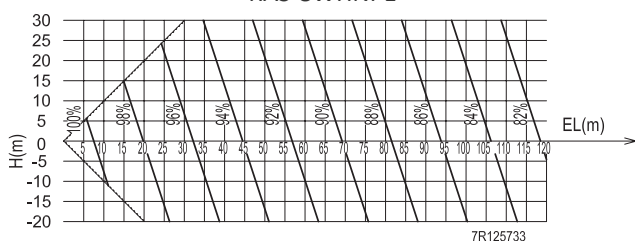
RAS-(1.5-3.0)WHVRP2E



RAS-(3.5-6)WH(V)RP2E

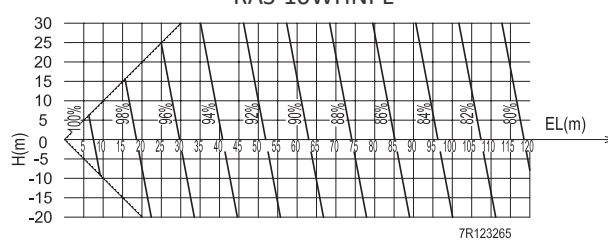


RAS-8WHNPE



7R125733

RAS-10WHNPE



7R123265

3.6.2 Correction factor depending on the altitude

All outdoor unit models

The capacity must be corrected by the affectations of installation altitude of the installation location. When the altitude is above sea level, capacity must be corrected with the altitude correction factor according to the following equation.

Altitude	m	0	300	600	900	1200	1500	1800	2000
Correction factor		1.00	0.97	0.94	0.90	0.88	0.84	0.81	0.81

3.7 Hi-ToolKit selection software

Hi-ToolKit for Home is Hitachi software that has been specifically developed to assist professionals working in the field of residential heating. More than just software for selecting air/water heat pumps, Hi-ToolKit for Home is a genuine technical and financial tool. In just a few clicks, Hi-Toolkit for Home allows you to create a general a technical and financial proposal for an end-user, which can be used to complement your quote. When you choose Hi-Toolkit for Home, you are certain to make the right choice when it comes to Hitachi heat pumps.

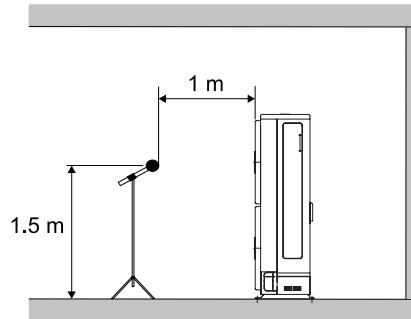
To access this tool go to <https://www.hitachi-hitoolkit.com>.

Sound data

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4.1 Considerations for sound pressure level

Distance of the unit from the measuring point: at 1 meter from the unit's front surface; 1,5 meter from floor level.



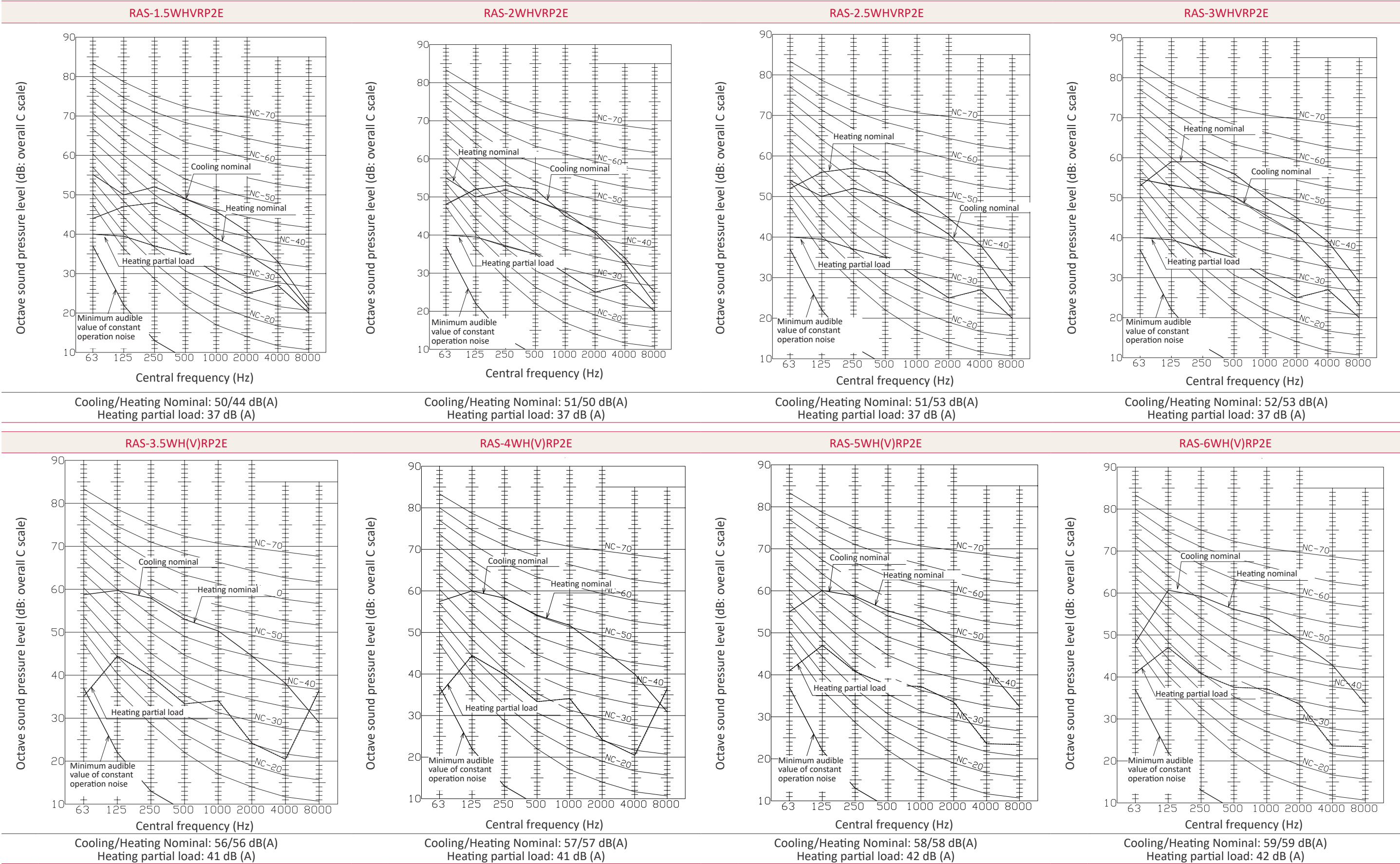
The data is measured in an anechoic chamber, so reflected sound should be taken into consideration when installing the unit.

The sound measured with the curve A shown in dB(A) represents the attenuation in function of frequency as perceived by the human ear.

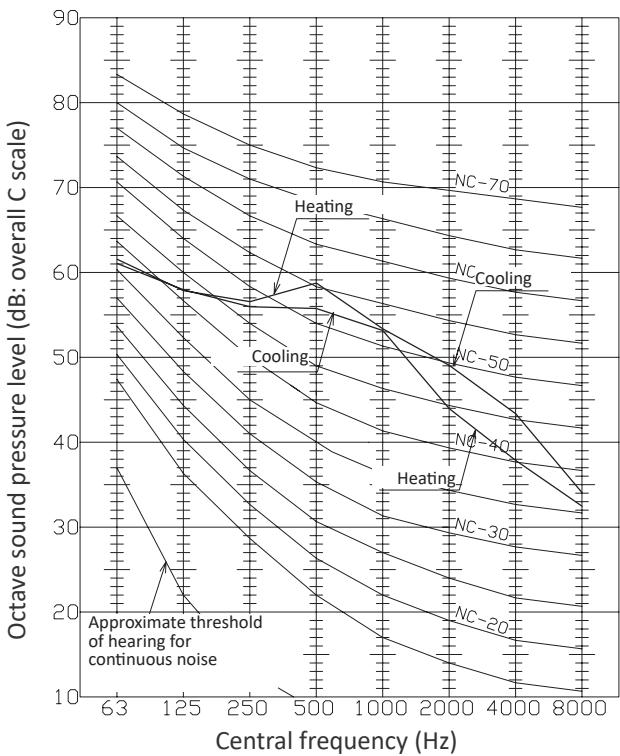
Reference acoustic pressure 0 dB=20 μ Pa.

4.2 Sound pressure level

4.2.1 Split system - outdoor unit

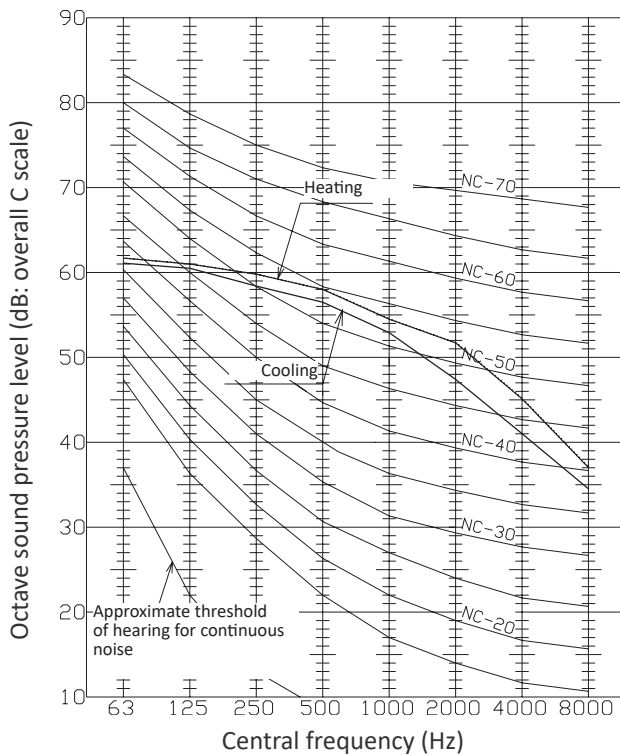


RAS-8WHNPE



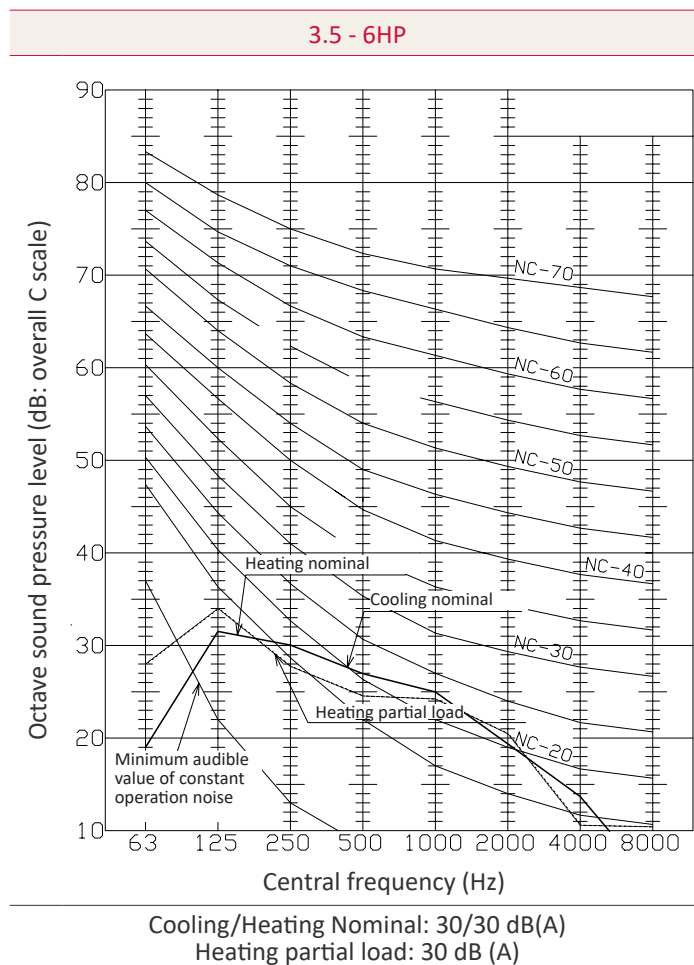
Cooling/Heating Nominal: 57/59 dB(A)

RAS-10WHNPE



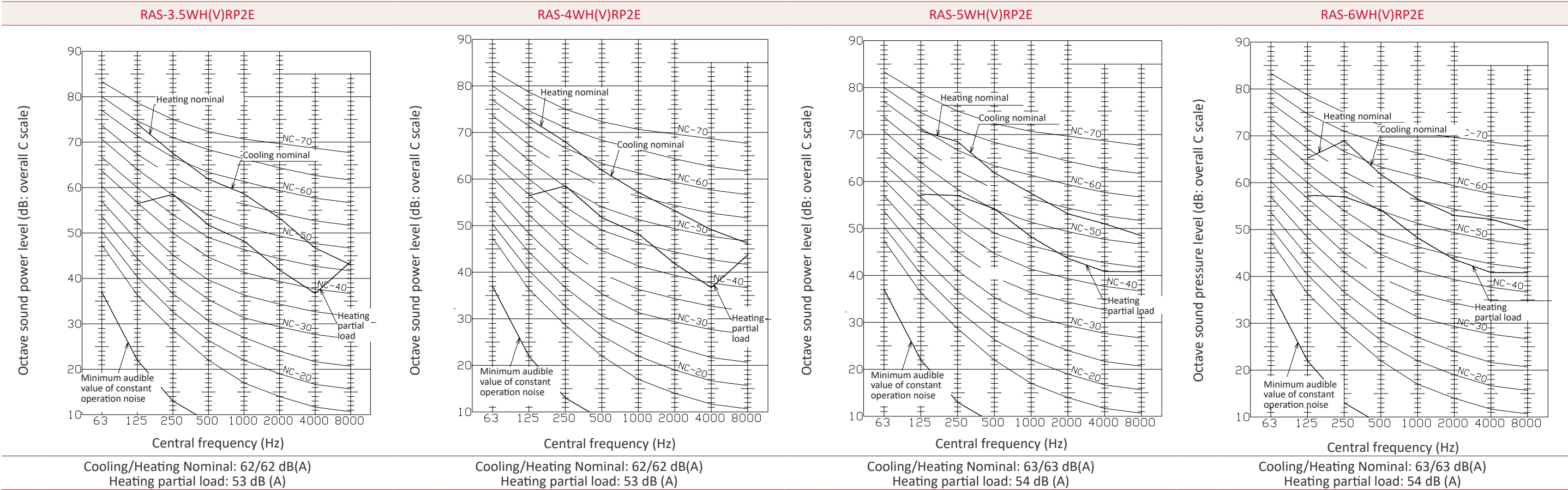
Cooling/Heating Nominal: 58/60 dB(A)

4.2.2 Split system - indoor unit

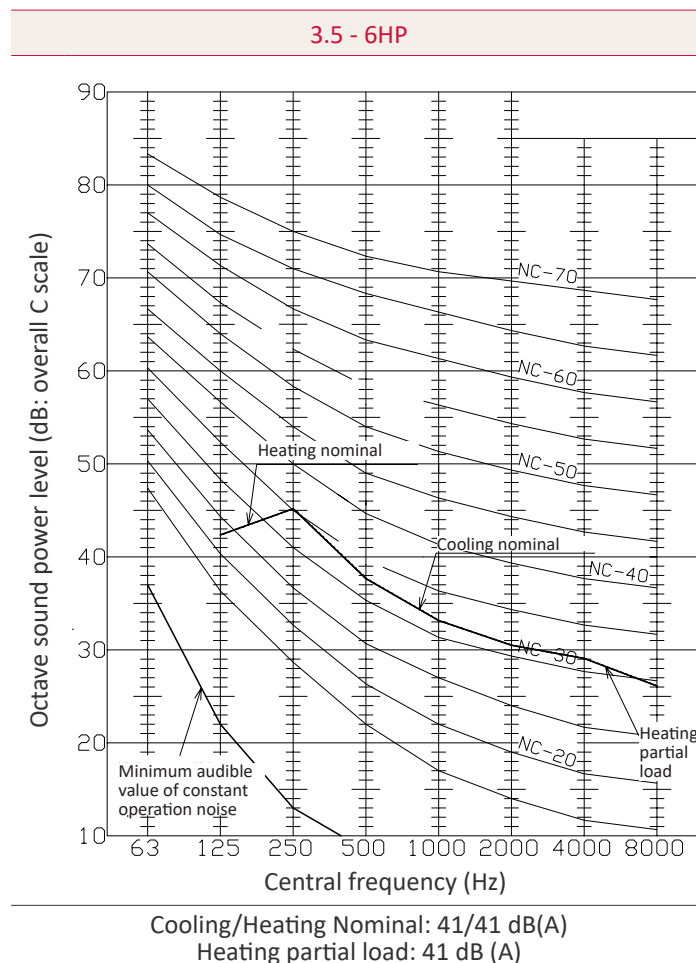


4.3 Sound power level

4.3.1 Split system - outdoor unit



4.3.2 Split system - indoor unit



4.4 Sound pressure reduction

4.4.1 Estimated sound reduction based on the outdoor unit distance

Units in dB (A)

		Distance (m)					
Model	Load	1	5	10	20	30	40
RAS-1.5WHVRP2E	Heating part load (40%)	37	23	17	11	7	5
	Heating full load (100%)	44	30	24	18	14	12
	Cooling full load (100%)	50	36	30	24	20	18
RAS-2WHVRP2E	Heating part load (40%)	37	23	17	11	7	5
	Heating full load (100%)	50	36	30	24	20	18
	Cooling full load (100%)	51	37	31	25	21	19
RAS-2.5WHVRP2E	Heating part load (40%)	37	23	17	11	7	5
	Heating full load (100%)	53	39	33	27	23	21
	Cooling full load (100%)	51	37	31	25	21	19
RAS-3WHVRP2E	Heating part load (40%)	37	23	17	11	7	5
	Heating full load (100%)	53	39	33	27	23	21
	Cooling full load (100%)	52	38	32	26	22	20
RAS-3.5WH(V)RP2E	Heating part load (40%)	41	27	21	15	12	9
	Heating full load (100%)	56	42	36	30	26	24
	Cooling full load (100%)	56	42	36	30	26	24
RAS-4WH(V)RP2E	Heating part load (40%)	41	27	21	15	12	9
	Heating full load (100%)	57	43	37	31	27	25
	Cooling full load (100%)	57	43	37	31	27	25
RAS-5WH(V)RP2E	Heating part load (40%)	42	28	22	16	12	10
	Heating full load (100%)	58	44	38	32	28	26
	Cooling full load (100%)	58	44	38	32	28	26
RAS-6WH(V)RP2E	Heating part load (40%)	42	28	22	16	12	10
	Heating full load (100%)	59	45	39	33	29	27
	Cooling full load (100%)	59	45	39	33	29	27
RAS-8WHNPE	Heating part load (40%)	52	38	32	26	22	20
	Heating full load (100%)	59	45	39	33	29	27
	Cooling full load (100%)	57	43	37	31	27	25
RAS-10WHNPE	Heating part load (40%)	52	38	32	26	22	20
	Heating full load (100%)	60	46	40	34	30	28
	Cooling full load (100%)	58	44	38	32	28	26

4.4.2 Estimated sound reduction based on night shift function

The following values are based on the night shift settings from the remote control.

Units in dB (A)

Model	Night shift setting				
	40%	55%	75%	90%	100%
RAS-1.5WHVRP2E	37	41	43	44	44
RAS-2WHVRP2E	37	44	47	49	50
RAS-2.5WHVRP2E	37	47	51	53	53
RAS-3WHVRP2E	37	49	52	53	53
RAS-3.5WH(V)RP2E	41	45	50	53	56
RAS-4WH(V)RP2E	41	45	50	54	57
RAS-5WH(V)RP2E	42	46	51	55	58
RAS-6WH(V)RP2E	42	46	52	56	59
RAS-8WHNPE	52	53	53	54	57
RAS-10WHNPE	52	53	55	57	58

Working range

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 - 5.3.2.1 Split system- **airH2O 600S**114
 - 5.3.2.2 Split system- **airH2O 600S Combi**116

5.1 Power supply working range

◆ Nominal power supply

- Single phase: ~ 230 V 50 Hz
- Three phase: 3N~ 400 V 50 Hz

◆ Operating voltage

Between 90 % and 110 % of the nominal voltage.

◆ Starting voltage

Always higher than 85 % of the nominal voltage.

◆ Relative humidity limit

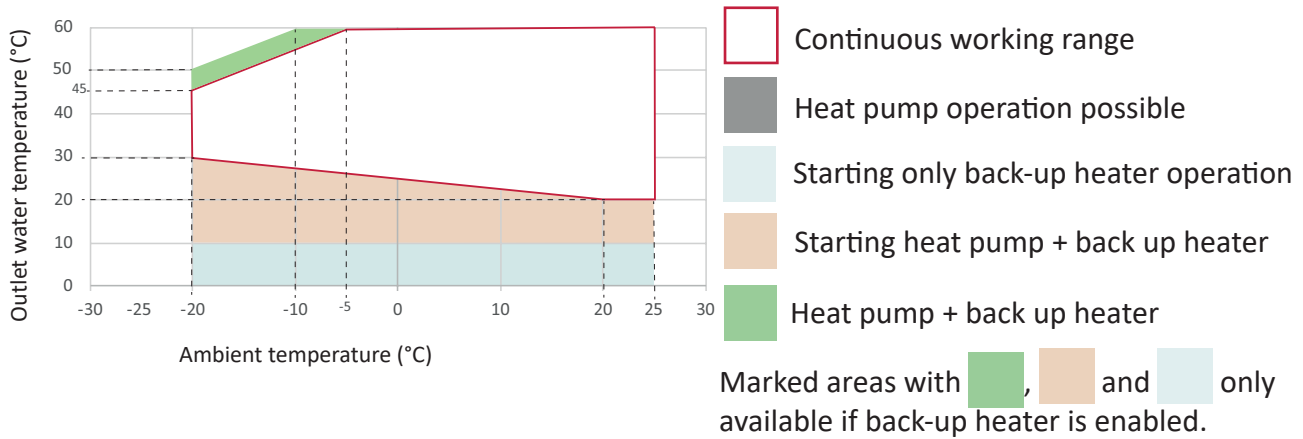
Lower than 80%.

5.2 Temperature working range

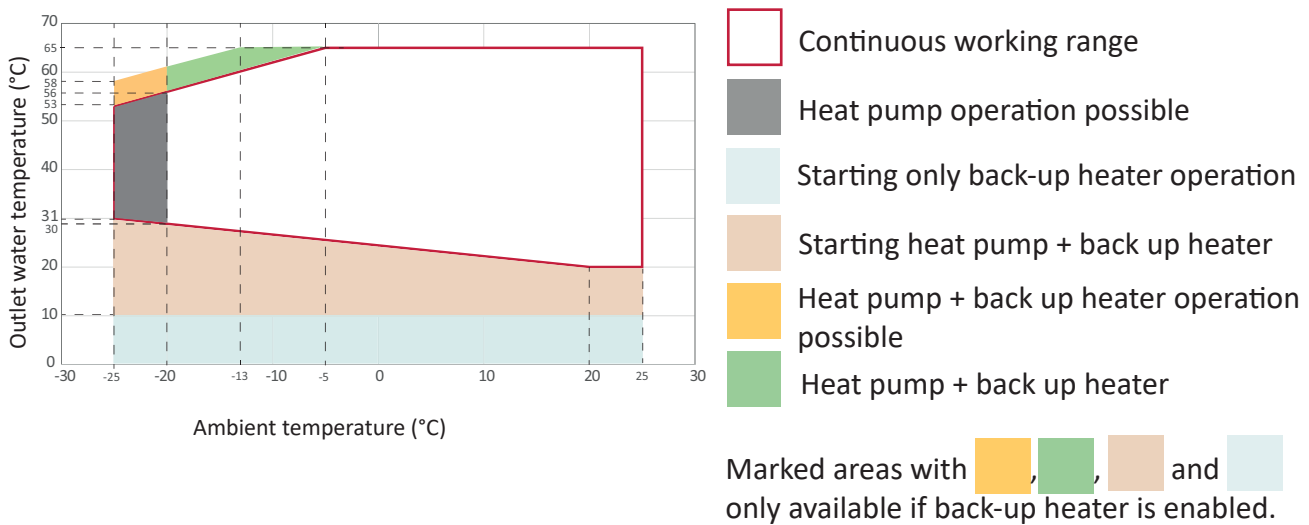
MODEL	1.5 HP	2.0 HP	2.5 HP	3.0 HP	3.5 HP	4.0 HP	5.0 HP	6.0 HP	8.0 HP	10.0 HP
Water temperature	Refer to the graphics for each case									
Indoor ambient temperature	5~30									

5.2.1 Space heating

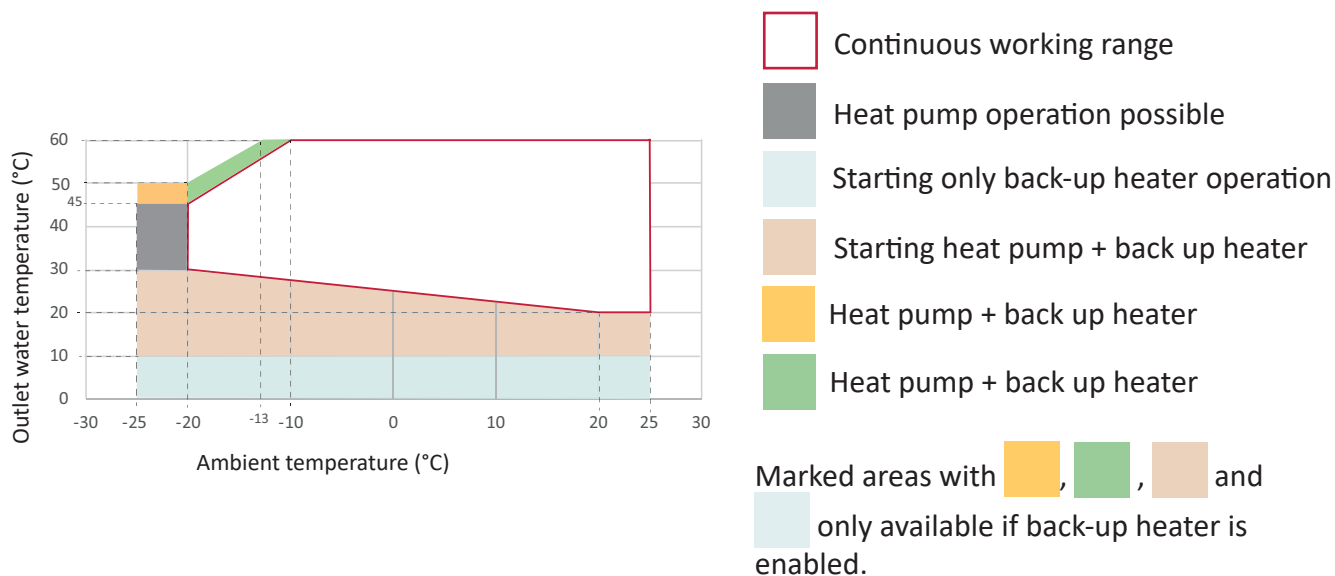
◆ Split system - airH2O 600S / airH2O 600S Combi (1.5- 3.0 HP)



◆ Split system - airH2O 600S / airH2O 600S Combi (3.5- 6.0 HP)

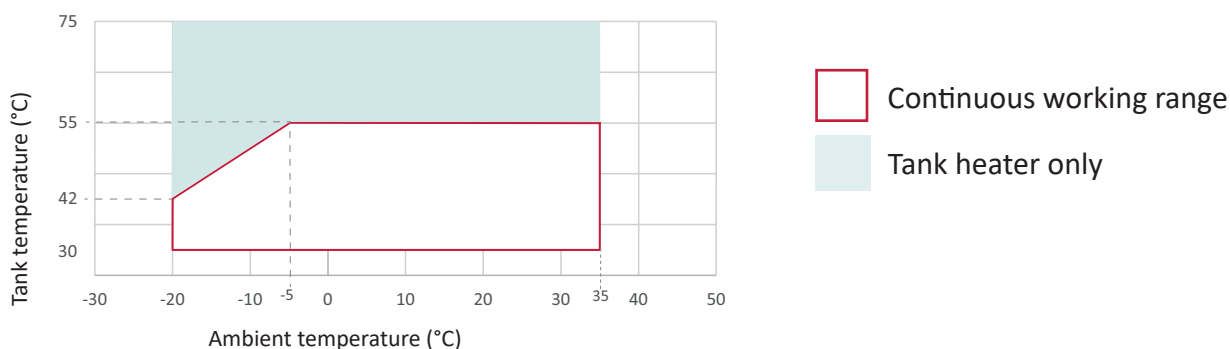


◆ Split system - airH2O 600S (8.0/10.0 HP)



5.2.2 DHW

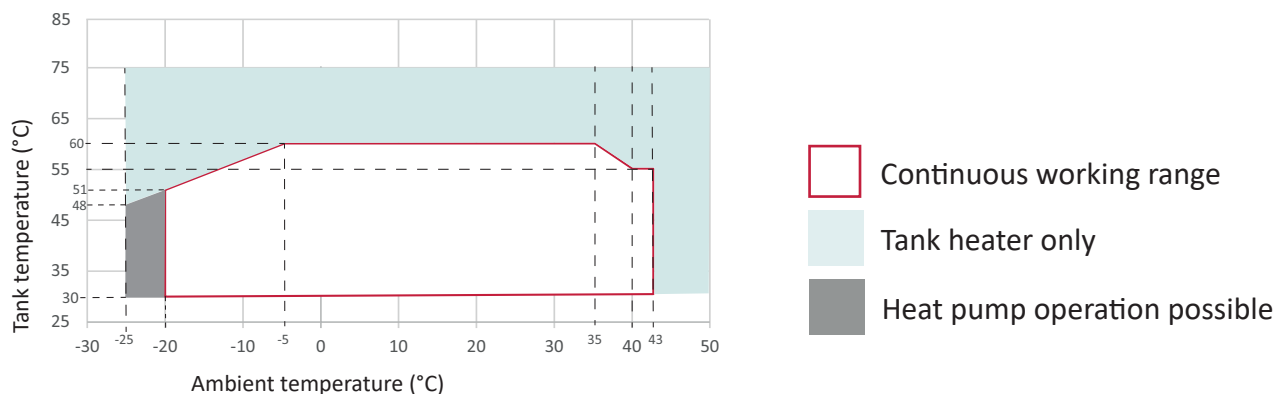
◆ Split system - airH2O 600S / airH2O 600S Combi (1.5-3.0 HP)



NOTE

In case of heating up the DHW tank with an outdoor ambient temperature lower than -5°C and without using the DHW electrical heater, the setting temperature will change automatically in order to not exceed the maximum value in the specified continuous working range.

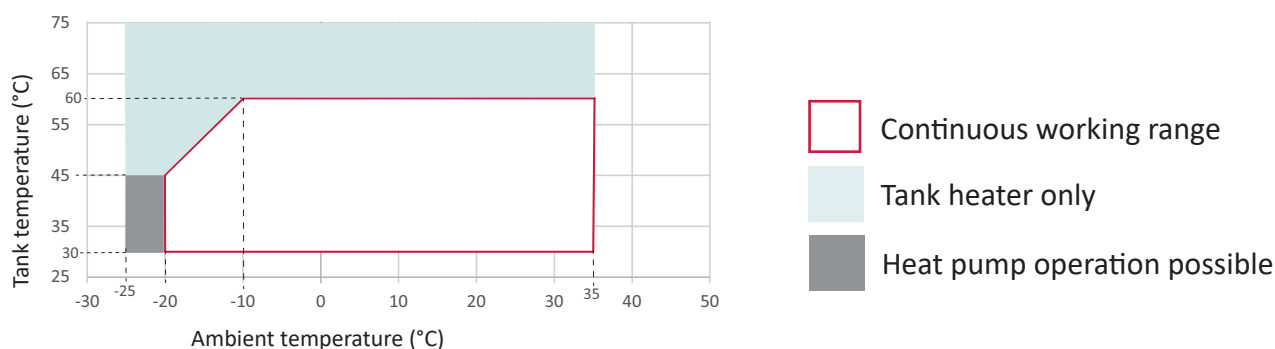
◆ Split system - airH2O 600S / airH2O 600S Combi (3.5-6.0 HP)



i NOTE

In case of heating up the DHW tank with an outdoor ambient temperature lower than -10 °C and without using the DHW electrical heater, the setting temperature will change automatically in order to not exceed the maximum value in the specified continuous working range.

◆ Split system - airH2O 600S (8.0/10.0 HP)

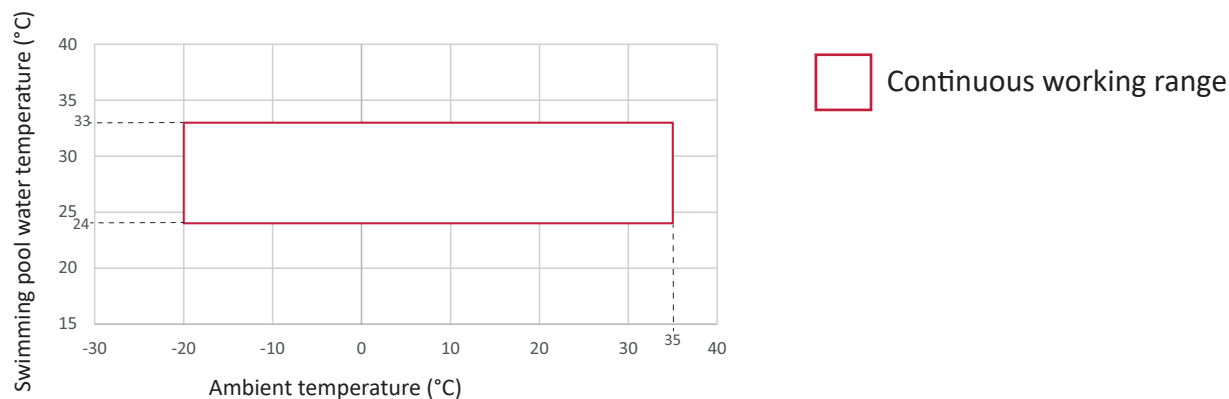


i NOTE

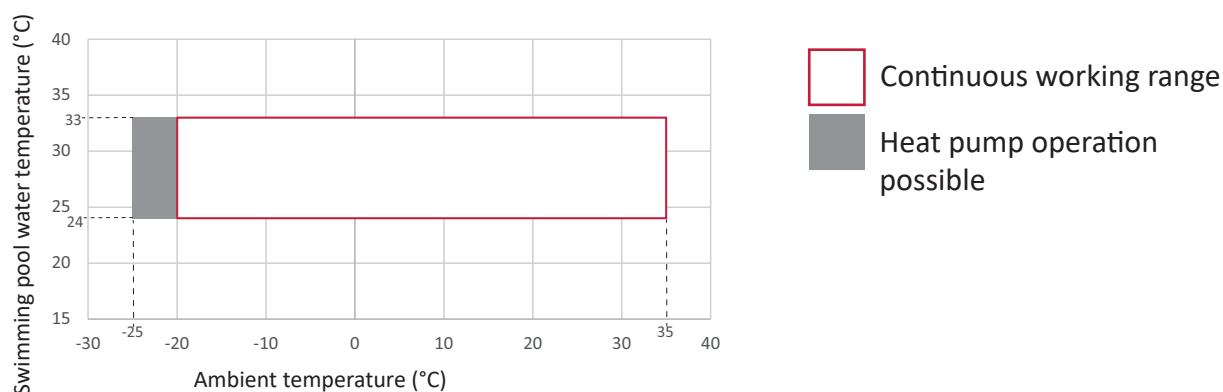
In case of heating up the DHW tank with an outdoor ambient temperature lower than -10 °C and without using the DHW electrical heater, the setting temperature will change automatically in order to not exceed the maximum value in the specified continuous working range.

5.2.3 Swimming pool heating

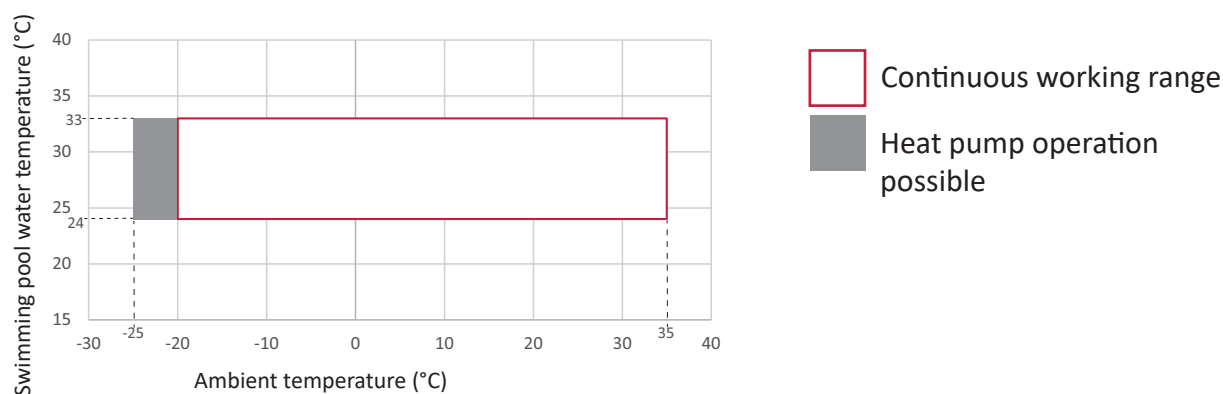
◆ Split system - airH2O 600S / airH2O 600S Combi (1.5-3.0 HP)



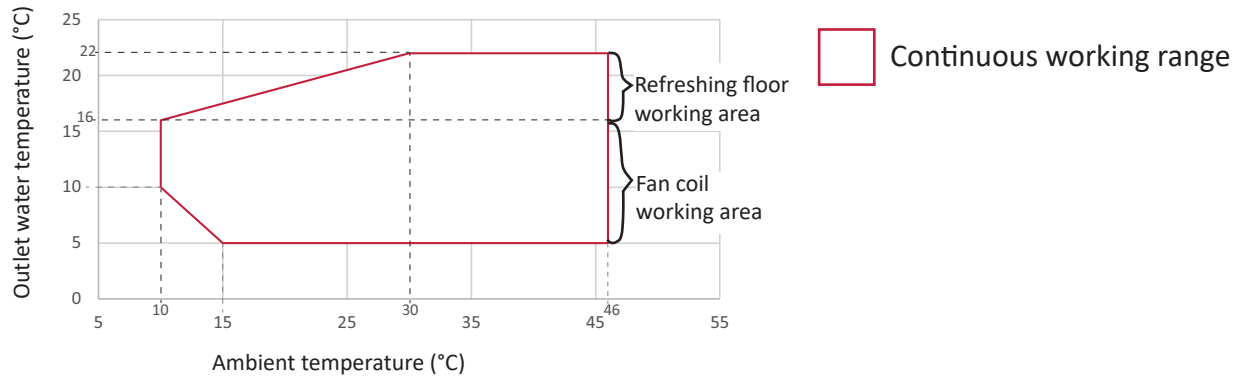
◆ Split system - airH2O 600S / airH2O 600S Combi (3.5-6.0 HP)



◆ Split system - airH2O 600S (8.0/10.0 HP)



5.2.4 Space cooling (Necessary cooling kit)



5.3 Hydraulic working range

5.3.1 Hydraulic data

◆ Split system - airH2O 600S

Model		1.5 HP	2.0 HP	2.5 HP	3.0 HP
Minimum water flow rate (*1)	m ³ /h	0.5	0.5	0.6	0.6
Maximum water flow rate (*1)	m ³ /h	2.1	2.1	2.5	2.5
Minimum installation water volume (*2)	l	28	28	28	28
Minimum allowable water pressure	MPa	0.1	0.1	0.1	0.1
Maximum allowable water pressure	MPa	0.3	0.3	0.3	0.3

Model		3.5 HP	4.0 HP	5.0 HP	6.0 HP
Minimum water flow rate (*1)	m ³ /h	1.0	1.0	1.1	1.2
Maximum water flow rate (*1)	m ³ /h	2.8	2.8	3.0	3.0
Minimum installation water volume (*2)	l	50	50	55	55
Minimum allowable water pressure	MPa	0.1	0.1	0.1	0.1
Maximum allowable water pressure	MPa	0.3	0.3	0.3	0.3

Model		8.0 HP	10.0 HP
Minimum water flow rate (*1)	m ³ /h	2.0	2.2
Maximum water flow rate (*1)	m ³ /h	4.5	4.6
Minimum installation water volume (*2)	l	76	79
Minimum allowable water pressure	MPa	0.1	0.1
Maximum allowable water pressure	MPa	0.3	0.3

(*1): Values calculated based on the following conditions: Water inlet/outlet temperature: 30/35°C, Outdoor ambient temperature: (DB/WB): 7/6 °C.

(*2): Values calculated with an ON/OFF temperature differential value of 4 °C.

◆ Split system - airH2O 600S Combi

Model		1.5 HP	2.0 HP	2.5 HP	3.0 HP
Minimum water flow rate (*1)	m ³ /h	0.5	0.5	0.6	0.6
Maximum water flow rate (*1)	m ³ /h	2.1	2.1	2.5	2.5
Minimum installation water volume (*2)	l	28	28	28	28
Minimum allowable water pressure	MPa	0.1	0.1	0.1	0.1
Maximum allowable water pressure	MPa	0.3	0.3	0.3	0.3

Model		3.5 HP	4.0 HP	5.0 HP	6.0 HP
Minimum water flow rate (*1)	m ³ /h	1.0	1.0	1.1	1.2
Maximum water flow rate (*1)	m ³ /h	2.7	2.7	2.8	2.8
Minimum installation water volume (*2)	l	50	50	55	55
Minimum allowable water pressure	MPa	0.1	0.1	0.1	0.1
Maximum allowable water pressure	MPa	0.3	0.3	0.3	0.3

(*1): Values calculated based on the following conditions: Water inlet/outlet temperature: 30/35°C, Outdoor ambient temperature: (DB/WB): 7/6 °C.

(*2): Values calculated with an ON/OFF temperature differential value of 4 °C.

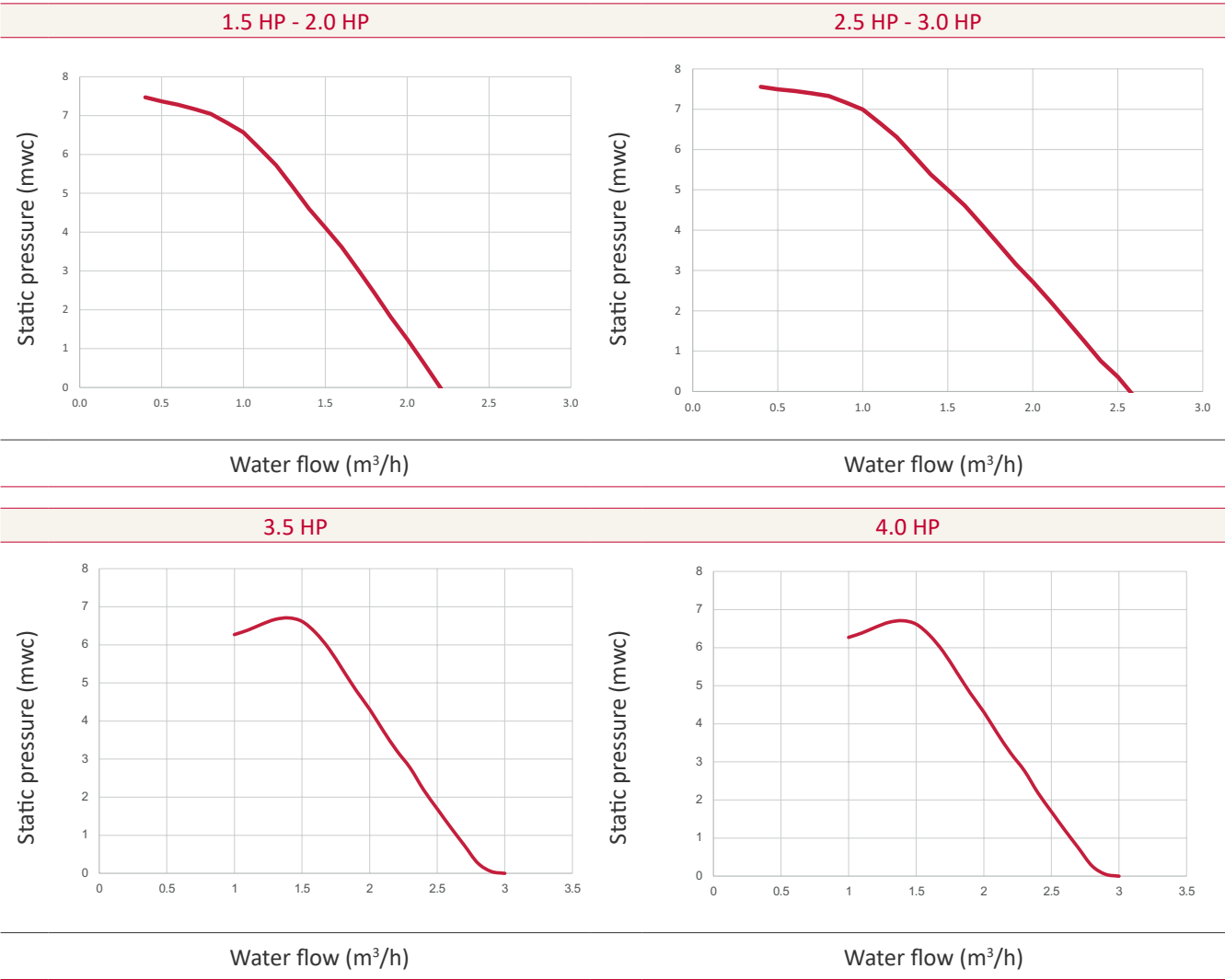
5.3.2 Pump performance curves

Operate the pump within the minimum and maximum water flow of the indoor unit following the tables below.

i NOTE

When a water flow rate is out of the working range of the unit, it can cause malfunction on the unit.

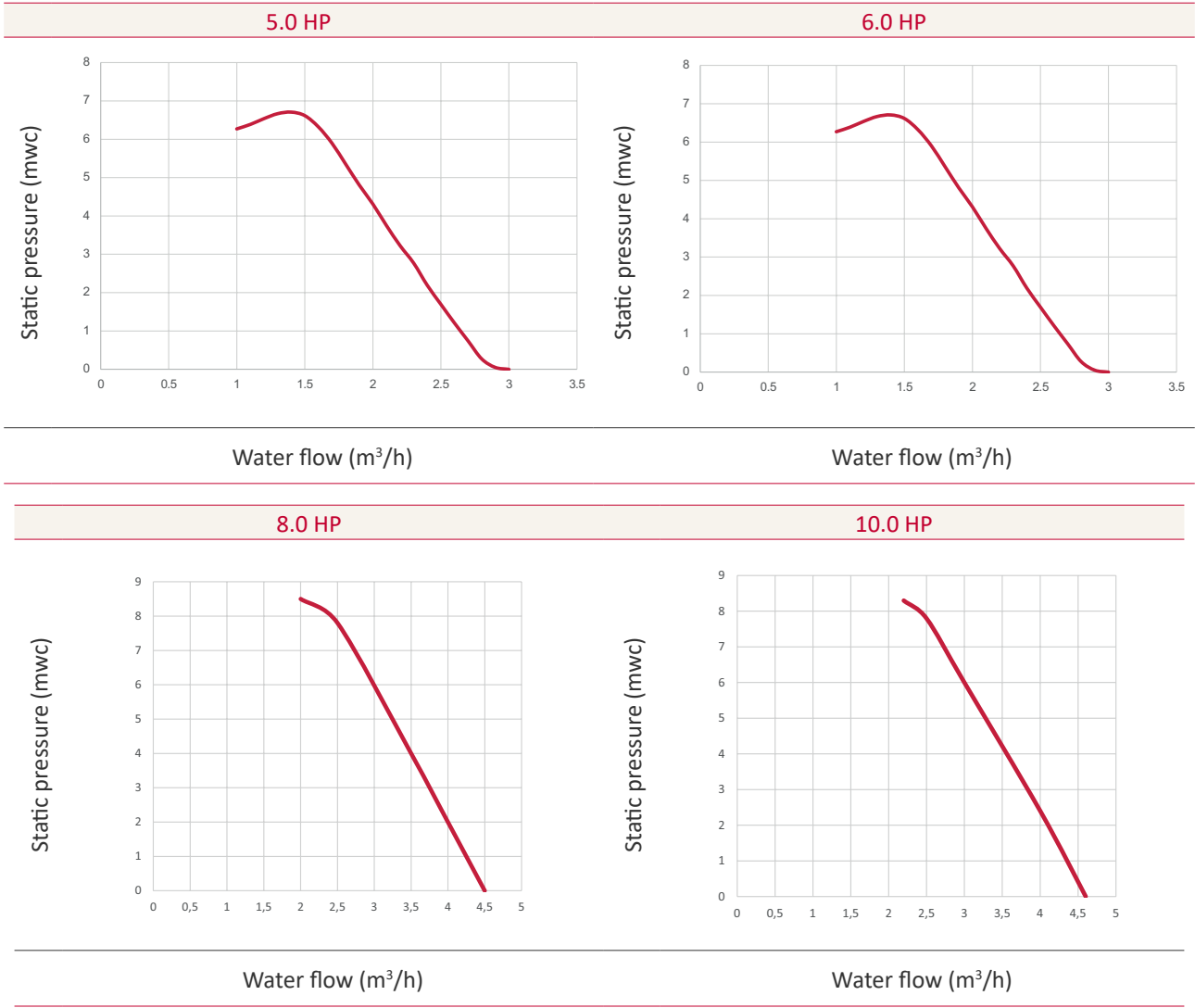
5.3.2.1 Split system - airH2O 600S



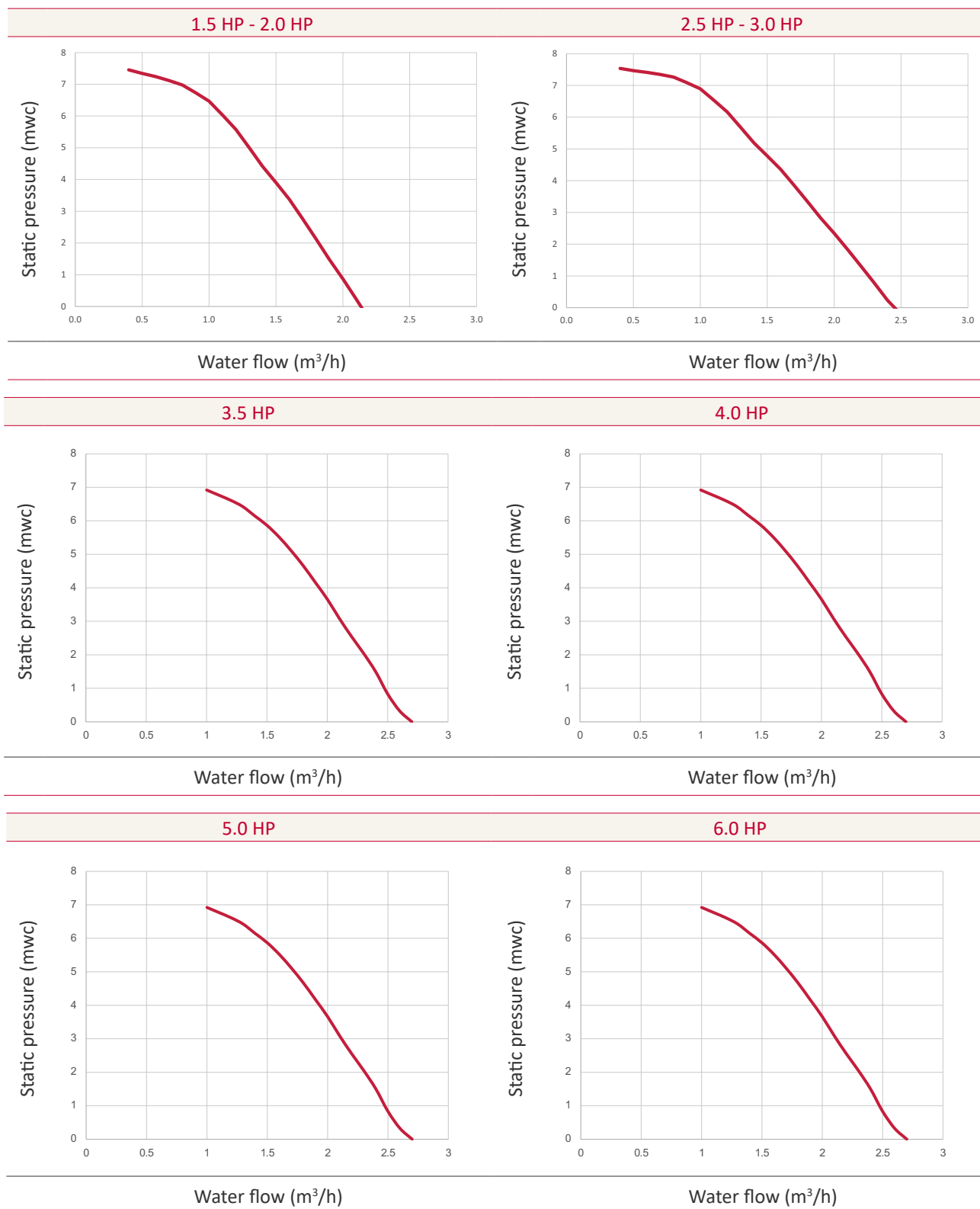
HYDRAULIC WORKING RANGE

WORKING RANGE

5



5.3.2.2 Split system - airH2O 600S Combi



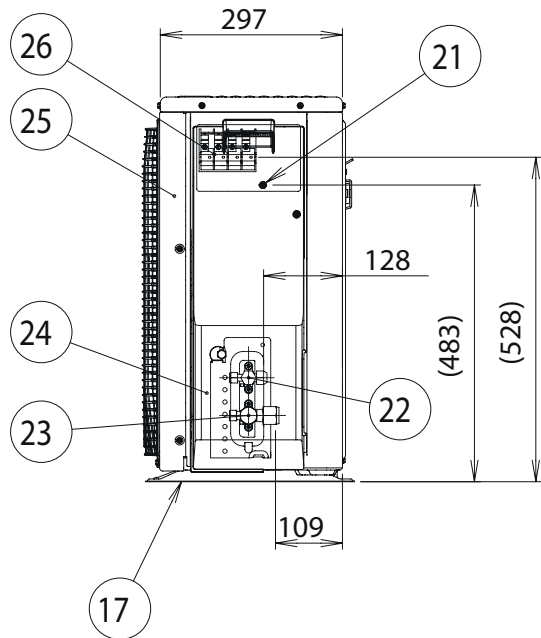
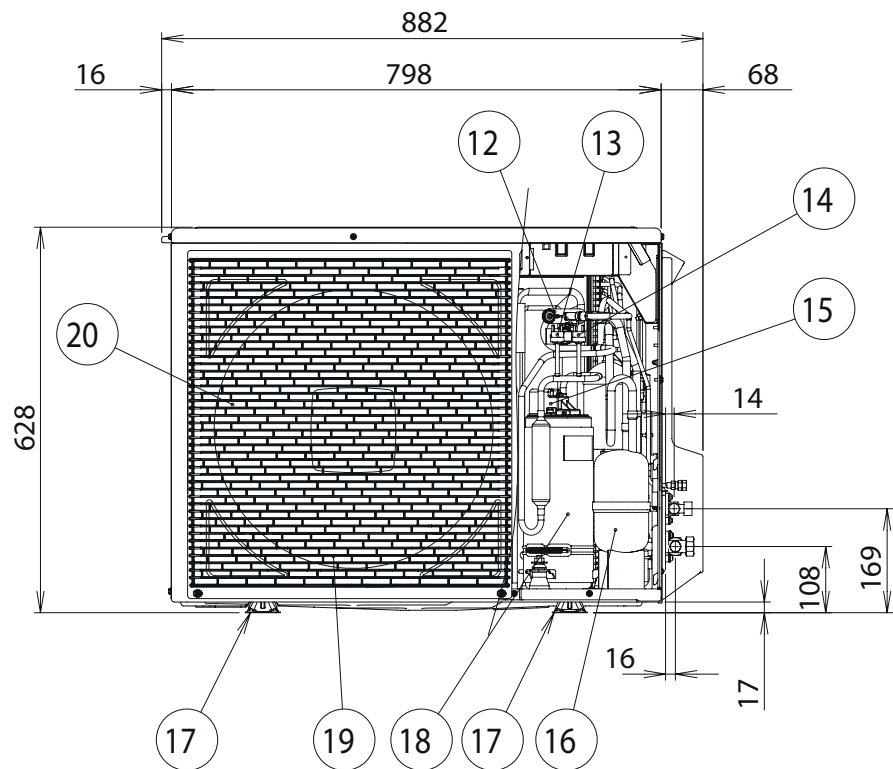
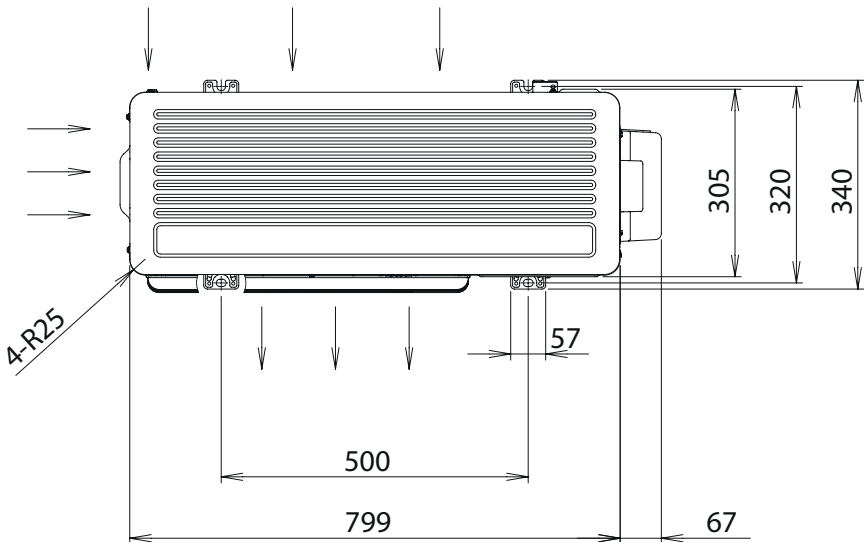
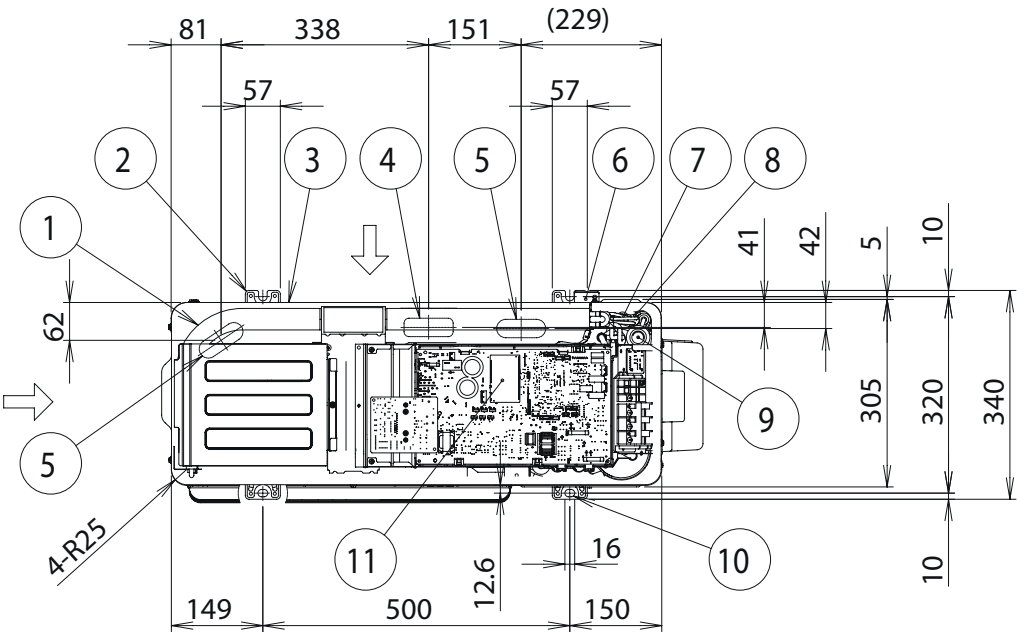
General dimensions

6.1	Name of parts and dimensional data.....	118
6.1.1	Split system- outdoor unit.....	118
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6.2.2.2	airH2O 600S Combi	134
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6.1 Name of parts and dimensional data

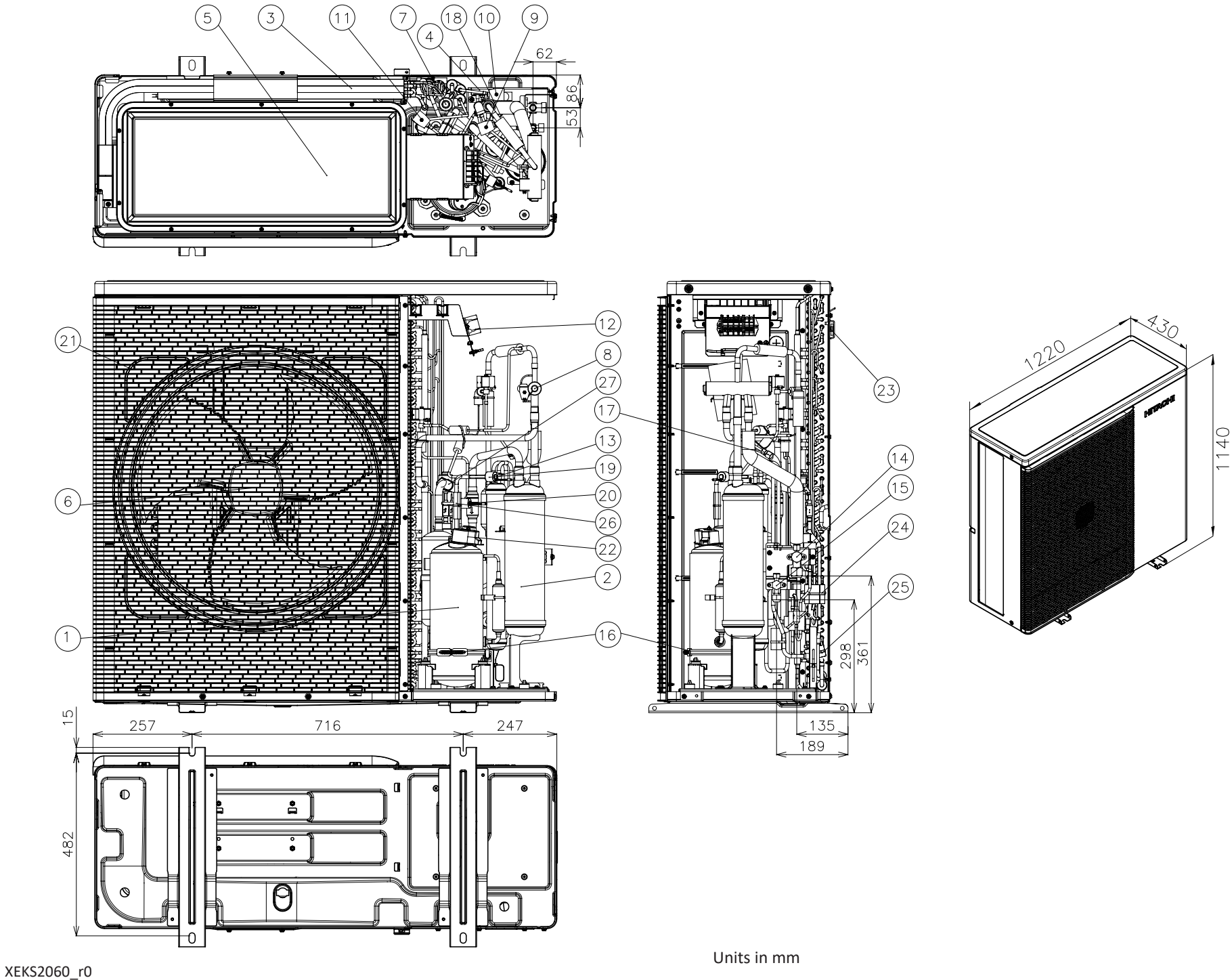
6.1.1 Split system - outdoor unit

◆ RAS-(1.5-3)WHVRP2E



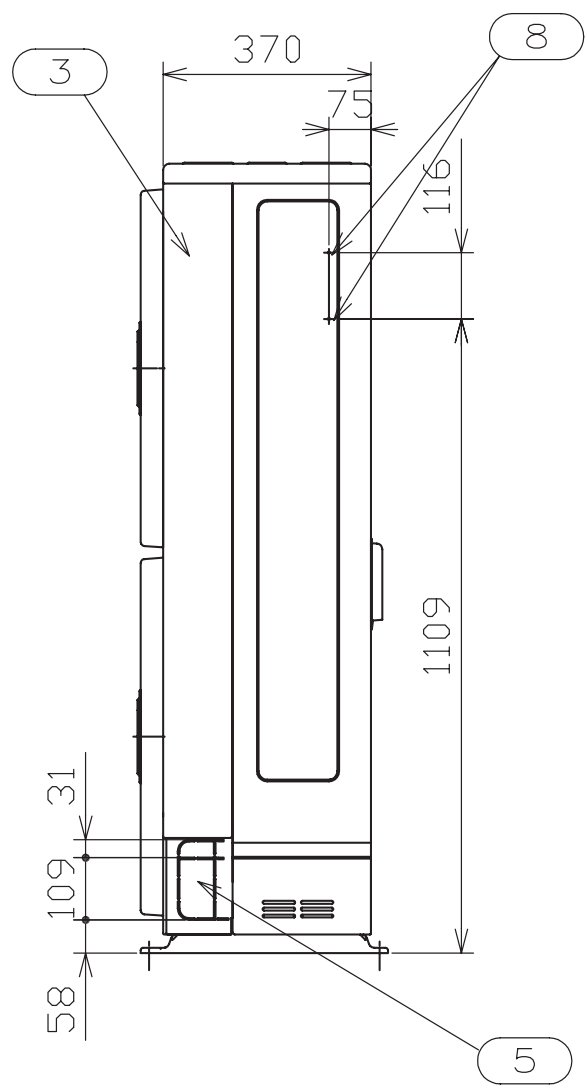
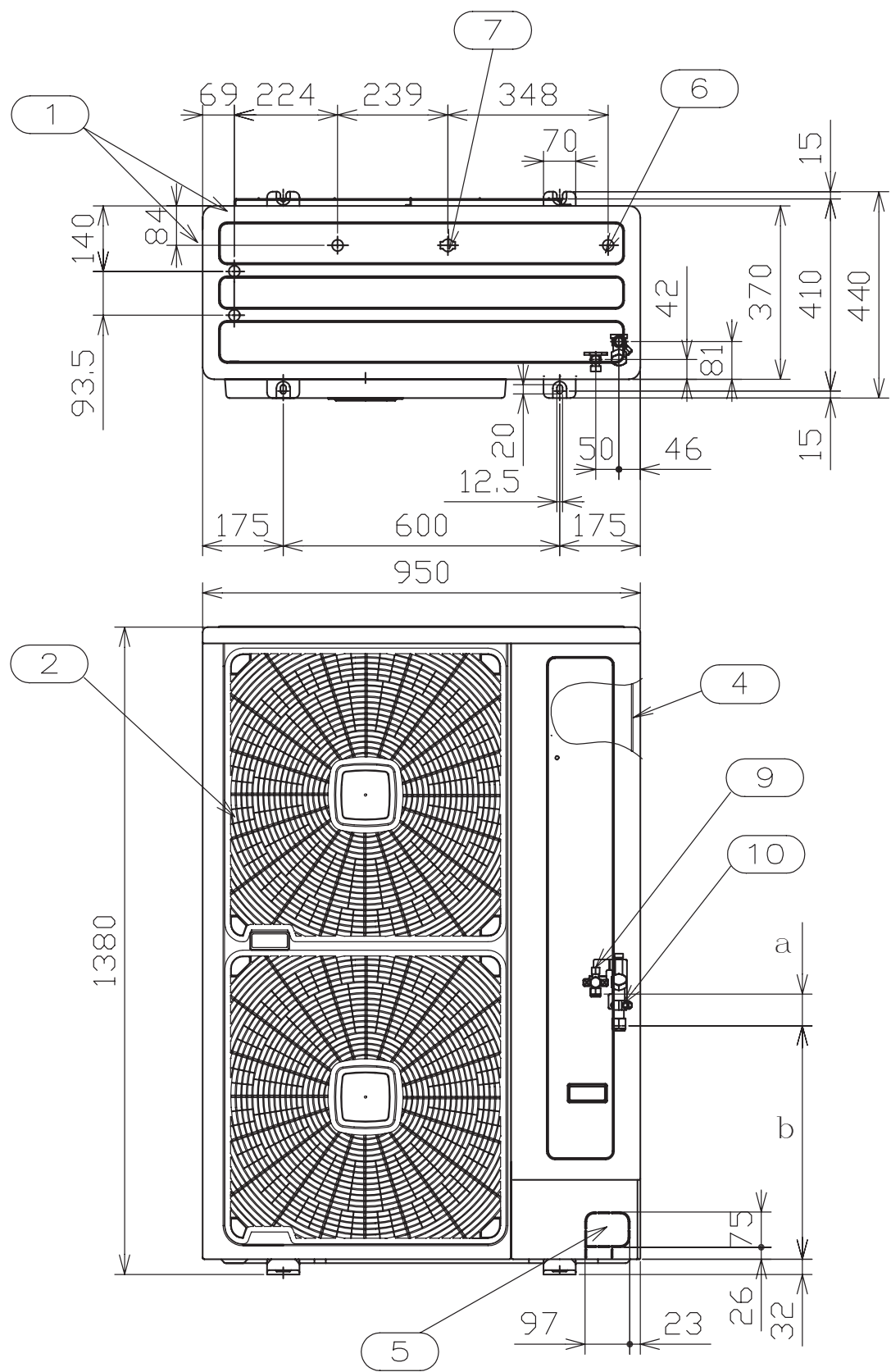
- 1. Air Side Heat Exchanger
- 2. Attachment hole for M10 anchor bolt (2 - U cut hole)
- 3. Air suction inlet
- 4. Punched drain hole (For drain pipe)
- 5. Punched drain hole (30 x 80 long hole)
- 6. Ambient thermistor
- 7. Liquid temperature thermistor
- 8. Liquid temperature thermistor
- 9. Expansion valve
- 10. Attachment hole for M 10 anchor bolt (2- long hole)
- 11. Electrical Box
- 12. Reversing Valve
- 13. High Pressure Switch (PSH)
- 14. Pressure Switch for Control (PSC)
- 15. Compressor Discharge Thermistor
- 16. Accumulator
- 17. Foot part
- 18. Compressor
- 19. Air discharge outlet
- 20. Fan (x1)
- 21. Terminal screw of earth wire (M5)
- 22. Connection of refrigerant liquid pipe (With flare nut for Ø 6.35 mm copper pipe)
- 23. Connection of refrigerant gas pipe (With flare nut for Ø 12.7 mm copper pipe)
- 24. Pipe cover
- 25. Service cover
- 26. Terminal board for power supply and transmission:
Terminal screw of power supply wire (M5)
Terminal screw of transmission wire (M4)

◆ RAS-(3.5-6)WH(V)RP2E



- 1. Compressor
- 2. Liquid accumulator
- 3. Air side exchanger
- 4. Economizer
- 5. Electrical box
- 6. Fan
- 7. Expansion valve (EVO)
- 8. Reversing valve
- 9. Solenoid valve (SVA)
- 10. Solenoid valve (SVE)
- 11. Solenoid valve (SVC)
- 12. Terminal board
- 13. High pressure switch (PSH)
- 14. Stop valve for gas line
- 15. Stop valve for liquid line
- 16. Compressor heater
- 17. Service valve
- 18. Expansion valve (EVE)
- 19. Sensor for refrigerant pressure (Pd)
- 20. Sensor for refrigerant pressure (Ps)
- 21. Protector grill
- 22. Klixon (top temperature protection)
- 23. Ta thermistor (ambient)
- 24. Te thermistor (evaporation)
- 25. Teco thermistor (outlet economizer)
- 26. Td thermistor (compressor discharge)
- 27. Ts thermistor (compressor suction)

◆ RAS-(8-10)WHNPE



- 1. Air inlet
- 2. Air outlet
- 3. Service cover
- 4. Electrical switch box
- 5. Holes for refrigerant piping and electrical wiring piping
- 6. Drain holes (3 - Ø 24 mm)
- 7. Drain holes (2 - Ø 26 mm)
- 8. Holes for fixing machine to wall (4- M5)
- 9. Refrigerant liquid pipe
- 10. Refrigerant gas pipe

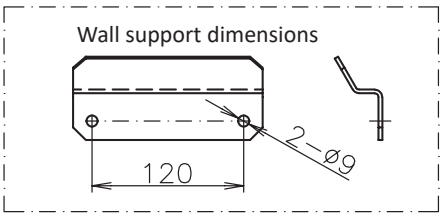
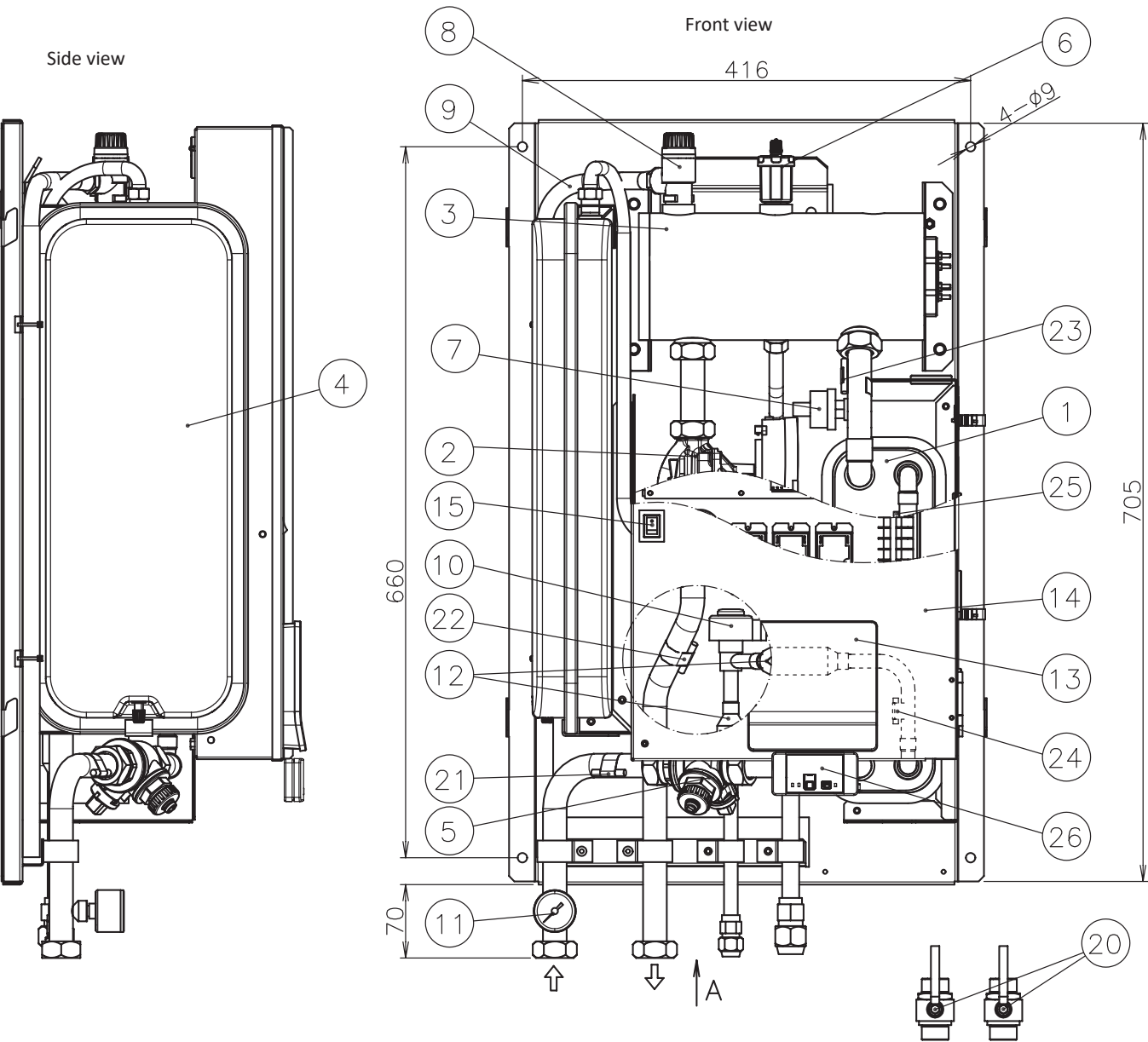
Dimension	a	b
Model		
RAS-8WHNPE	22.5	109
RAS-10WHNPE	26.5	103

Units: mm

6.1.2 Split system - indoor unit

6.1.2.1 airH2O 600S

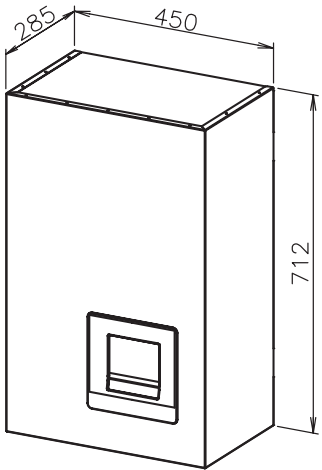
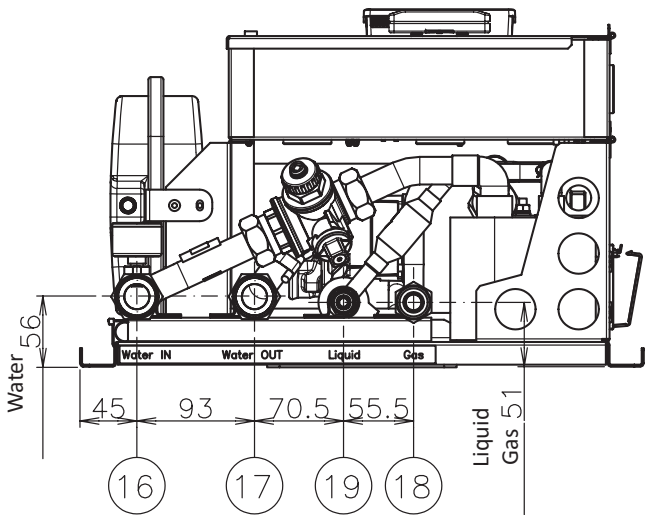
◆ airH2O 600S - RWM-(1.5-3.0)R3E



XEKS2067_r1

Units in mm

View from A

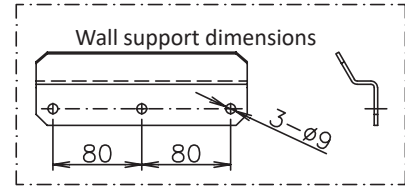
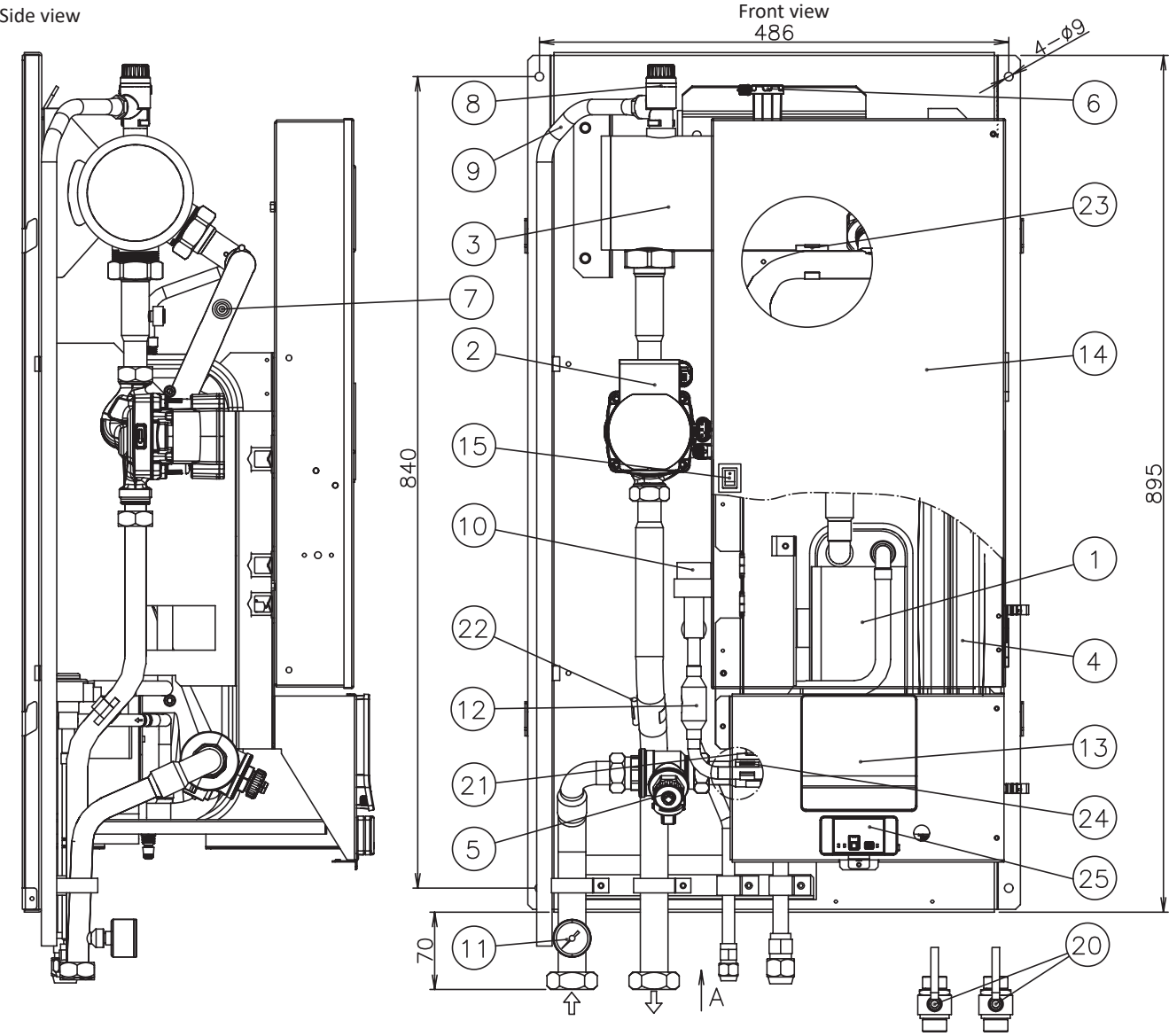


NOTE

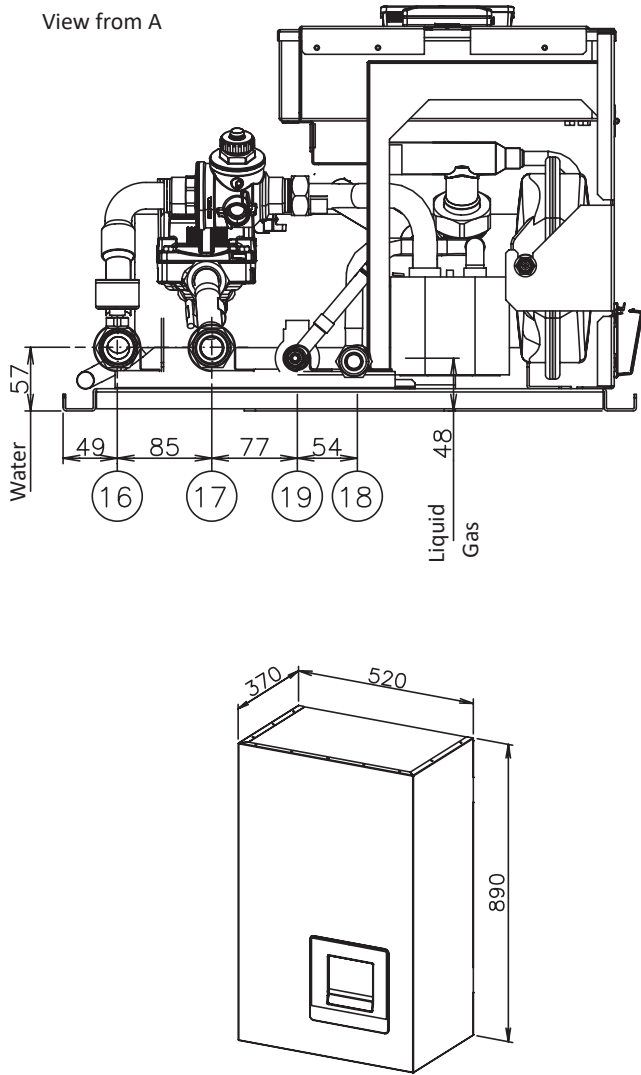
← Water flow direction

- 1. Plate heat exchanger
- 2. Water pump
- 3. Electric water heater
- 4. Expansion vessel 6 l
- 5. Water strainer
- 6. Air purger
- 7. Water pressure sensor
- 8. Safety valve
- 9. Drain pipe for safety valve
- 10. Expansion valve
- 11. Manometer
- 12. Refrigerant strainer (x2)
- 13. Unit controller
- 14. Electrical box
- 15. Switch for DHW emergency operation
- 16. Water inlet pipe connection - G 1" female
- 17. Water outlet pipe connection - G 1" female
- 18. Refrigerant gas pipe connection: Ø 12.7 mm (1/2")
- 19. Refrigerant liquid pipe connection - Ø 6.35 mm (1/4")
- 20. Shut-down valve (Factory-supplied accessory)
- 21. Thermistor (Water inlet pipe)
- 22. Thermistor (Water outlet pipe)
- 23. Thermistor (Water outlet PHEX)
- 24. Thermistor (Liquid refrigerant pipe)
- 25. Thermistor (Gas refrigerant pipe)
- 26. IOT Gateway

◆ airH2O 600S - RWM-(3.5-6.0)R3E



XEKS2068_r1
Units in mm

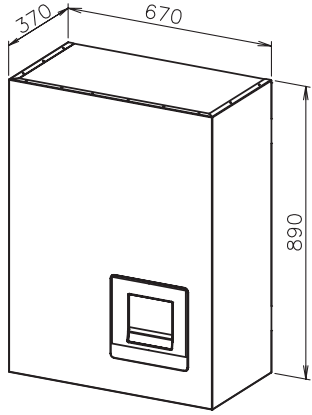
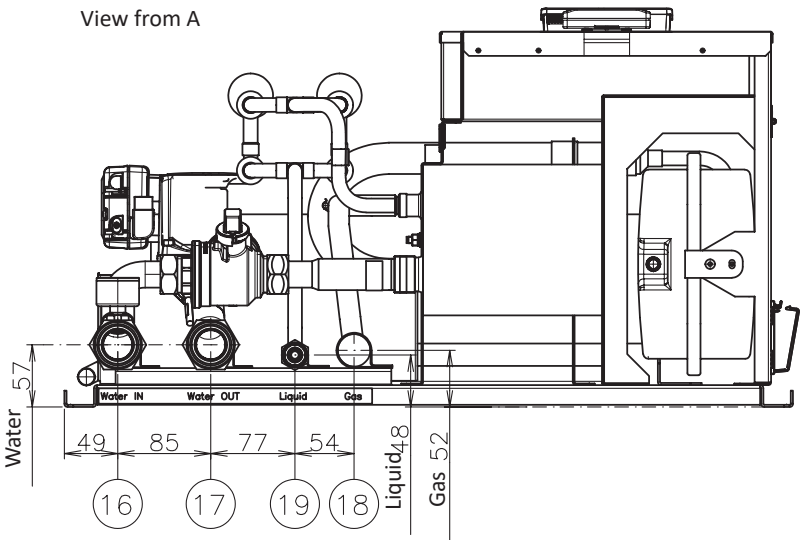
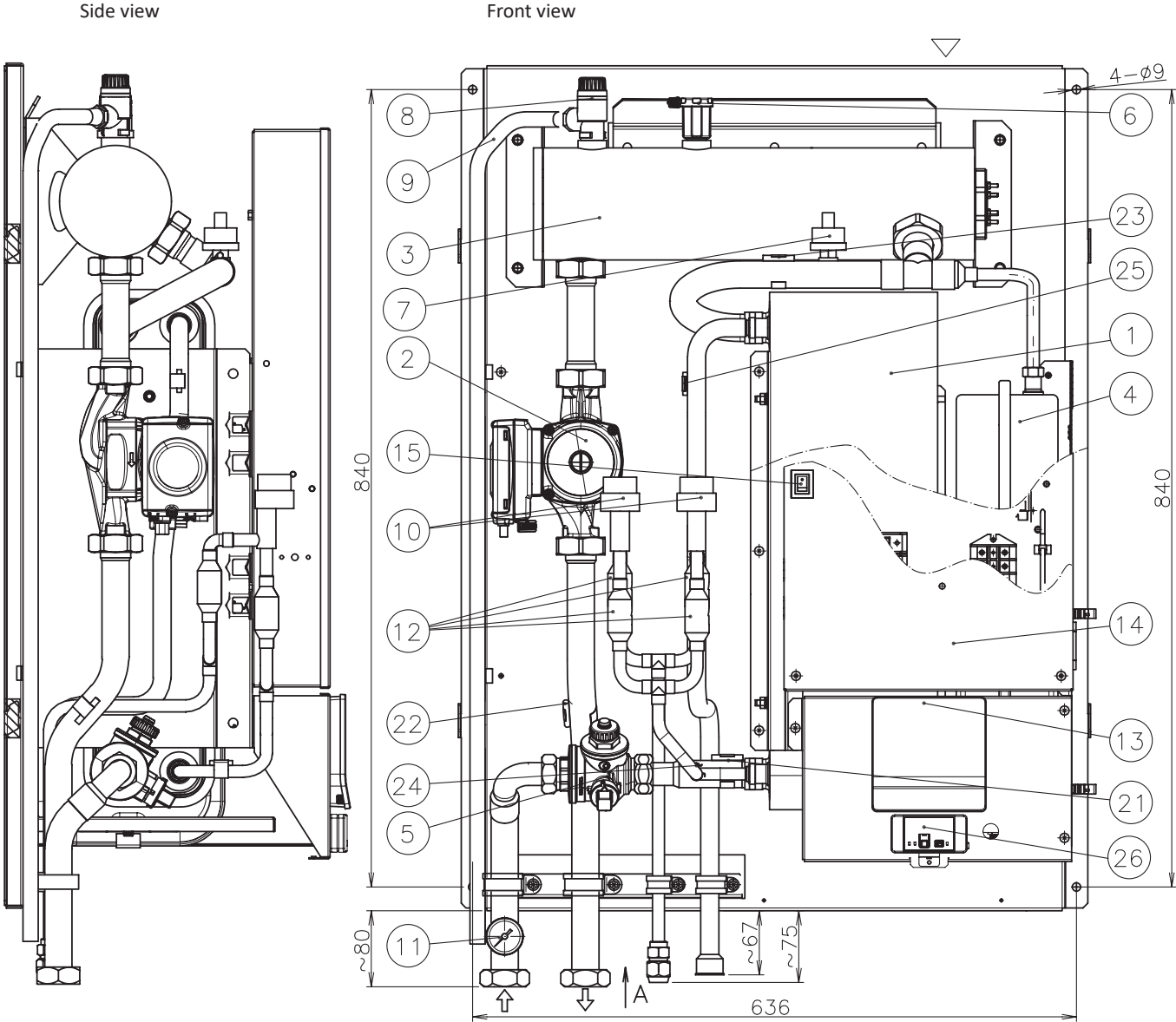


i NOTE

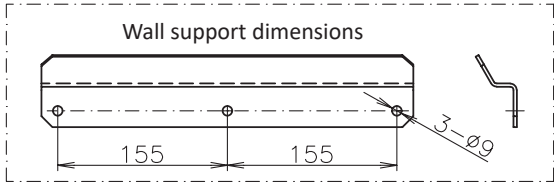
← Water flow direction

1. Plate heat exchanger
2. Water pump
3. Electric water heater
4. Expansion vessel 6 l
5. Water strainer
6. Air purger
7. Water pressure sensor
8. Safety valve
9. Drain pipe for safety valve
10. Expansion valve
11. Manometer
12. Refrigerant strainer (x2)
13. Unit controller
14. Electrical box
15. Switch for DHW emergency operation
16. Water inlet pipe connection - G 1" female
17. Water outlet pipe connection - G 1" female
18. Refrigerant gas pipe connection: $\varnothing$ 15.88 mm (5/8")
19. Refrigerant liquid pipe connection - $\varnothing$ 6.35 mm (1/4")
20. Shut-down valve (Factory-supplied accessory)
21. Thermistor (Water inlet pipe)
22. Thermistor (Water outlet pipe)
23. Thermistor (Water outlet PHEX)
24. Thermistor (Liquid refrigerant pipe)
25. IOT Gateway

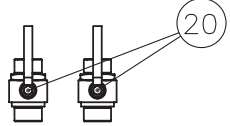
◆ airH2O 600S - RWM-(8.0/10.0)N3E



- 1. Plate heat exchanger
- 2. Water pump
- 3. Electric water heater
- 4. Expansion vessel 10L
- 5. Water strainer
- 6. Air purger
- 7. Water pressure sensor
- 8. Safety valve
- 9. Drain pipe for safety valve
- 10. Expansion valve (x2)
- 11. Manometer
- 12. Refrigerant strainer (x4)
- 13. Unit controller
- 14. Electrical box
- 15. Switch for DHW emergency operation
- 16. Water inlet pipe connection - G 1 1/4" Female
- 17. Water outlet pipe connection - G 1 1/4" Female
- 18. Refrigerant gas pipe connection - Ø 25.4 mm (1")
- 19. Refrigerant liquid pipe connection 8 HP: Ø 9.52 mm (3/8") / 10 HP: Ø 12.7 mm (1/2")
- 20. Shut-down valve (factory-supplied accessory)
- 21. Thermistor (Water inlet pipe)
- 22. Thermistor (Water outlet pipe)
- 23. Thermistor (Water outlet PHEX)
- 24. Thermistor (Liquid refrigerant pipe)
- 25. Thermistor (Gas refrigerant pipe)
- 26. IOT Gateway



Units: mm
XEKS2069_r1



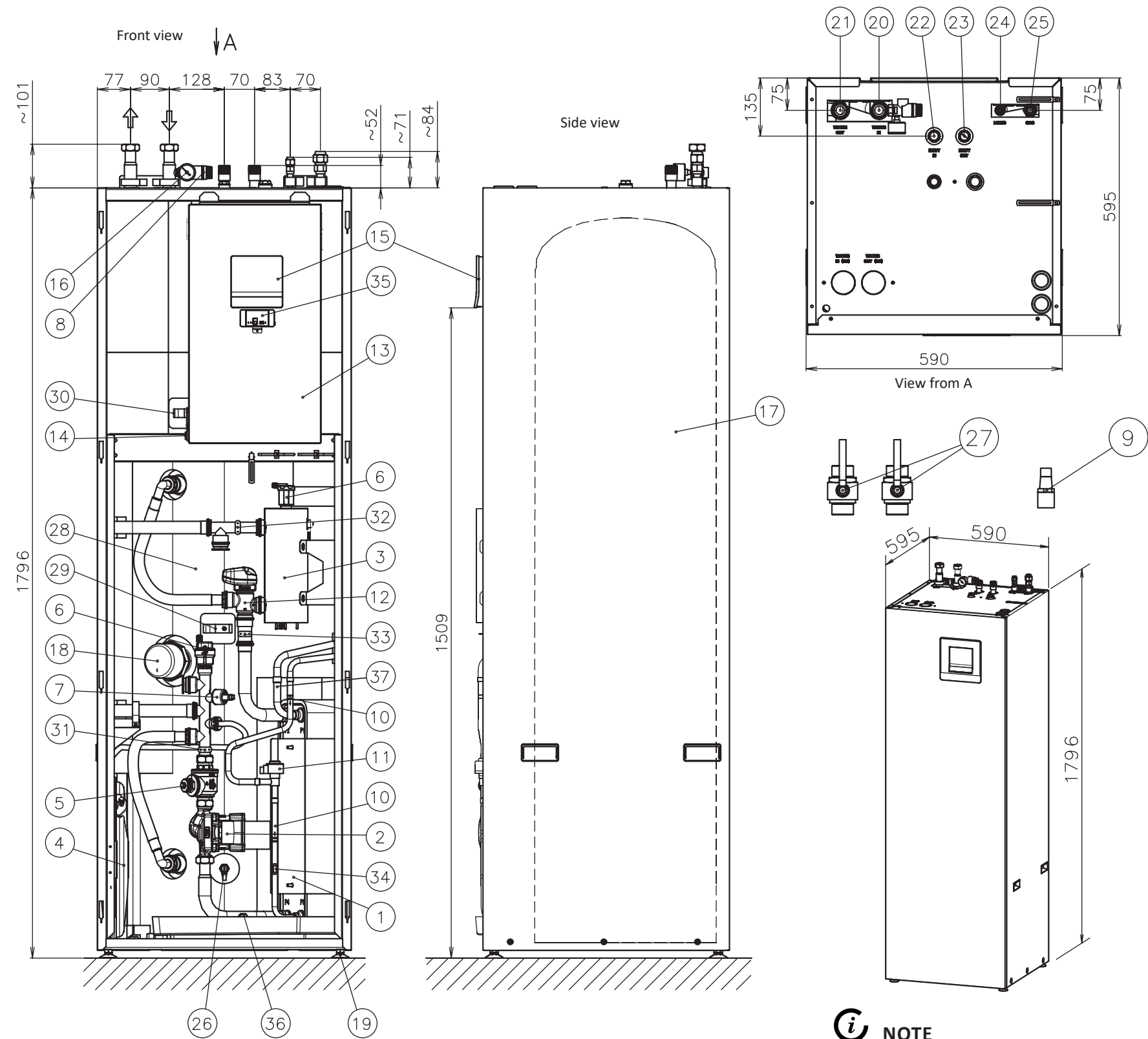
i NOTE

↔ Water flow direction

GENERAL DIMENSIONS 6 NAME OF PARTS AND DIMENSIONAL DATA

6.1.2.2 airH2O 600S Combi

◆ airH2O600S Combi - RWD-(1.5-6.0)RW3E-220S(-6H)



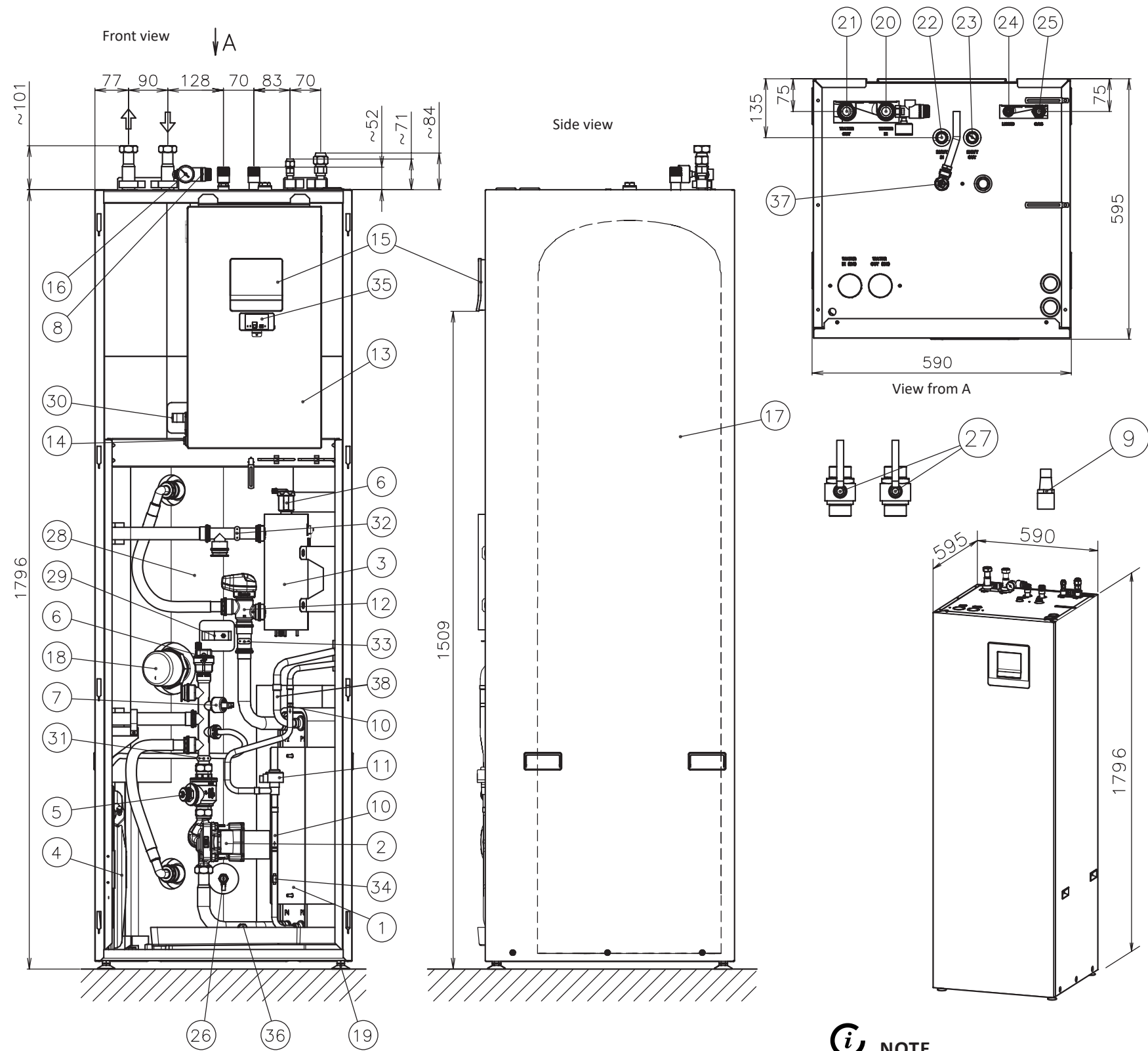
XEKS2066_r0
Units in: mm

i NOTE

← Water flow direction

- 1. Plate heat exchanger
- 2. Water pump
- 3. Electric water heater (Standard model: 3 kW / 6H model: 6 kW)
- 4. Expansion vessel 6L
- 5. Water strainer
- 6. Air purger (x2)
- 7. Water pressure sensor
- 8. Safety valve
- 9. Drain pipe for safety valve (factory-supplied accessory)
- 10. Refrigerant strainer (x2)
- 11. Expansion valve
- 12. 3-way valve (for space heating and DHW)
- 13. Electrical box
- 14. Switch for DHW emergency operation
- 15. Unit controller
- 16. Manometer
- 17. DHW tank (220 l)
- 18. DHW tank heater+thermostat
- 19. Mounting foot (x4)
- 20. Water inlet connection - G 1" female
- 21. Water outlet connection - G 1" female
- 22. DHW inlet connection - G 3/4" male
- 23. DHW outlet connection - G 3/4" male
- 24. Refrigerant liquid connection - Ø 6.35 mm (1/4")
- 25. Refrigerant gas pipe connection - 1.5-3 HP: Ø 12.7 mm (1/2") - 3.5-6 HP: Ø 15.88 mm (5/8")
- 26. Drain port (For DHW) - G 3/8"
- 27. Shutdown valve (Factory supplied accessory)
- 28. Tank insulation
- 29. DHW thermistor 1 (down)
- 30. DHW thermistor 2 (up)
- 31. Water inlet thermistor (THMwi)
- 32. Water outlet thermistor (THMwo)
- 33. Water outlet PHEX thermistor (THMwohp)
- 34. Refrigerant liquid pipe thermistor (THML)
- 35. IOT Gateway
- 36. Drain port (for unit) - G 3/8"
- 37. Refrigerant gas pipe thermostat (THMG)(Only for 1.5-3 HP)

◆ airH2O600S Combi - RWD-(1.5-6.0)RW3E-220S-K



XEKS2066_r0
Units in: mm

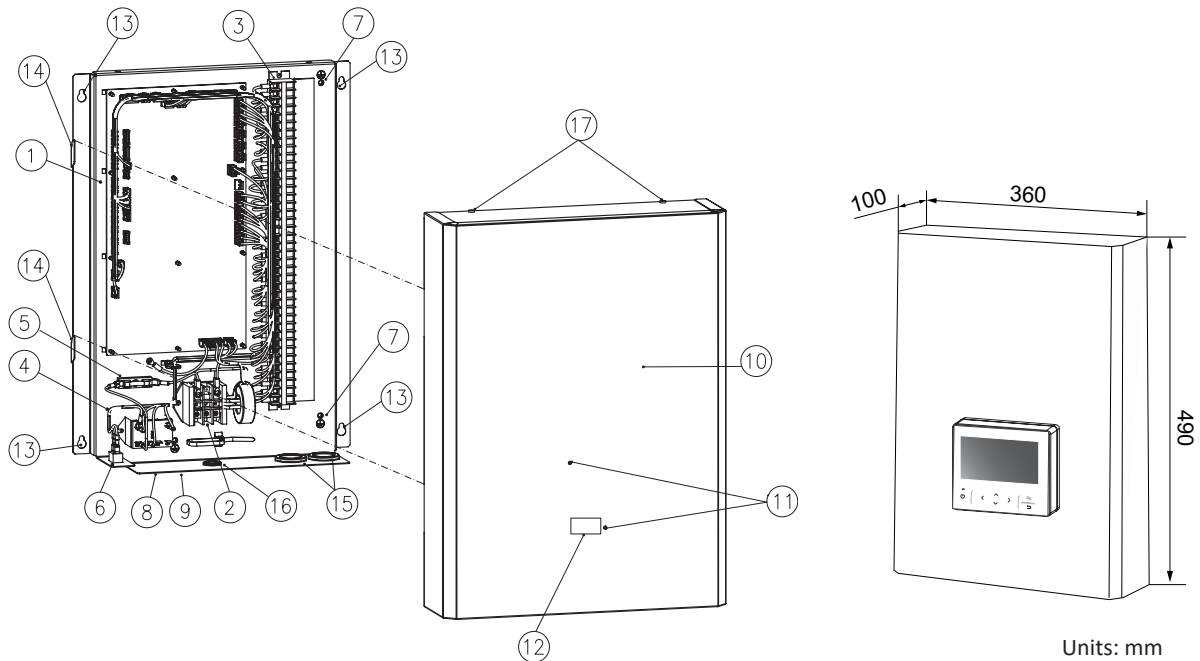
i NOTE

← Water flow direction

1. Plate heat exchanger
2. Water pump
3. Electric water heater - 3 kW
4. Expansion vessel 6L
5. Water strainer
6. Air purger (x2)
7. Water pressure sensor
8. Safety valve
9. Drain pipe for safety valve (factory-supplied accessory)
10. Refrigerant strainer (x2)
11. Expansion valve
12. 3-way valve (for space heating and DHW)
13. Electrical box
14. Switch for DHW emergency operation
15. Unit controller
16. Manometer
17. DHW tank (220 l)
18. DHW tank heater+thermostat
19. Mounting foot (x4)
20. Water inlet connection - G 1" female
21. Water outlet connection - G 1" female
22. DHW inlet connection - G 3/4" male
23. DHW outlet connection - G 3/4" male
24. Refrigerant liquid connection - $\varnothing$ 6.35 mm (1/4")
25. Refrigerant gas pipe connection - 1.5-3 HP: $\varnothing$ 12.7 mm (1/2") - 3.5-6 HP: $\varnothing$ 15.88 mm (5/8")
26. Drain port (For DHW) - G 3/8"
27. Shutdown valve (Factory supplied accessory)
28. Tank insulation
29. DHW thermistor 1 (down)
30. DHW thermistor 2 (up)
31. Water inlet thermistor (THMwi)
32. Water outlet thermistor (THMwo)
33. Water outlet PHEX thermistor (THMwohp)
34. Refrigerant liquid pipe thermistor (THML)
35. IOT Gateway
36. Drain port (for unit) - G 3/8"
37. P and T valve
38. Refrigerant gas pipe thermostat (THMG)(Only for 1.5-3 HP)

6.1.3 Complementary system - Cascade Controller

◆ ATW-YCC-04



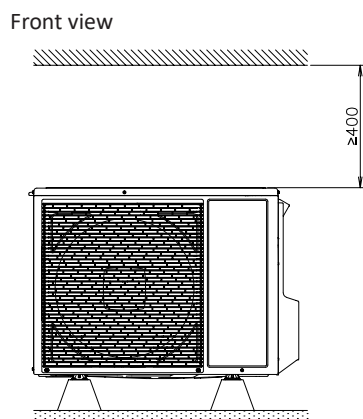
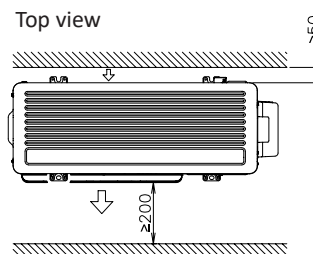
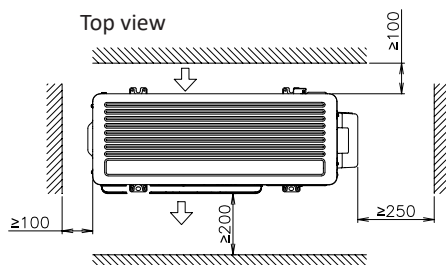
- 1.** Electrical Box
- 2.** Terminal Board (TB1)
- 3.** Terminal Board (TB2)
- 4.** Relay (AR1)
- 5.** Fuse (EF1) and Fuse holder
- 6.** Switch for DHW emergency operation
- 7.** Earth screw
- 8.** Model Label (Bottom)
- 9.** Electrical data label (Bottom)

- 10.** Service cover
- 11.** LCD unit controller assembly holes (x2)
- 12.** LCD unit controller routing hole
- 13.** Wall mounting holes (x4)
- 14.** Service cover assembly hooks (x2)
- 15.** Rubber bushing for control wiring (x2)
- 16.** Rubber bushing for power supply wiring
- 17.** Service cover fixation screws (x2)

6.2 Service space

6.2.1 Split system - outdoor unit

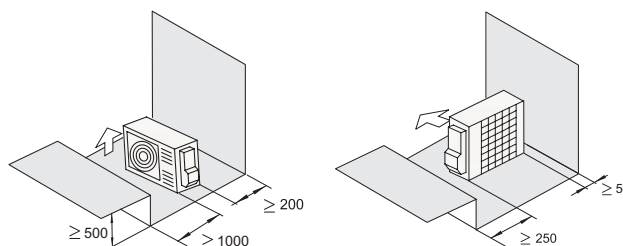
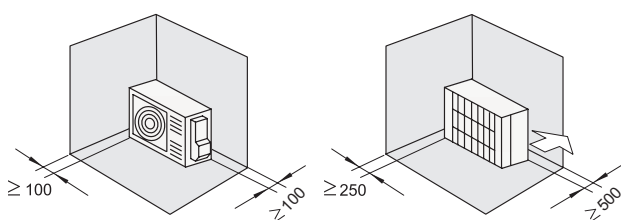
◆ RAS-(1.5-3)WHVRP2E



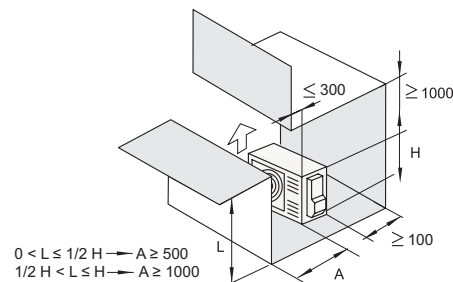
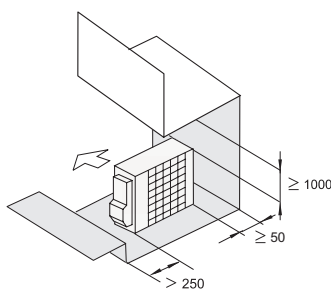
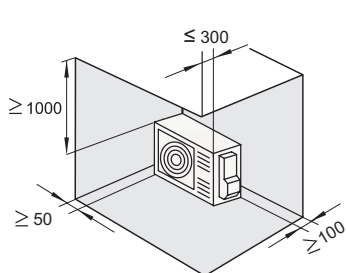
Units in mm.

a) In case of front side and either of the sides are open (single unit)

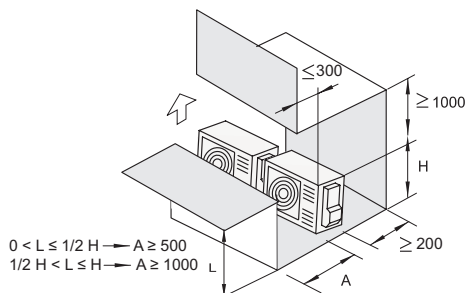
b) In case that surrounding wall exist (single unit)



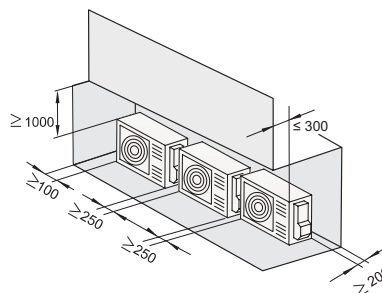
c) In case that upper side obstacles exist (single unit)



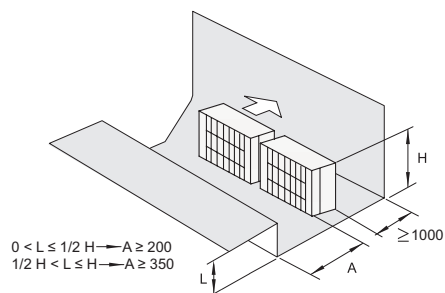
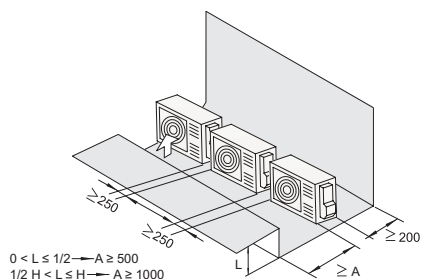
d) In case that upper side obstacles exist
(serial units)



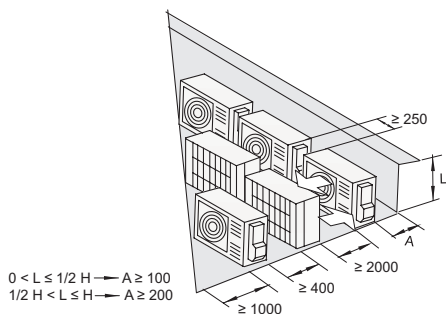
e) In case of front side and either of the sides are open
(serial units)



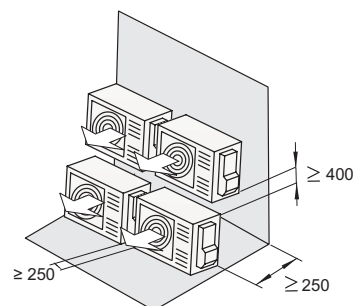
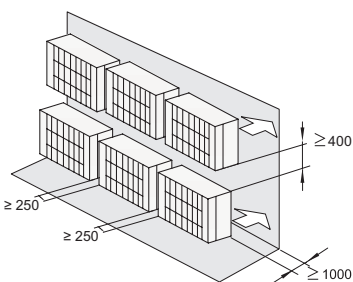
f) In case that surrounding wall exist (serial units)



g) Horizontal (multiple units)

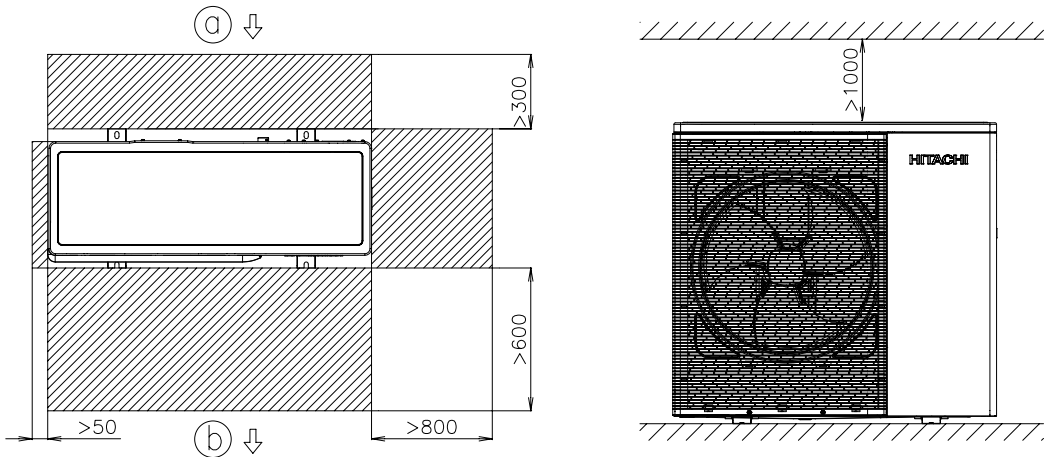


h) Vertical (multiple units)



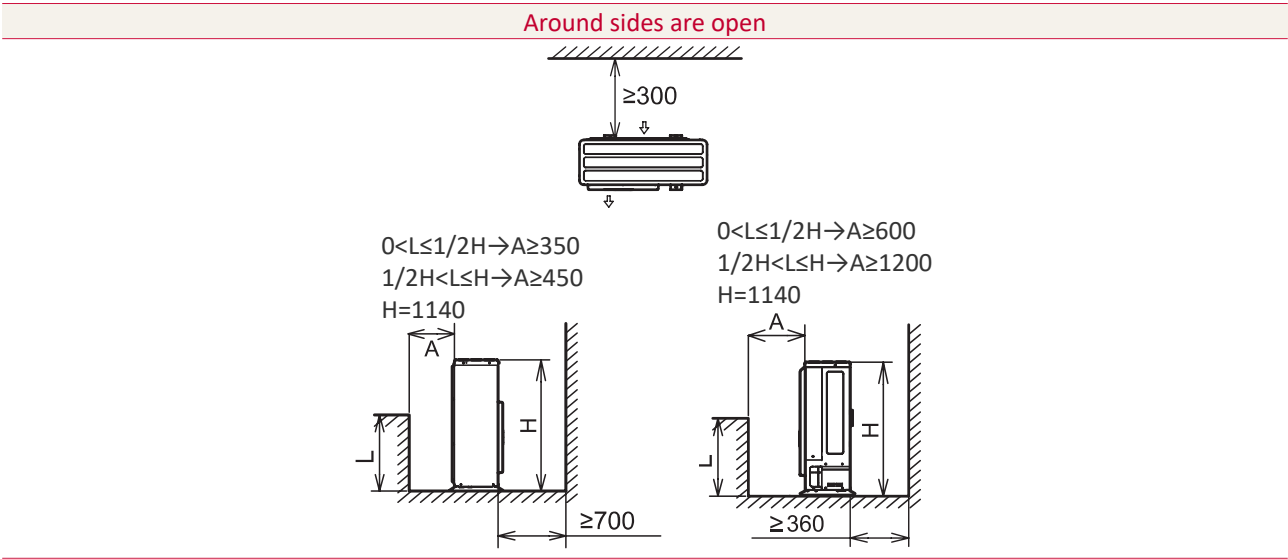
Do not stack more than two units in height. - Close gap to avoid recirculating discharge air flow.

◆ RAS-(3.5-6)WH(V)RP2E

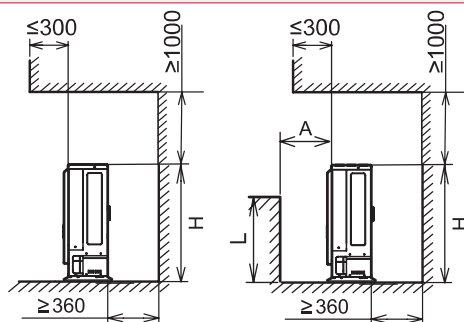


No.	Name
a	Air Inlet
b	Air Outlet

(Unit: mm)



Around sides are open with obstacles above

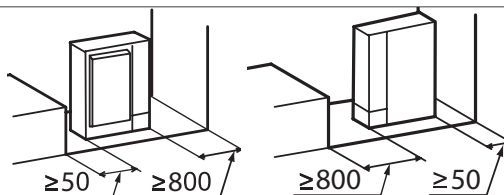
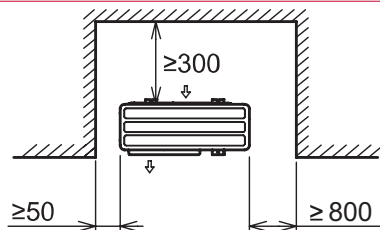


$$0 < L \leq 1/2H \rightarrow A \geq 600$$

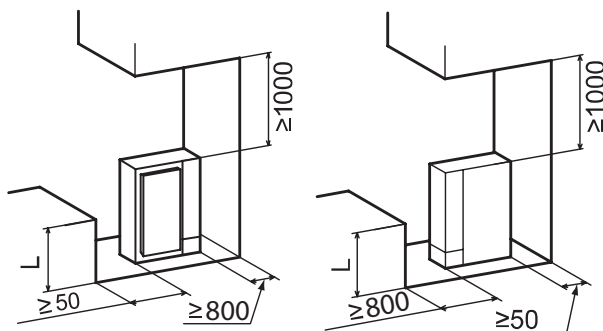
$$1/2H < L \leq H \rightarrow A \geq 1200$$

$$H = 1140$$

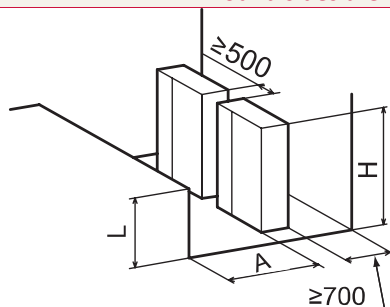
Around sides are closed



Around sides are open with obstacles above



Around sides are open



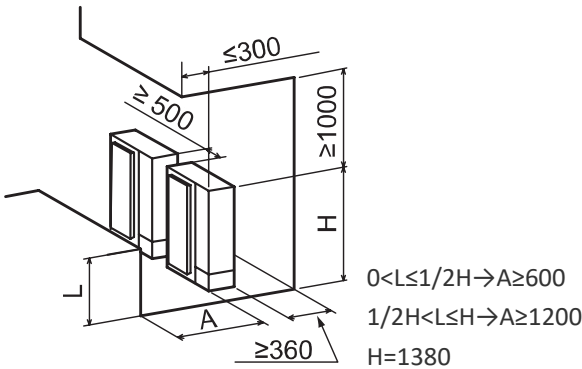
$$0 < L \leq 1/2H \rightarrow A \geq 350$$

$$1/2H < L \leq H \rightarrow A \geq 450$$

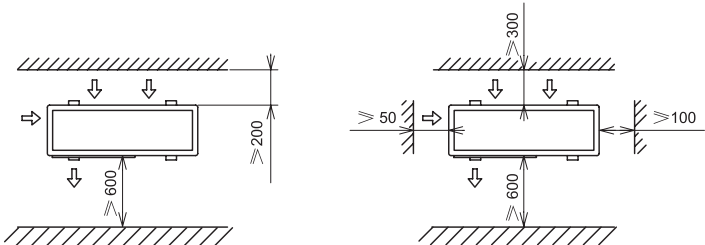
$$H = 1380$$

Around sides are open

Around sides are open with obstacles above



◆ RAS-(8/10)WHNPE



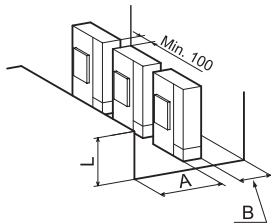
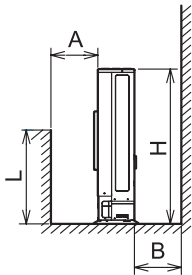
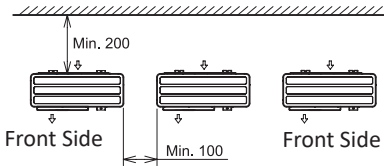
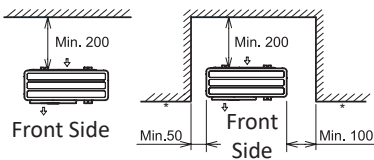
Units: mm

Blocked in Inlet Side

Upper Side Open

Single Installation

Multiple Installation (Two units or more)

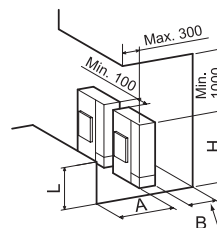
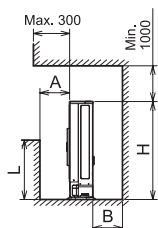
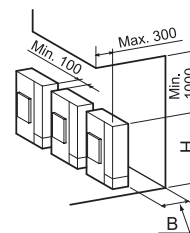
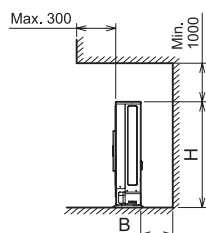


Blocked in Inlet Side

Upper Side Blocked

Single Installation

Multiple Installation (Two units or more)

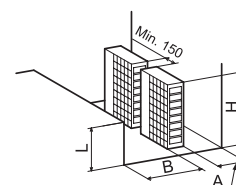
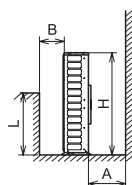
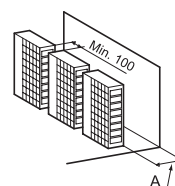
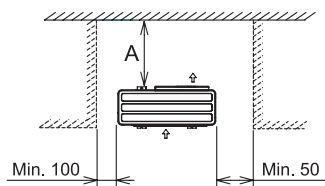


Outlet Side Blocked

Upper Side Open

Single Installation

Multiple Installation (Two units or more)

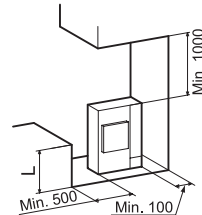
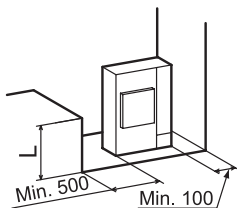
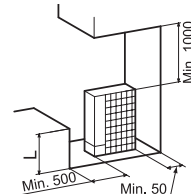
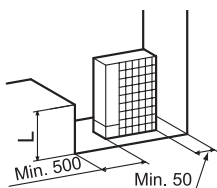


Right and Left Blocked

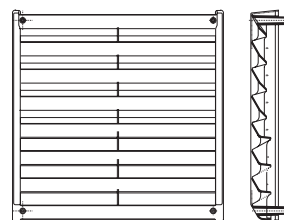
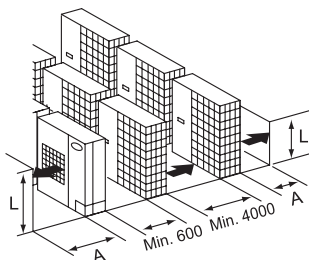
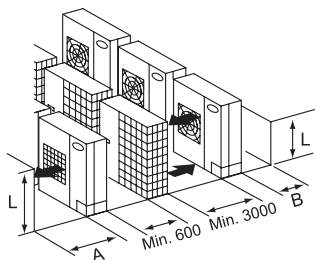
Upper Side Open

Upper Side Blocked

Single Installation



Multi-Row and Multiple Installations



Mount the airflow guide and provide sufficient space on both right and left sides.

When using airflow guide (AG-335A, optional), check that the discharged air is not short-circuited to the air inlet side.

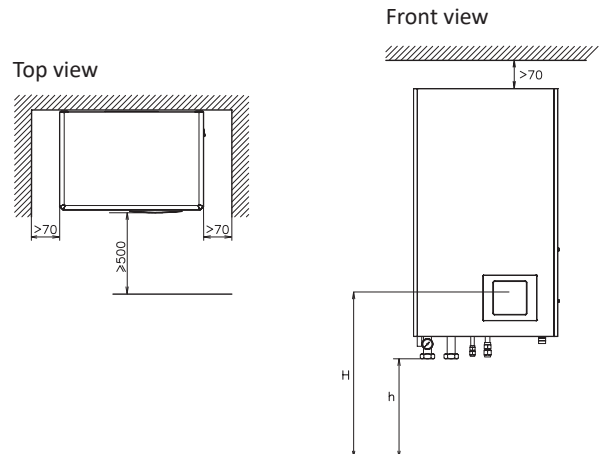
A		B	
$0 < L \leq 1/2H$	$1/2H < L \leq H$	$0 < L \leq 1/2H$	$1/2H < L \leq H$
Min. 600	Min. 1400	Min. 300	Min. 350

When $L > H$ use a base for outdoor unit to make $L \leq H$.
Close the base not to allow the outlet air bypassed.

6.2.2 Split system - indoor unit

6.2.2.1 airH2O 600S

◆ RWM-(1.5-10.0)(N/R)3E

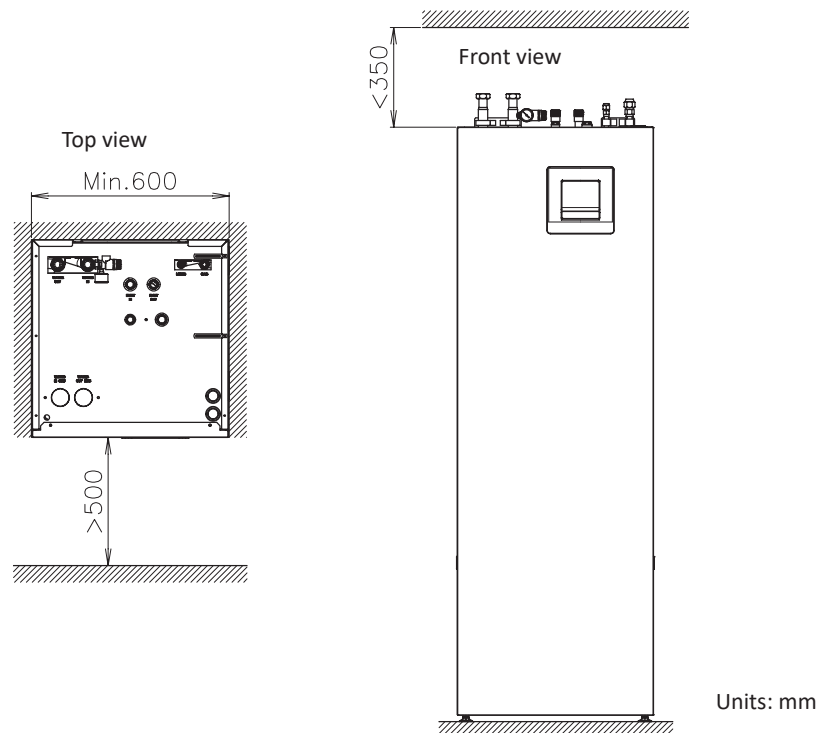


$H = 1200 - 1500$ mm: Recommended unit height for proper access to the control panel (LCD user's interface).

$h = 350$ mm: Minimum unit height for installing the shutdown valves and the first bending pipe line.

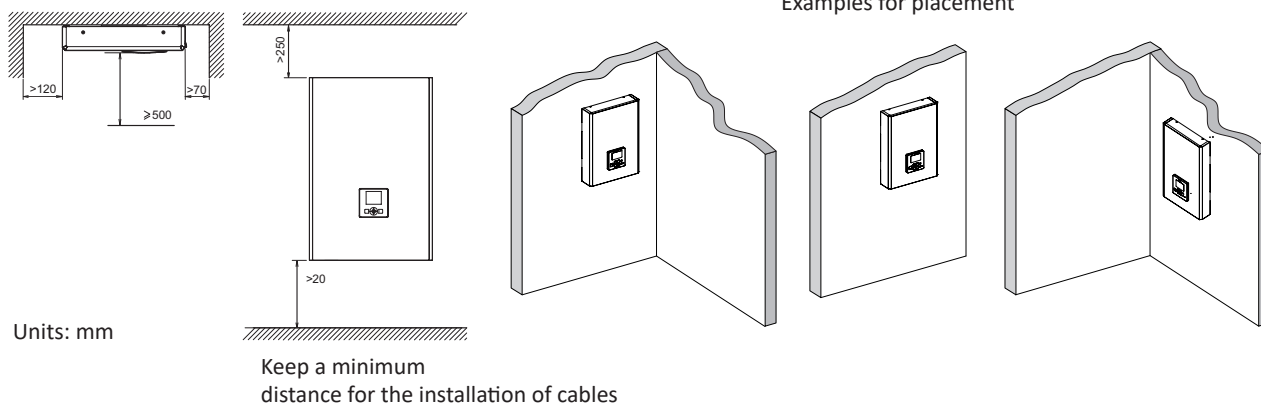
6.2.2.2 airH2O 600S Combi

◆ RWD-(1.5-6.0)RW3E-220S(-K/6H)



6.2.3 Complementary system - Cascade Controller

◆ ATW-YCC-04





Refrigerant cycle and hydraulic circuit

7.1 Split system- outdoor unit137

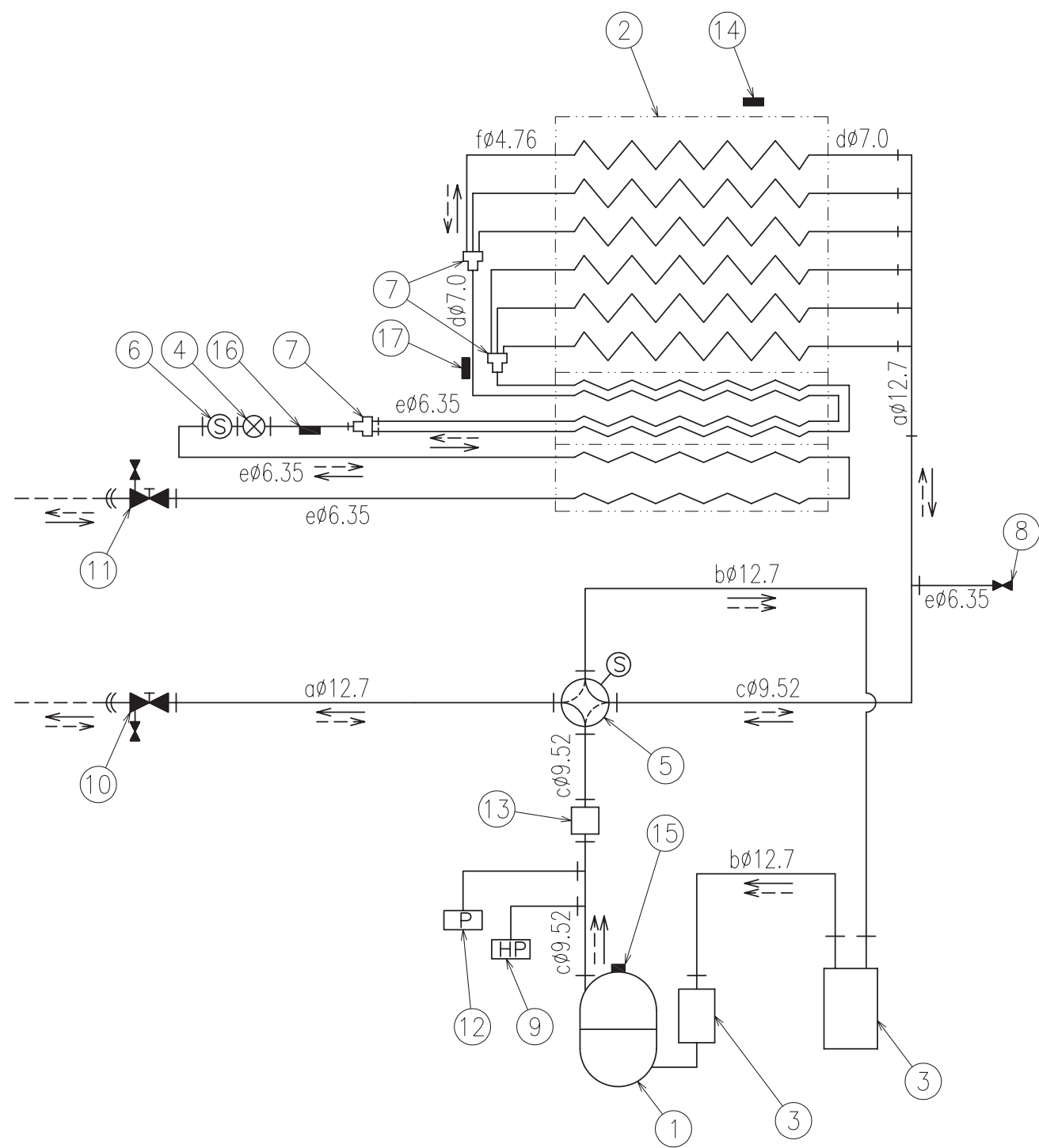
7.2 Split system- indoor unit140

7.2.1 **airH2O 600S**140

7.2.2 **airH2O 600S Combi**142

7.1 Split system - outdoor unit

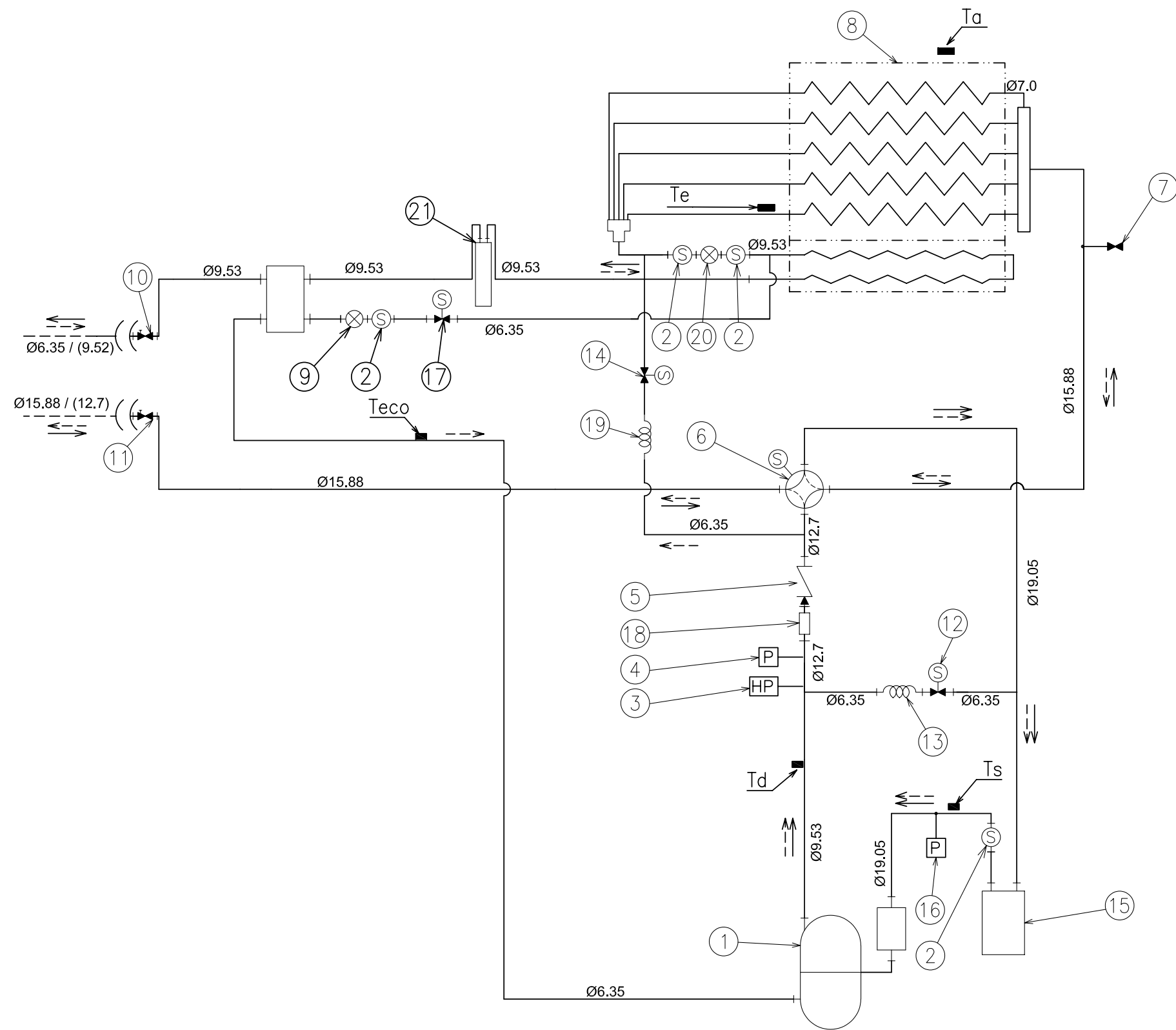
◆ RAS-(1.5-3)WHVRP2E



- 1. Compressor
- 2. Air side heat exchanger
- 3. Accumulator
- 4. Electronic expansion valve
- 5. 4-way valve
- 6. Refrigerant strainer
- 7. Distributor
- 8. Refrigerant check joint
- 9. High pressure switch for protection
- 10. Stop valve for gas line
- 11. Stop valve for liquid line
- 12. Pressure switch for control
- 13. Silencer
- 14. Ambient thermistor
- 15. Discharge gas thermistor
- 16. THM8 Evaporation 1 thermistor
- 17. THM10 Evaporation 2 thermistor

						Refrigerant
Heating refrigerant flow	Cooling refrigerant flow	Water flow (Heating/Cooling)	Field supplied piping line	Flare nut connection	Brazed connection	R32

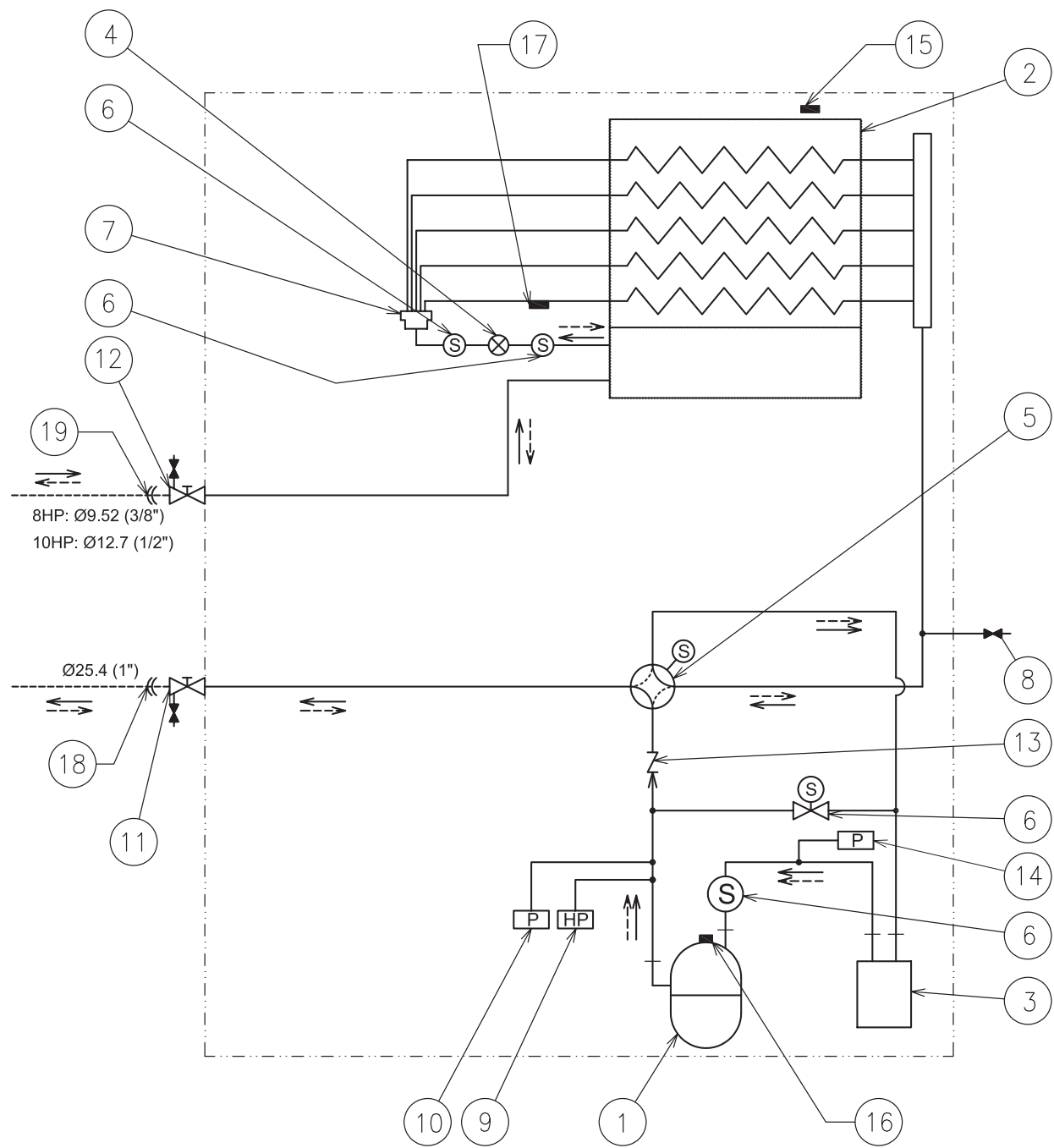
◆ RAS-(3.5-6)WH(V)RP2E



- 1. Compressor
- 2. Strainer
- 3. Pressure switch (high pressure)
- 4. Pressure sensor (high pressure)
- 5. Check valve
- 6. 4-way valve
- 7. Check joint
- 8. Heat exchanger
- 9. Economizer expansion valve
- 10. Stop valve (liquid line)
- 11. Stop valve (gas line)
- 12. Solenoid valve. Gas bypass circuit for startup (SVA)
- 13. Capillary (SVA)
- 14. Solenoid valve. Hot gas bypass circuit (SVC)
- 15. Accumulator
- 16. Pressure sensor (low pressure)
- 17. Economizer Solenoid valve (SVE)
- 18. Silencer
- 19. Capillary (Hot gas bypass circuit)
- 20. Heating expansion valve
- 21. Liquid tank

←	---→	⇨	---	⇨	+	Refrigerant
Heating refrigerant flow	Cooling refrigerant flow	Water flow (Heating/Cooling)	Field supplied piping line	Flare nut connection	Brazed connection	R32

◆ RAS-(8/10)WHNPE



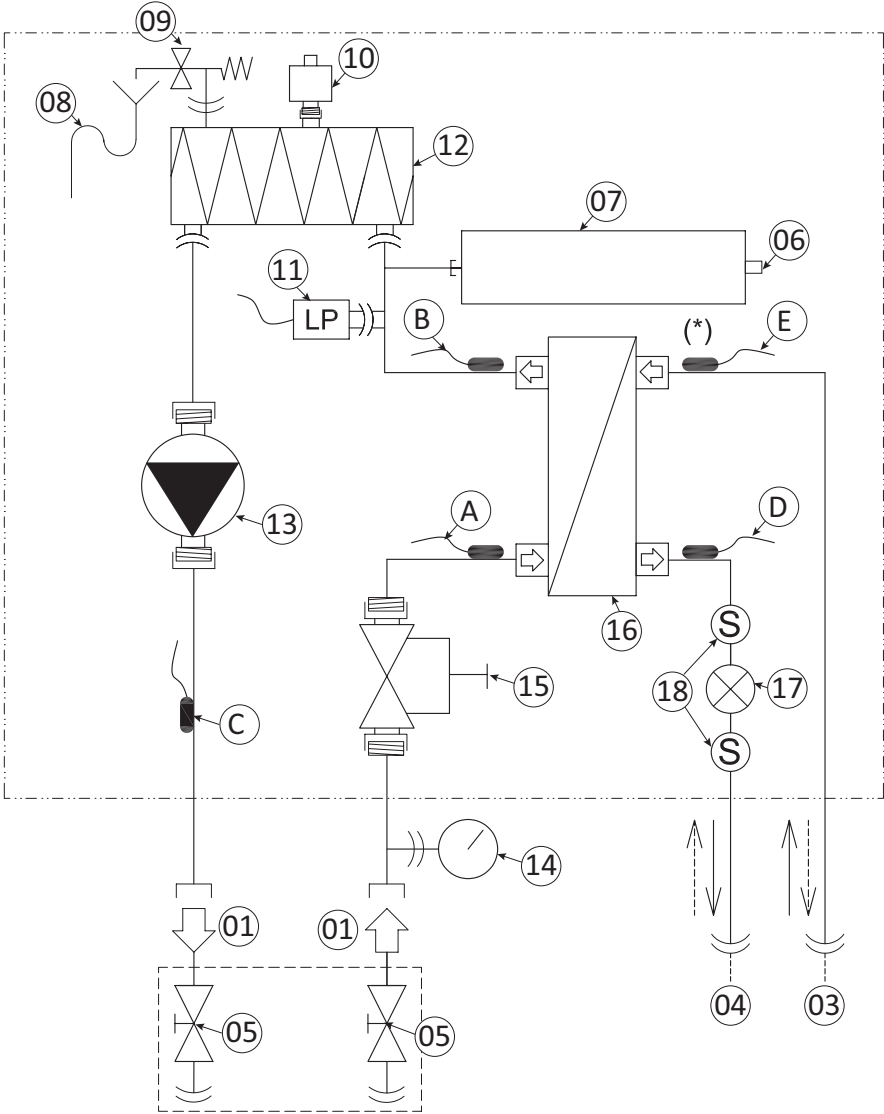
- 1. Compressor
- 2. Air side heat exchanger
- 3. Accumulator
- 4. OU electronic expansion valve
- 5. 4-way valve
- 6. OU refrigerant strainer
- 7. Distributor
- 8. Refrigerant check joint
- 9. High pressure switch for protection
- 10. Sensor for refrigerant pressure
- 11. Stop valve for gas line
- 12. Stop valve for liquid line
- 13. Check valve
- 14. Pressure switch for control
- 15. Ambient thermistor
- 16. Discharge gas thermistor
- 17. Pipe thermistor
- 18. OU refrigerant gas connection
- 19. OU refrigerant liquid connection

←	→	⇄	---	→	+	Refrigerant
Heating refrigerant flow	Cooling refrigerant flow	Water flow (Heating/Cooling)	Field supplied piping line	Flare nut connection	Brazed connection	R410A

7.2 Split system - indoor unit

7.2.1 airH2O 600S

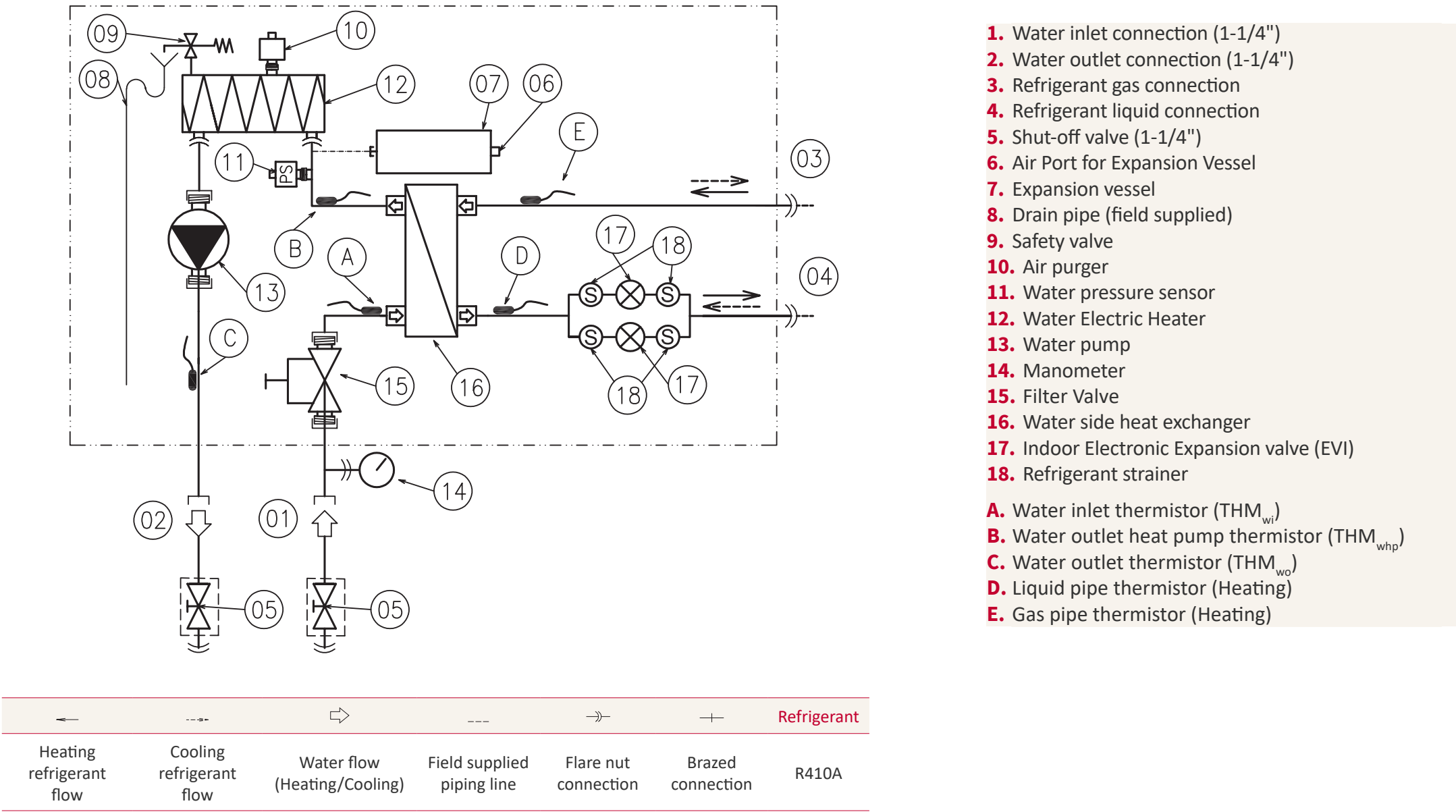
◆ RWM-(1.5-6.0)R3E



- 1. Water inlet connection (1")
- 2. Water outlet connection (1")
- 3. Indoor unit refrigerant gas connection
- 4. Indoor unit refrigerant liquid connection
- 5. Shut-off valve (1")
- 6. Air Port for Expansion Vessel
- 7. Expansion vessel
- 8. Drain pipe (field supplied)
- 9. Safety valve
- 10. Air purger
- 11. Water pressure sensor
- 12. Water Electric Heater
- 13. Water pump
- 14. Manometer
- 15. Filter Valve
- 16. Water side heat exchanger
- 17. Indoor Electronic Expansion valve (EVI)
- 18. Refrigerant strainer
- A. Water inlet thermistor (THMwi)
- B. Water outlet heat pump thermistor (THMwhp)
- C. Water outlet thermistor (THMwo)
- D. Liquid pipe thermistor (Heating)
- E. Gas pipe thermistor (Heating) (*)Only for 1.5-3.0 HP units

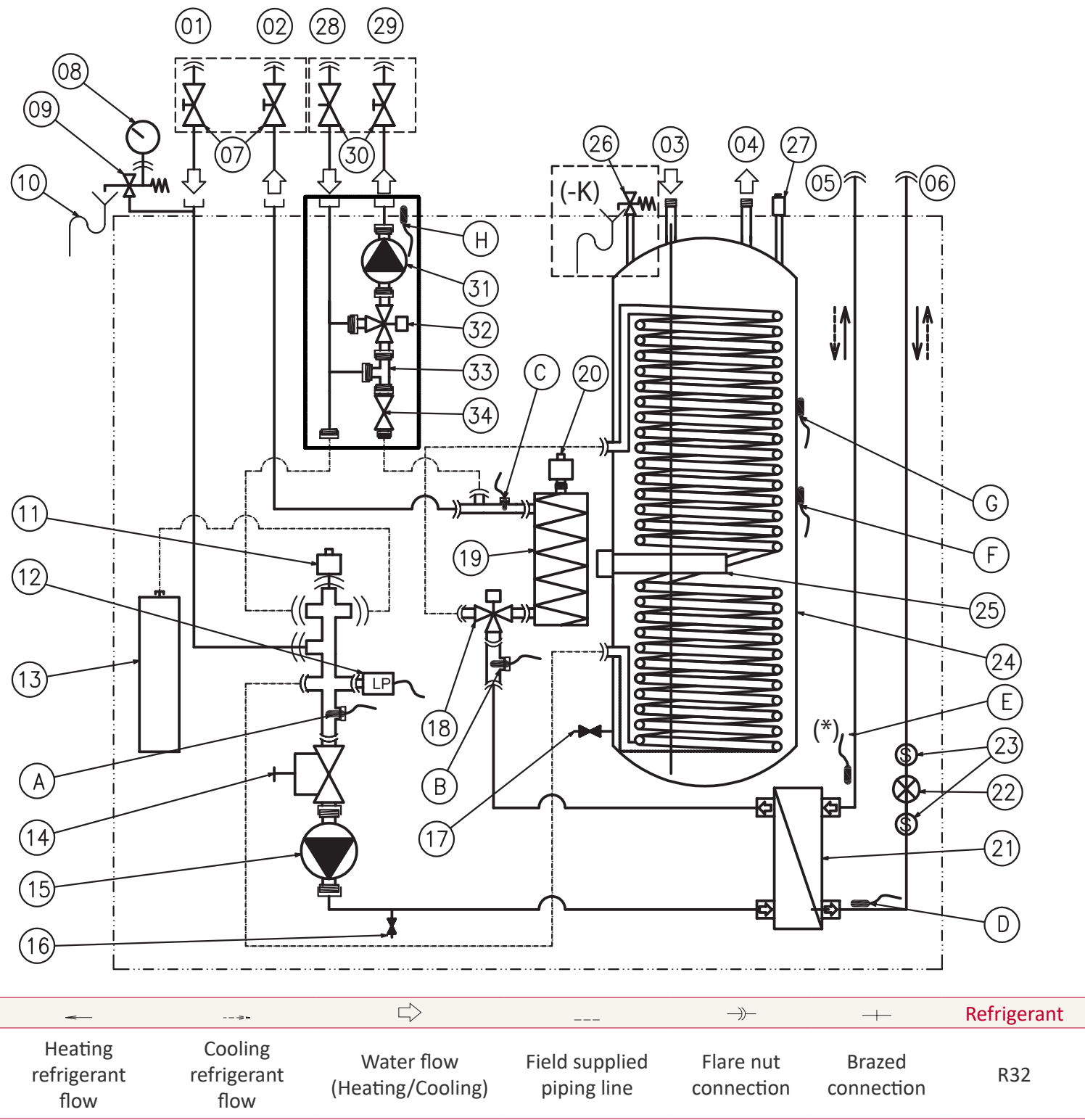
←	---→	⇒	---	→	+	Refrigerant
Heating refrigerant flow	Cooling refrigerant flow	Water flow (Heating/Cooling)	Field supplied piping line	Flare nut connection	Brazed connection	R32

◆ RWM-(8.0/10.0)N3E



7.2.2 airH2O 600S Combi

◆ RWD-(1.5-6.0)RW3E-220S(-K/6H)



- 1. Water inlet connection (1")
- 2. Water outlet connection (1")
- 3. Water inlet (DHW)
- 4. Water outlet (DHW)
- 5. Indoor unit refrigerant gas connection
- 6. Indoor unit refrigerant liquid connection
- 7. Shut-off valve (1")
- 8. Manometer
- 9. Safety valve
- 10. Drain pipe (field supplied)
- 11. Air purger
- 12. Water pressure sensor
- 13. Expansion vessel
- 14. Filter Valve
- 15. Water pump
- 16. Drain port (for indoor unit water)
- 17. Drain port (for DHW)
- 18. 3-way valve
- 19. Water Electric Heater
- 20. Air purger
- 21. Water side heat exchanger
- 22. Indoor Electronic Expansion valve (EVI)
- 23. Refrigerant strainer
- 24. Domestic hot water tank (DHWT)
- 25. DHWT electric heater
- 26. P & T relief valve (For UK market only)
- 27. Active Anode (Accessory)
- 28. 2nd Zone Water inlet connection (quick connection)
- 29. 2nd Zone Water outlet connection (quick connection)
- 30. Shut-off valve (1") (field accessory)
- 31. Water pump 2 (accessory)
- 32. Mixing Valve (accessory)
- 33. T-branch (accessory)
- 34. Detentor (accessory)
- A. Water inlet thermistor (THMwi)
- B. Water outlet heat pump thermistor (THMwhp)
- C. Water outlet thermistor (THMwo)
- D. Liquid pipe thermistor (Heating)
- E. Gas pipe thermistor (Heating)(*)Only for 1.5-3.0 HP units
- F. DHW thermistor 1 (Bottom)
- G. DHW thermistor 2 (Top)
- H. Water outlet 2nd Zone thermistor (THMwo2) (accessory)

Refrigerant and water piping

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8.1 General notes before performing piping work

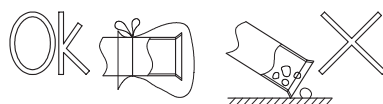
8.1.1 Piping work

- Prepare locally-supplied copper pipes.
- Select the piping size with the correct thickness and correct material able to withstand sufficient pressure.
- Select clean copper pipes. Make sure that there is no dust or moisture inside the pipes. Blow the inside of the pipes with oxygen free nitrogen to remove any dust and foreign materials before connecting them.

NOTE

A system with no moisture or oil contamination will give maximum performance and life cycle compared to that of a poorly prepared system. Take particular care to ensure that all copper piping is clean and dry internally.

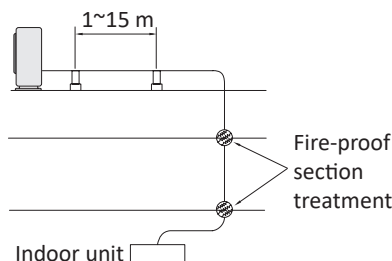
- Cap the end of the pipe when pipe is to be inserted through a wall hole.
- Do not put pipes on the ground directly without a cap or vinyl tape at the end of the pipe.



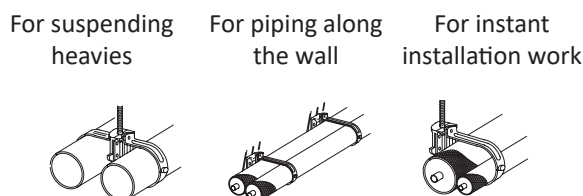
- If piping installation is not completed until next day or over a longer period of time, braze off the ends of the piping and charge with oxygen free nitrogen through a Schrader valve type access fitting to prevent moisture and particle contamination.
- It is advisable to insulate the water pipes, joints and connections in order to avoid heat loss and dew condensation on the surface of the pipes or accidental injuries due to excessive heat on piping surfaces.
- Do not use insulation material that contains NH_3 , as it can damage copper pipe material and become a source of future leakage.
- It is recommended to use flexible joints for the water piping inlet and outlet in order to avoid vibration transmission.
- Refrigerant circuit and water circuit must be performed and inspected by a licensed technician and must comply with all relevant European and national regulations.
- Proper water pipe inspection should be performed after piping work to assure there is no water leakage in the space heating or DHW circuits.

8.1.2 Suspension of refrigerant and water pipes

- Suspend the refrigerant and water piping at certain points and prevent the refrigerant and water piping from being in direct contact with the building: walls, ceilings, etc... If there is direct contact between pipes, abnormal sound may occur due to the vibration of the piping. Pay special attention in cases of short piping lengths.



- Do not fix the refrigerant and water pipes directly with the metal fittings (refrigerant piping may expand and contract). Some examples for suspension method are shown below.



8.2 R32 refrigerant circuit

8.2.1 General notes R32 refrigerant



This appliance is filled with R32, an odourless flammable refrigerant gas with low burning velocity (A2L class pursuant to ISO 817). If the refrigerant is leaked, there is a possibility of ignition if it enters in contact with an external ignition source.

A2L

Make sure that unit installation and refrigerant piping installation comply with applicable legislation in each country. Also, in Europe, EN378 must be complied, as it is the applicable standard.

Due to R32 refrigerant and depending on final refrigerant charge amount, a minimum floor area for installation must be considered for RAS-(1.5-6)WH(V)RP2E models installation.

- If total refrigerant charge amount < 1.84 kg, there are no additional minimum floor area requirements.
- If total refrigerant charge amount $\geq$ 1.84 kg, there are additional minimum floor area requirements to be checked.

In case of not achieving the minimum floor area, contact with your dealer.

For more detailed information, check the ADDITIONAL SAFETY MANUAL FOR R32 REFRIGERANT AIR CONDITIONER AND HEAT PUMPS ACCORDING TO IEC 60335-2-40:2022 which can be found

bundled with the outdoor unit or indoor unit.

8.3 R410A refrigerant circuit

8.3.1 Precautions in the event of gas refrigerant leaks

The installers and those responsible for drafting the specifications are obliged to comply with local safety codes and regulations in the case of refrigerant leakage.

CAUTION

- Check for refrigerant leakage in detail. If a large refrigerant leakage occurred, it would cause difficulty with breathing or harmful gases would occur if a fire were in the room.
- If the flare nut is tightened too hard, it may crack over time and cause refrigerant leakage.

8.3.2 Maximum permitted concentration of HFCs

The refrigerant R410A (charged in the outdoor unit) is incombustible and non-toxic gases. However, if leakage occurs and gas fills a room, it may cause suffocation.

The maximum permissible concentration of HFC gas according to EN 378-1 is:

Refrigerant	Maximum permissible concentration (kg/m ³)
R410A	0.44

The minimum volume of a closed room where the system is installed to avoid suffocation in case of leakage is:

	System combination	Minimum volume (m ³)
airH2O 600S	8 HP	11.4
	10 HP	12.1

The formula used for the calculation of the maximum allowed refrigerant concentration in case of refrigerant leakage is the following:

$$C = \frac{R}{V}$$

R: Total quantity of refrigerant charged (kg)
 V: Room volume (m³)
 C: Refrigerant concentration

If the room volume is below the minimum value, some effective measure must be taken account after installing to prevent suffocation in case of leakage.

◆ Countermeasure in the event of possible refrigerant leakage

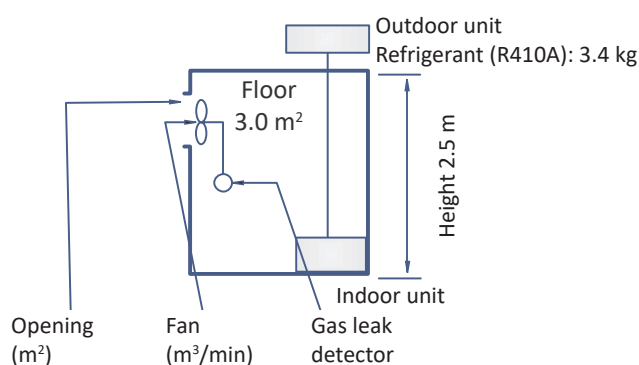
The room must have the following features to prevent suffocation in case a refrigerant leakage occurs:

- 1 Provide a shutterless opening which will allow fresh air to circulate into the room.
- 2 Provide a doorless opening of 0.15% or more size to the floor area.
- 3 There must be a ventilator fan connected to a gas leak detector, with a ventilator capacity of 0.4 m³/min or higher per Japanese refrigeration ton (= compressor displacement volume / (5.7 m³/h (R410A)) of the system using the refrigerant.

Model	Tonnes
RAS-8WHNPE	3.16
RAS-10WHNPE	4.11

- 4 Pay special attention to the place, such as a basement, etc., where the refrigerant can stay, since refrigerant is heavier than air.

Example:



R (kg)	V (m ³)	C (kg/m ³)	Countermeasure
3.4	7.5	0.46	1.0 m ³ /min fan linked with gas leak detector or 0.5 m ² opening

8.4 Refrigerant charge amount

The R32 or R410A refrigerant is factory charge in the outdoor unit.

The refrigerant amount data is detailed in the general data chapter and in the corresponding unit manual.

The charge-less piping length (maximum piping length between outdoor and indoor unit value according to the factory refrigerant charge amount) is indicated in the General Data chapter and in the corresponding unit manual.

Refer to the outdoor unit installation and operation manual to charge the refrigerant.

8.5 Refrigerant piping

8.5.1 Refrigerant piping size

Piping connection size of outdoor unit and indoor unit

Model (HP)	Piping length	Outdoor unit		Refrigerant pipe		Indoor Unit	
		Pipe connection size		(Between outdoor unit and indoor unit)		Pipe connection size	
		Gas pipe mm (in.)	Liquid pipe mm (in.)	Gas pipe mm (in.)	Liquid pipe mm (in.)	Gas pipe mm (in.)	Liquid pipe mm (in.)
1.5	3~50 m	Ø 12.7 (1/2)	Ø 6.35 (1/4)	Ø 12.7 (1/2)	Ø 6.35 (1/4)	Ø 12.7 (1/2)	Ø 6.35 (1/4)
2	3~50 m	Ø 12.7 (1/2)	Ø 6.35 (1/4)	Ø 12.7 (1/2)	Ø 6.35 (1/4)	Ø 12.7 (1/2)	Ø 6.35 (1/4)
2.5	3~30 m	Ø 12.7 (1/2)	Ø 6.35 (1/4)	Ø 12.7 (1/2)	Ø 6.35 (1/4)	Ø 12.7 (1/2)	Ø 6.35 (1/4)
3	3~30 m	Ø 12.7 (1/2)	Ø 6.35 (1/4)	Ø 12.7 (1/2)	Ø 6.35 (1/4)	Ø 12.7 (1/2)	Ø 6.35 (1/4)
2.5	30~40 m	Ø 12.7 (1/2)	Ø 6.35 (1/4)	Ø 15.88 (5/8)	Ø 9.52 (3/8)	Ø 12.7 (1/2)	Ø 6.35 (1/4)
3	30~40 m	Ø 12.7 (1/2)	Ø 6.35 (1/4)	Ø 15.88 (5/8)	Ø 9.52 (3/8)	Ø 12.7 (1/2)	Ø 6.35 (1/4)
3.5-6	5~30 m	Ø 15.88 (5/8)	Ø 6.35 (1/4)	Ø 12.7 (1/2)* or 15.88 (5/8)	Ø 6.35 (1/4)	Ø 15.88 (5/8)	Ø 6.35 (1/4)
3.5-6	30~50 m	Ø 15.88 (5/8)	Ø 6.35 (1/4)	Ø 15.88 (5/8)	Ø 9.52 (3/8)	Ø 15.88 (5/8)	Ø 6.35 (1/4)
8	5~70 m	Ø 25.4 (1)	Ø 9.52 (3/8)	Ø 25.4 (1)	Ø 9.52 (3/8)	Ø 25.4(1")	Ø 9.52 (3/8)
10			Ø 12.7 (1/2)		Ø 12.7 (1/2)		Ø 12.7 (1/2)

(*) Only use gas pipe of 12.7mm (1/2") for heating only units for a piping length from 5m to 30m.

- For 8 and 10 HP, the gas pipe accessory with a flare nut (factory-supplied silencer) shall be brazed to the field supplied gas line, and connected to the gas valve.

8.5.2 Refrigerant piping length between indoor unit and outdoor unit (for R32 units)

The unit installation and refrigerant piping should comply with the relevant local and national regulations for the designed refrigerant.

The unit installation and refrigerant piping should comply with the relevant local and national regulations for the designed refrigerant. Due to R32 refrigerant and depending on final refrigerant charge amount, a minimum floor area for installation must be considered.

- If total refrigerant charge amount <1.84kg, there are no minimum floor area requirements.
- If total refrigerant charge amount ≥1.84kg, there are minimum floor area requirements to be checked.

◆ Indoor unit in combination with RAS-1.5-3WHVRP2E

L≤30m		1.5HP	2HP	2.5HP	3HP
Factory Charge	kg	1.1	1.1	1.2	1.2
Charge-less piping length	m	10	10	10	10
Additional Charge needed	g/m	15	15	15	15
Maximum piping	m	30	30	30	30
Maximum total refrigerant charge	kg	1.4	1.4	1.5	1.5
Minimum room area requirement (Amin)	m ²	No requirement is needed			
Minimum piping length between outdoor unit and indoor unit (Lmin)	m	3(*)	3(*)	3(*)	3(*)
Maximum height difference between indoor and outdoor unit (H)					
Outdoor unit higher than indoor unit	m	30	30	30	30
Indoor unit higher than outdoor unit	m	20	20	20	20

(*) In case of a piping length below 5 m (3 m ~ 5 m) remove 150 g of R32 refrigerant.

L>30m		1.5HP	2HP	2.5HP	3HP
Factory Charge	kg	1.1	1.1	1.2	1.2
Charge-less piping length	m	10	10	10	10
Additional Charge needed	g/m	15	15	30	30
Maximum piping	m	50	50	40	40
Maximum total refrigerant charge	kg	1.7	1.7	2.1	2.1
Minimum room area requirement (Amin)	m ²	No requirement is needed		Requirement needed	
Minimum piping length between outdoor unit and indoor unit (Lmin)	m	3(*)	3(*)	3(*)	3(*)
Maximum height difference between indoor and outdoor unit (H)					
Outdoor unit higher than indoor unit	m	30	30	30	30
Indoor unit higher than outdoor unit	m	20	20	20	20

(*) In case of a piping length below 5 m (3 m ~ 5 m) remove 150 g of R32 refrigerant.

◆ Indoor unit in combination with RAS-3.5-6WH(V)RP2E

Heating only (factory default)

L≤30m		3.5HP	4HP	5HP	6HP
Factory Charge	kg	1.8	1.8	2.1	2.1
Charge-less piping length	m	10(*)	10(*)	10(*)	10(*)
Additional charge needed	g/m	40	40	40	40
Maximum piping length	m	30	30	30	30
Maximum additional refrigerant charge	kg	0.8	0.8	0.8	0.8
Maximum total refrigerant charge	kg	2.6	2.6	2.9	2.9
Minimum room area requirement (Amin)	m ²	Check minimum floor area table			
Minimum piping length between outdoor unit and indoor unit (Lmin)	m	5	5	5	5
Maximum height difference between indoor and outdoor unit (H)					
Outdoor unit higher than indoor unit	m	30	30	30	30
Indoor unit higher than outdoor unit	m	20	20	20	20

(*) If maximum Two is limited to 60°C by installer, chargeless length can be increased up to 15m. For distance above 15m, always apply the table, no matter Two limits.

L>30m		3.5HP	4HP	5HP	6HP
Factory Charge	kg	1.8	1.8	2.1	2.1
Charge-less piping length	m	10	10	10	10
Additional charge needed	g/m	45	45	45	45
Maximum piping length	m	50	50	50	50
Maximum additional refrigerant charge	kg	1.8	1.8	1.8	1.8
Maximum total refrigerant charge	kg	3.6	3.6	3.9	3.9
Minimum room area requirement (Amin)	m ²	Check minimum floor area table			
Minimum piping length between outdoor unit and indoor unit (Lmin)	m	5	5	5	5
Maximum height difference between indoor and outdoor unit (H)					
Outdoor unit higher than indoor unit	m	30	30	30	30
Indoor unit higher than outdoor unit	m	20	20	20	20

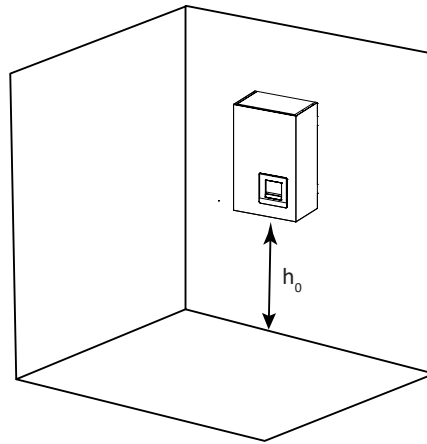
Reversible models (Cooling and Heating) (charge by installer)

L≤30m		3.5HP	4HP	5HP	6HP
Factory Charge	kg	1.8	1.8	2.1	2.1
Additional charge for reversible models (mandatory by installer)	kg	0.4	0.4	0.4	0.4
Charge-less piping length	m	5	5	5	5
Additional refrigerant charge	g/m	40	40	40	40
Maximum piping length	m	30	30	30	30
Maximum additional charge (kg)	kg	1.4	1.4	1.4	1.4
Maximum total refrigerant charge	kg	3.2	3.2	3.5	3.5
Minimum room area requirement (Amin)	m ²	Check minimum floor area table			
Minimum piping length between outdoor unit and indoor unit (Lmin)	m	5	5	5	5
Maximum height difference between indoor and outdoor unit (H)					
Outdoor unit higher than indoor unit	m	30	30	30	30
Indoor unit higher than outdoor unit	m	20	20	20	20
L>30m		3.5HP	4HP	5HP	6HP
Factory Charge	kg	1.8	1.8	2.1	2.1
Additional charge for reversible models (mandatory by installer)	kg	0.4	0.4	0.4	0.4
Charge-less piping length	m	5	5	5	5
Additional refrigerant charge	g/m	45	45	45	45
Maximum piping length	m	50	50	50	50
Maximum additional charge (kg)	kg	2.43	2.43	2.43	2.43
Maximum total refrigerant charge	kg	4.2	4.2	4.5	4.5
Minimum room area requirement (Amin)	m ²	Check minimum floor area table			
Minimum piping length between outdoor unit and indoor unit (Lmin)	m	5	5	5	5
Maximum height difference between indoor and outdoor unit (H)					
Outdoor unit higher than indoor unit	m	30	30	30	30
Indoor unit higher than outdoor unit	m	20	20	20	20

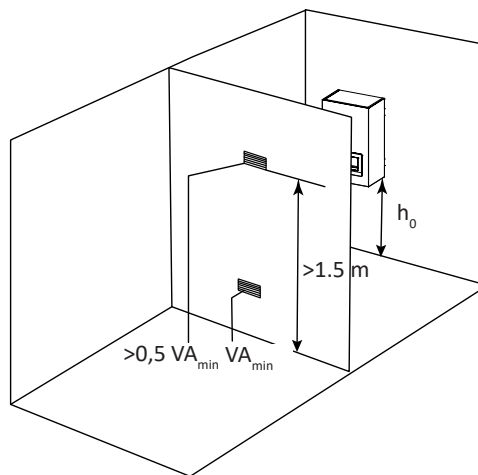
8.5.2.1 Minimum floor area for airH2O 600S units

Please refer to outdoor unit installation manual for charge calculation.

- 1 Check the refrigerant charge:
 - a. If the refrigerant charge is <1.84 kg, no minimum area is required.
 - b. If the refrigerant charge is >1.84 kg, check the Table 1 for minimum floor area ($A_{\min}$).
- 2 Calculate the room area:
 - a. Check the Table 1 to see the corresponding minimum room area (room A) according to the maximum refrigerant charge (m_c) and the installation height (h_o).
 - b. In case that the room area is not complying the minimum area requirement, check for an adjacent room (room B).
- 3 Determine total floor area of room A and room B:
 - a. Calculate the area of room B adjacent to the room A.
 - b. Determine if the $A_{\min \text{ total}}$ ($A_{\min \text{ total}} = \text{Room A} + \text{Room B}$) based on the total refrigerant charge (m_c) from Table 2.
 - c. The total floor area both room A and room B must exceed $A_{\min \text{ total}}$.
- 4 Determine Minimum Venting Opening Area ($VA_{\min}$) for Natural Ventilation
 - ✓ For connected rooms and natural ventilation, the following conditions must be satisfied:
 - ✓ High-Level Openings: Openings located more than 300 mm above the floor will not count towards the required minimum ventilation area ($A_{nv, \min}$).
 - ✓ Low-Level Openings: At least half of the required ventilation area ($A_{nv, \min}$) must be situated below 200 mm from the floor.
 - ✓ Lowest Point of Openings: The base of the lowest openings must be no higher than the release point of the refrigerant and should not exceed 100 mm from the floor.
 - ✓ Permanent Openings: Ventilation openings must be permanent and cannot be sealed.
 - ✓ Connecting Room Openings: Openings that connect rooms must have a height of at least 20 mm between the wall and the floor.
 - ✓ Additional Higher Opening: A second, higher opening is required. This additional opening should be at least 50% of the $A_{nv, \min}$ and positioned no less than 1.5 meters above the floor.



Room A



Room A + Room B

NOTE

In case of not able to proceed with any of option above. Please consider to select other outdoor unit combination option (reduce piping length, monobloc systems, etc...).

◆ Table 1

m_c (Kg)	Min floor area (A_{min}) (m ²)							
	h_0							
	1.2	1.3	1.4	1.5	1.6	1.7	1.8	1.9
1.84	7.20	6.15	5.71	5.33	4.99	4.70	4.44	4.21
2.0	8.51	7.25	6.25	5.79	5.43	5.11	4.82	4.57
2.2	10.30	8.77	7.57	6.59	5.97	5.62	5.31	5.03
2.4	12.26	10.44	9.00	7.84	6.89	6.13	5.79	5.48
2.6	14.38	12.26	10.57	9.21	8.09	7.17	6.39	5.94
2.8	16.68	14.21	12.26	10.68	9.38	8.31	7.41	6.65
3.0	19.15	16.32	14.07	12.26	10.77	9.54	8.51	7.64
3.2	21.79	18.56	16.01	13.94	12.26	10.86	9.68	8.69
3.4	24.6	20.96	18.07	15.74	13.84	12.26	10.93	9.81
3.6	27.58	23.50	20.26	17.65	15.51	13.74	12.26	11.0
3.8	30.72	26.18	22.57	19.66	17.28	15.31	13.66	12.26
4.0	34.04	29.01	25.01	21.79	19.15	16.96	15.13	13.58
4.2	37.53	31.98	27.58	24.02	21.11	18.70	16.68	14.97
4.4	41.19	35.10	30.26	26.36	23.17	20.52	18.31	16.43
4.5	43.09	36.71	31.66	27.58	24.24	21.47	19.15	17.19
4.6	45.02	38.36	33.08	28.81	25.33	22.43	20.01	17.96

◆ Table 2 (Examples)

m_c (Kg)	Minimum opening for natural ventilation A_{nvmin1} (dm ²) $h_0=1.3$ m					
	Room A area (m ²)					
	7	10	13	15	18	20
1.84	-	-	-	-	-	-
2.0	0.10	-	-	-	-	-
2.2	0.67	-	-	-	-	-
2.4	1.24	0.16	-	-	-	-
2.6	1.81	0.79	-	-	-	-
2.8	2.38	1.41	0.41	-	-	-
3.0	2.95	2.03	1.08	0.43	-	-
3.2	3.52	2.66	1.74	1.12	0.18	-
3.4	4.09	3.28	2.41	1.81	0.90	0.30
3.6	4.66	3.90	3.07	2.50	1.63	1.04
3.8	5.23	4.53	3.74	3.19	2.35	1.78
4.0	5.80	5.15	4.40	3.88	3.07	2.52
4.2	6.37	5.77	5.07	4.57	3.79	3.26
4.4	6.94	6.40	5.74	5.26	4.51	4.00
4.5	7.23	6.71	6.07	5.61	4.88	4.37
4.6	7.51	7.02	6.40	5.95	5.24	4.75

m _c (Kg)	Minimum opening for natural ventilation A _{nvmin1} (dm ²) h ₀ =1.5 m					
	Room A area (m ²)					
	7	10	13	15	18	20
1.84	-	-	-	-	-	-
2.0	-	-	-	-	-	-
2.2	-	-	-	-	-	-
2.4	0.36	-	-	-	-	-
2.6	0.89	-	-	-	-	-
2.8	1.42	0.27	-	-	-	-
3.0	1.95	0.85	-	-	-	-
3.2	2.48	1.43	0.35	-	-	-
3.4	3.01	2.01	0.97	0.27	-	-
3.6	3.54	2.59	1.59	0.91	-	-
3.8	4.07	3.17	2.21	1.55	0.56	-
4.0	4.60	3.75	2.83	2.19	1.23	0.59
4.2	5.13	4.33	3.44	2.83	1.90	1.28
4.4	5.66	4.91	4.06	3.48	2.57	1.97
4.5	5.93	5.20	4.37	3.80	2.91	2.31
4.6	6.19	5.49	4.68	4.12	3.25	2.66

m _c (Kg)	Minimum opening for natural ventilation A _{nvmin1} (dm ²) h ₀ =1.7 m					
	Room A area (m ²)					
	7	10	13	15	18	20
1.84	-	-	-	-	-	-
2.0	-	-	-	-	-	-
2.2	-	-	-	-	-	-
2.4	-	-	-	-	-	-
2.6	0.08	-	-	-	-	-
2.8	0.58	-	-	-	-	-
3.0	1.08	-	-	-	-	-
3.2	1.57	0.36	-	-	-	-
3.4	2.07	0.90	-	-	-	-
3.6	2.57	1.45	0.29	-	-	-
3.8	3.07	1.99	0.87	0.12	-	-
4.0	3.57	2.54	1.46	0.73	-	-
4.2	4.07	3.08	2.04	1.33	0.26	-
4.4	4.57	3.63	2.62	1.93	0.89	0.19
4.5	4.82	3.90	2.91	2.23	1.20	0.52
4.6	5.07	4.17	3.20	2.54	1.52	0.84

NOTE

The minimum opening area for natural ventilation between room A and room B is calculated by the following formula:

$$A_{nv,min1} = 1.51 \times (m_c - m_{max}) \times (A_{roomA} / m_{max})^{(1/2)}$$

$$m_{max} = 0.571 \times h_0 \times (A_{roomA})^{(1/2)}$$

Where:

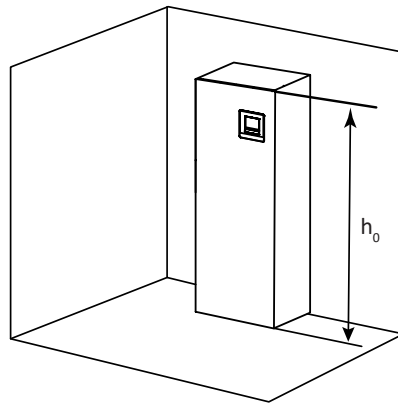
- $A_{nv,min1}$: minimum opening for natural ventilation between room A and room B, in dm^2 .
- A_{roomA} : room A area, in m^2 .
- m_{max} : the allowable maximum refrigerant charge in the room A, in kg.
- Mark “-” in the above table indicates that the room A is large enough for installation without adjacent room B.
- For intermediate refrigerant charges, room A area and installation height, select the higher charge value, the smaller room area and the lower height value to choose the $A_{nv,min1}$. For example, if the refrigerant charge is 2.9 kg, room A area is $8 m^2$ and the installation height is 1.85 m, then $A_{nv,min1} = 1.08 dm^2$ according to the table ($h_0 = 1.7 m$).

8.5.2.2 Minimum floor area for airH2O 600S Combi units

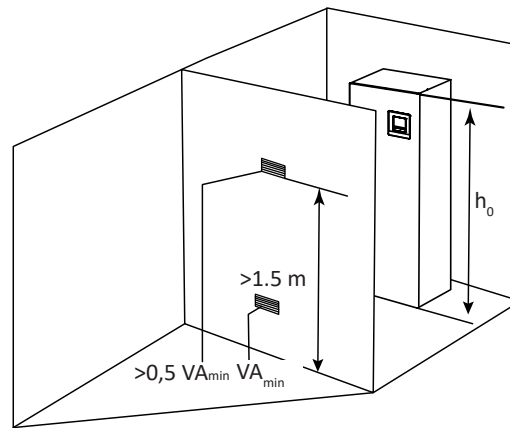
Please refer to outdoor unit installation manual for charge calculation.

- 1 Check the refrigerant charge:
 - a. If the refrigerant charge is < 1.84 kg, no minimum area is required.
 - b. If the refrigerant charge is > 1.84 kg, check the Table 1 for minimum floor area (A_{min}).
- 2 Calculate the room area:
 - a. Check the Table 1 to see the corresponding minimum room area (room A) according to the maximum refrigerant charge (m_c) and the installation height (h_0).
 - b. In case that the room area is not complying the minimum area requirement, check for an adjacent room (room B).
- 3 Determine total floor area of room A and room B:
 - a. Calculate the area of room B adjacent to the room A.
 - b. Determine if the $A_{min total}$ ($A_{min total} = \text{Room A} + \text{Room B}$) based on the total refrigerant charge (m_c) from Table 2.
 - c. The total floor area both room A and room B must exceed $A_{min total}$.
- 4 Determine Minimum Venting Opening Area (VA_{min}) for Natural Ventilation
 - ✓ For connected rooms and natural ventilation, the following conditions must be satisfied:
 - ✓ High-Level Openings: Openings located more than 300 mm above the floor will not count towards the required minimum ventilation area ($A_{nv,min}$).
 - ✓ Low-Level Openings: At least half of the required ventilation area ($A_{nv,min}$) must be situated below 200 mm from the floor.
 - ✓ Lowest Point of Openings: The base of the lowest openings must be no higher than the release point of the refrigerant and should not exceed 100 mm from the floor.
 - ✓ Permanent Openings: Ventilation openings must be permanent and cannot be sealed.
 - ✓ Connecting Room Openings: Openings that connect rooms must have a height of at least 20mm between the wall and the floor.

- ✓ Additional Higher Opening: A second, higher opening is required. This additional opening should be at least 50% of the $A_{nv,min}$ and positioned no less than 1.5 meters above the floor.



Room A



Room A + Room B

NOTE

In case of not able to proceed with any of option above. Please consider to select other outdoor unit combination option (reduce piping length, monobloc systems, etc...).

◆ Table 1

m_c (Kg)	Min floor area (A_{min}) (m^2)		
	h_0		
	1.7	1.8	1.9
1.84	4.70	4.44	4.21
2.0	5.11	4.82	4.57
2.2	5.62	5.31	5.03
2.4	6.13	5.79	5.48
2.6	7.17	6.39	5.94
2.8	8.31	7.41	6.65
3.0	9.54	8.51	7.64
3.2	10.86	9.68	8.69
3.4	12.26	10.93	9.81
3.6	13.74	12.26	11.0
3.8	15.31	13.66	12.26
4.0	16.96	15.13	13.58
4.2	18.70	16.68	14.97
4.4	20.52	18.31	16.43
4.5	21.47	19.15	17.19
4.6	22.43	20.01	17.96

◆ Table 2 (Examples)

m_c (Kg)	Minimum opening for natural ventilation A_{nvmin1} (dm^2) $h_0=1.7$ m					
	Room A area (m^2)					
	7	10	13	15	18	20
1.84	-	-	-	-	-	-
2.0	-	-	-	-	-	-
2.2	-	-	-	-	-	-
2.4	-	-	-	-	-	-
2.6	0.08	-	-	-	-	-
2.8	0.58	-	-	-	-	-
3.0	1.08	-	-	-	-	-
3.2	1.57	0.36	-	-	-	-
3.4	2.07	0.90	-	-	-	-
3.6	2.57	1.45	0.29	-	-	-
3.8	3.07	1.99	0.87	0.12	-	-
4.0	3.57	2.54	1.46	0.73	-	-
4.2	4.07	3.08	2.04	1.33	0.26	-
4.4	4.57	3.63	2.62	1.93	0.89	0.19
4.5	4.82	3.90	2.91	2.23	1.20	0.52
4.6	5.07	4.17	3.20	2.54	1.52	0.84

NOTE

The minimum opening area for natural ventilation between room A and room B is calculated by the following formula:

$$A_{nv,min1} = 1.51 \times (m_c - m_{max}) \times (A_{roomA} / m_{max})^{(1/2)}$$

$$m_{max} = 0.571 \times h_0 \times (A_{roomA})^{(1/2)}$$

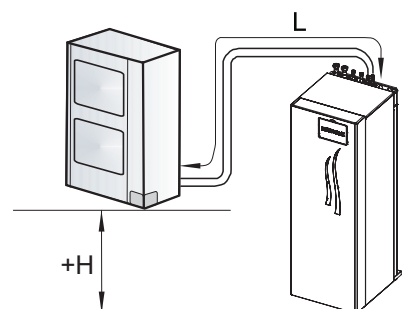
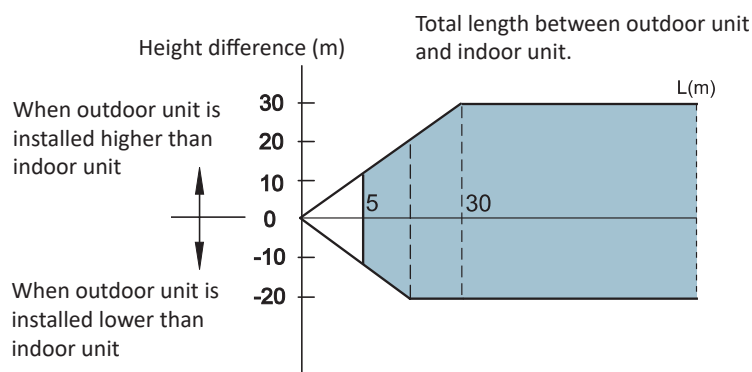
Where:

- $A_{nv,min1}$: minimum opening for natural ventilation between room A and room B, in dm^2 .
- A_{roomA} : room A area, in m^2 .
- m_{max} : the allowable maximum refrigerant charge in the room A, in kg.
- Mark “-” in the above table indicates that the room A is large enough for installation without adjacent room B.
- For intermediate refrigerant charges, room A area and installation height, select the higher charge value, the smaller room area and the lower height value to choose the $A_{nv,min1}$. For example, if the refrigerant charge is 2.9 kg, room A area is 8 m^2 and the installation height is 1.85 m, then $A_{nv,min1} = 1.08 dm^2$ according to the table ($h_0 = 1.7 m$).

8.5.3 Refrigerant piping length between indoor unit and outdoor unit (for R410A units)

The refrigerant piping length between indoor unit and outdoor unit should be designed using the following chart.

Keep the design point within the area of the chart, which is showing the applicable height difference according to piping length.



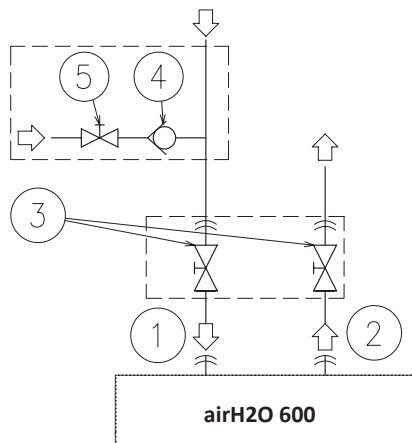
Outdoor unit (HP)		8	10
Maximum piping length between outdoor unit and indoor unit (Lmax)	Actual piping length (L)	70 m	70 m
	Equivalent piping length	90 m	90 m
Minimum piping length between outdoor unit and indoor unit (Lmin)	Actual piping length (L)	5 m	5 m
Maximum height difference between indoor and outdoor unit (H)	Outdoor unit higher than indoor unit	30 m	30 m
	Indoor unit higher than outdoor unit	20 m	20 m

8.6 Space heating and DHW connections

 **DANGER**

Do not connect the power supply to the indoor unit prior to filling the space heating and DHW circuits with water and checking water pressure and the total absence of any water leakage.

8.6.1 Additional hydraulic necessary elements for space heating



Type	Nº	Part name
Piping connections	1	Water inlet (Space heating)
	2	Water outlet (Space heating)
Factory supplied	3	Shut-off valve
Accessories	4	Water check valve (ATW-WCV-01 accessory)
Field supplied	5	Shut-off valve

The following hydraulic elements are necessary to correctly perform the space heating water circuit:

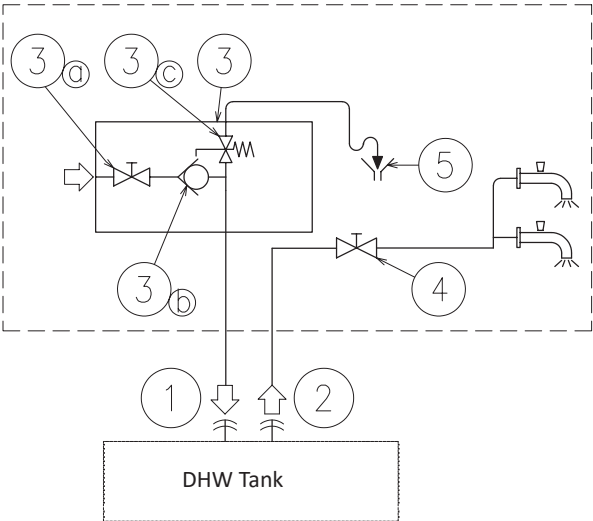
- **Two shut-off valves (factory supplied accessory) (3)** must be installed in the indoor unit. One at the water inlet connection (1) and the other at the water outlet connection (2) in order to make easier any maintenance work.
- **A water check valve (ATW-WCV-01 accessory) (4)** with 1 shut-off valve (field supplied) (5) must be connected to the water filling point when filling the indoor unit. The check valve acts as a safety device to protect the installation against back pressure, back flow and back syphon of non-potable water into drinking water supply net.

8.6.2 Additional hydraulic necessary elements for DHW

The next hydraulic elements are necessary to correctly perform the domestic hot water circuit:

◆ Common

The following elements are required for all **airH2O 600** units.



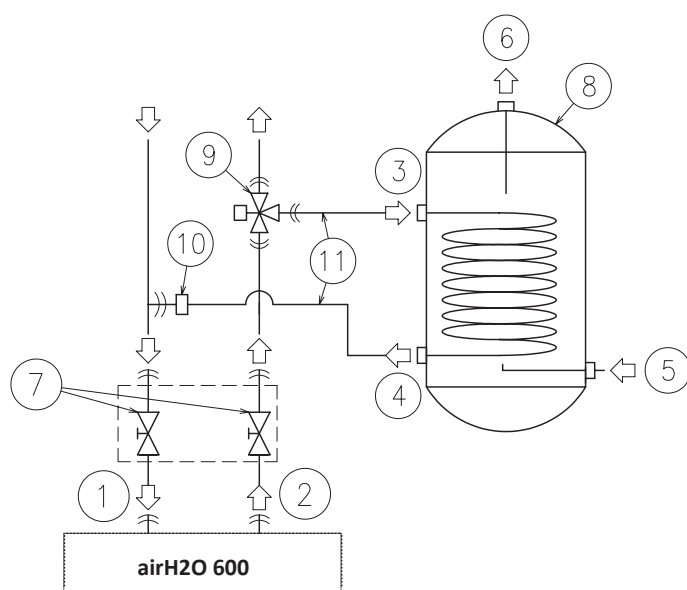
Type	Nº	Part name
Piping connections	1	Water inlet (DHW)
	2	Water outlet (DHW)
Field supplied		Pressure and temperature relief valve
	3	3a Shut-off valve
		3b Water check valve
		3c Pressure relief valve
	4	Shut-off valve
	5	Draining

- **1 Shut-off valve (field supplied):** one shut-off valve (4) must be connected after the DHW outlet connection of the DHW tank (2) in order to make easier any maintenance work.
- **A Security water valve (field supplied):** this accessory (3) is a pressure and temperature relief valve that must be installed as near as possible to the DHW inlet connection of the DHW tank (1). It should ensure a correct draining (5) for the discharge valve of this valve. This security water valve should provide the following:
 - ✓ Pressure protection
 - ✓ Non-return function
 - ✓ Shut-off valve
 - ✓ Filling
 - ✓ Draining

i NOTE

The discharge pipe should always be open to the atmosphere, free of frost and in continuous slope to the down side in case that water leakage exists.

◆ airH2O 600S



Type	Nº	Part name
Piping connections	1	Water inlet (Space heating)
	2	Water outlet (Space heating)
	3	Heating coil inlet
	4	Heating coil outlet
	5	Water inlet (DHW)
	6	Water outlet (DHW)
Factory supplied	7	Shut-off valve
Accessories	8	Domestic hot water tank DHWT-(200/300)S-3.0H2E accessory
	9	3-way valve (ATW-3WV-01 accessory)
Field supplied	10	T-branch
	11	Heating coil pipes

airH2O 600S is not factory-supplied ready for DHW operation, but it can be used for the production of DHW if the following elements are installed:

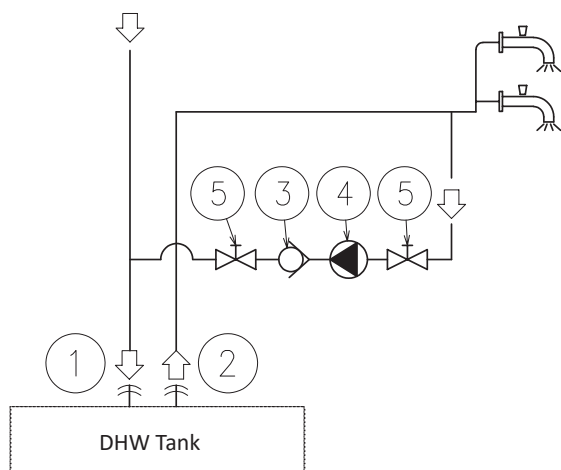
- **A domestic hot water tank (DHWT-(200/300)S-3.0H2E accessory) (8)** has to be installed in combination with the indoor unit.
- **A 3-way valve (ATW-3WV-01 accessory) (9)** must be connected at one point of the water outlet pipe of the installation.
- **A T-branch (field supplied) (10)** must be connected at one point of the water inlet pipe of the installation.
- **Two water pipes (field supplied) (11)**. One pipe between 3-way valve and the heating coil inlet (3) of the DHW tank, the other one between the T-branch and the heating coil outlet (4) of the DHW tank.

◆ airH2O 600S Combi

These appliances are factory-supplied ready for DHW operation (Fitted with DHW tank and 3-way valve). Only the "Common" elements are required.

8.6.3 Optional hydraulic elements for DHW

In case of a recirculation circuit for the DHW circuit:

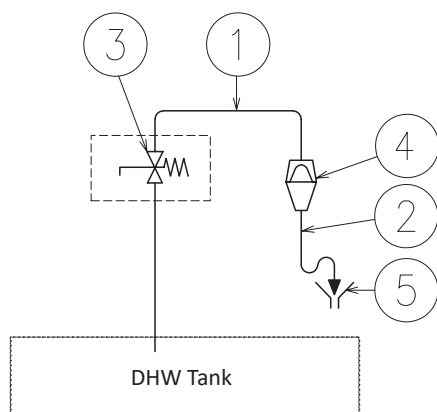


Type	Nº	Part name
Piping connections	1	Water inlet (DHW)
	2	Water outlet (DHW)
Accessories	3	Water check valve (ATW-WCV-01 accessory)
Field supplied	4	Water pump
	5	Shut-off valve

- **1 Recirculation water pump (field supplied):** this water pump (3) will help to correctly recirculate the hot water to the DHW inlet.
- **1 Water check valve (ATW-WCV-01 accessory):** this Hitachi accessory (3) is connected after the recirculation water pump (4) in order to ensure the non-return of water.
- **2 Shut-off valves (field supplied) (5):** one before the recirculation water pump (4) and other after the water check valve accessory (3).

8.6.4 Necessary hydraulic elements for DHW (Only for airH2O 600S Combi UK market models)

Only for those models designed for the UK market.



Type	Nº	Part name
Factory supplied	1	Pressure and Temperature relief valve outlet pipe Ø15
	3	Pressure and Temperature relief valve
Field supplied	2	Tundish outlet pipe
	4	Tundish
	5	Drain

The following accessories are necessary for the compliance of the **airH2O 600S Combi** for UK market with the UK requirements referred in the UK Building Regulations 2000.

- **1 temperature and pressure relief valve (factory supplied)**, fitted at the hottest part of the DHW tank. This device protects the unit of excessive temperature (>96°C) and excessive pressure (>7 bar) in the DHW tank. Additionally, a Ø15 diameter pipe (factory supplied) is fitted to the outlet of the relief valve and drives the discharge to the tundish (4).
- **1 Tundish (4)(field supplied)**, installed in a vertical position, with no more than 600 mm of pipe between the valve outlet and the tundish.
- **1 Tundish outlet pipe (2)(field supplied)** with a vertical section at least 300 mm long below the tundish(4), before any elbows or bends in the pipework. This pipe should be made of metal or other material that has been demonstrated to be capable of safety withstanding temperatures and pressure of the water discharged, as it is referred in the UK Building Regulations.
- The discharge pipe from the tundish (2) must terminate in a safe place where is no risk to persons in the vicinity of the discharge. The discharge will consist of high water temperature and pressure.

8.6.5 Requirements and recommendations for the hydraulic circuit

- The maximum piping length depends on the maximum pressure availability in the water outlet pipe. Please check the pump curves *"5.3.2 Pump performance curves"*.
- The unit is equipped with a manual air purger (factory supplied) at the highest location of the unit. If this location is not the highest of the water installation, air might be trapped inside the water pipes, which could cause system malfunction. In that case additional air purgers (field supplied) should be installed to ensure no air enters the water circuit.
- For heating floor system, the air should be purged by means of an external pump and an open circuit to avoid air bags.
- When the unit is stopped during shut-off periods and the ambient temperature is very low, the water inside the pipes and the circulating pump may freeze, thus damaging the pipes and the water pump. In these cases, the installer shall ensure that the water temperature inside the pipes does not fall below the freezing point. In order to prevent this, the unit has a self-protection mechanism which should be activated (refer to the Service manual, *"Optional functions"* chapter).
- Check that the water pump of the space heating circuit works within the pump operating range and that the water flow is over the pump's minimum. If the water flow is below the limit, an alarm is displayed on the unit.
- An additional special water filter is highly recommended to be installed on the space heating (field installation), in order to remove possible particles remaining from brazing which cannot be removed by the unit water strainer.
- When selecting a tank for DHW operation, take into consideration the following points:
 - ✓ The storage capacity of the tank has to meet with the daily consumption in order to avoid stagnation of water.
 - ✓ Fresh water must circulate inside the DHW tank water circuit at least one time per day during the first days after the installation has been performed. Additionally, flush the system with fresh water when there is no consumption of DHW during long periods of time.

- ✓ Try to avoid long runs of water piping between the tank and the DHW installation in order to decrease possible temperature losses.
- ✓ If the domestic cold water entry pressure is higher than the equipment's design pressure (10 bar), a pressure reducer must be fitted with a nominal value of 7 bar.
- Ensure that the installation complies with applicable legislation in terms of piping connection and materials, hygienic measures, testing and the possible required use of some specific components like thermostatic mixing valves, differential pressure overflow valve, etc.
- The maximum water pressure is 3 bar (nominal opening pressure of the safety valve). Provide adequate reduction pressure device in the water circuit to ensure that the maximum pressure is NOT exceeded.
- Ensure that the drain pipes connected to the safety valve and to the air purger are properly driven or oriented to avoid water being in contact with unit components.
- Make sure that all field supplied components installed in the piping circuit can withstand the water pressure and the water temperature range in which the unit can operate.
- **airH2O 600** units are conceived for exclusive use in a closed water circuit.
- The internal air pressure of the expansion vessel tank will be adapted to the water volume of the final installation (factory supplied with 0.1 MPa of internal air pressure).
- Drain taps must be provided at all low points of the installation to permit complete drainage of the circuit during servicing.

8.6.6 Water piping

8.6.6.1 Water piping length

Consider the following guidelines when designing the water circuit.

Item	airH2O 600S	airH2O 600S Combi
Maximum water piping length between indoor unit and domestic hot water (DHW) tank	10 m	--
Maximum water piping length between indoor unit and 3-Way Valve	3 m	--
Maximum water piping length between 3-Way Valve and domestic hot water (DHW) tank	10 m	--

NOTE

DHW piping length: it is recommended to avoid long runs of piping between the domestic hot water tank and hot water outlet side in order to avoid heat losses.

8.6.6.2 Water piping size

airH2O 600S

(inches)

Model	Space heating pipes connection		
	Inlet connection	Outlet connection	Shut-off valves
(1.5-3.0)HP	G 1" (female)	G 1" (female)	"G 1" (male) - G 1" (male)"
(3.5-6.0)HP	G 1" (female)	G 1" (female)	G 1" (male) - G 1" (male)
(8/10.0)HP	G 1-1/4" (female)	G 1-1/4" (female)	G 1-1/4" (male) - G 1-1/4" (male)

airH2O 600S Combi

(inches)

Model	Space heating connection			DHW connection		
	Inlet connection	Outlet connection	Shut-off valves	Inlet connection	Outlet connection	Pressure and temperature relief valve (*)
(1.5-3.0)HP	G 1"(female)	G 1"(female)	G 1" (male) - G 1" (male)	G 3/4" (male)	G 3/4" (male)	Ø15 mm
(3.5-6.0)HP	G 1"(female)	G 1" (female)	G 1" (male) - G 1" (male)	G 3/4" (male)	G 3/4" (male)	Ø15 mm

(*): Only for models for UK market

8.6.7 Water quality for primary (space heating / cooling) and secondary (DHW) circuit

CAUTION

- Water quality must be according to EU council directive 98/83 EC.
- Water should be subjected to filtration or to a softening treatment with chemicals before application as treated water.
- It is also necessary to analyse the quality of water by checking pH, electrical conductivity, ammonia ion content, sulphur content, and others. If the results of the analysis are not good, the use of industrial water would be recommended.
- No antifreeze agent shall be added to the water circuit in a split systems.
- To avoid deposits of scale on the heat exchangers surface it is mandatory to ensure a high water quality with low levels of CaCO_3 .

Before water filling, sludge removal (for existing water networks), cleansing and rinsing (for an existing or new installations water networks) it is important to cleanse all hydraulic pipes to remove sludge and scale by using a specific designed product for cleaning central heating systems.

Also, its recommended to use a product inhibitor for protecting central heating systems against limescale and corrosion, always following manufacturer's instructions and ensuring that the product is suitable for the material used in the water network and the **airH2O 600** unit.

When using chemical treatments and inhibitors always follow manufacturer's instructions and ensure that the product is appropriate for the total water system. Using filling water that does not meet the stated quality requirements can cause a considerably reduce in service life. The responsibility will be out of Hitachi warranties.

The following water quality minimum requirement:

Parameter	Parametric Value	Unit
pH	6.5 to 8.5	-
Conductivity	10~500	$\mu\text{S}/\text{cm}$
Alkalinity	60~300	mg/l
Total Hardness	6~15	°f H
	0.6~1.5	mmol/l
	60~150	$\text{mg CaCO}_3 / \text{l}$
Chlorine	<50	$\text{mg Cl}^- / \text{l}$
Sulphate	<50	$(\text{mg SO}_4^{2-} / \text{l})$
Nitrate	< 100	$\text{mg}/\text{l} (\text{NO}_3)$
Iron	< 0.2	$\text{mg}/\text{l} (\text{Fe})$
TDS (Total dissolved solids)	8~400	ppm
Appearance of the water	Clear and without deposits	-

◆ Additional DHW Circuit recommendation

In places where possible hard water areas, to prevent and minimis scale situations, it is recommended to reduce stored water temperature to a maximum of 55°C, as huge scale quantity could damage the water tank and the electrical heater.

Flush the domestic water circuit with at least 10 times its volume of water. The life of the water tank will be shorter if groundwater (spring water, well water, etc..) is used without treatment which can lead to the corrosion of the tank. The water must not be aggressive or encrusting at any time. The result of calculating the Langelier Index should be between +/- 0.5.

In installation locations where the result of Langelier Index calculation are out of the expected value with a tendency to corrosive water, it is recommended to install the active anode accessory (ATW-CP-05 only available for **airH2O 600S Combi** version).

In the regions where the water is very hard (or out of requirements values) or where the result of Langelier Index calculation are out of expected value with a tendency to hard water, it is recommended fitting a softener system. Please ensure that softener system will be capable of providing effective protection against corrosion. It is recommended to install the active anode accessory (ATW-CP-05 only available for **airH2O 600S Combi** version).

As DHW Tank water is being used for storing drinking water, this water has to be in accordance with national regulations and Hitachi's quality minimum requirements. The use of softeners, active anodes or others protective systems will not bring a derogation from Hitachi's provided warranty.

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9.1 General check

- Make sure that the following conditions related to power supply installation are satisfied:
 - ✓ The power capacity of the electrical installation is large enough to support the power demand of the **airH2O 600** system (outdoor unit + indoor unit + DHW tank (if apply)).
 - ✓ The power supply voltage is within $\pm 10\%$ of the rated voltage.
 - ✓ The impedance of the power supply line is low enough to avoid any voltage drop of more than 15% of the rated voltage.
- Following the Council Directive 2014/30/EU, relating to electromagnetic compatibility, the table below indicates the Maximum permitted system impedance $Z_{\max}$ at the interface point of the user's supply, in accordance with EN 61000-3-11.

9.1.1 Split system - outdoor unit

Model	Power supply	$Z_{\max} (\Omega)$
RAS-1.5WHVRP2E	~ 230 V 50 Hz	-
RAS-2WHVRP2E		-
RAS-2.5WHVRP2E		0.47
RAS-3WHVRP2E		0.47
RAS-3.5WHVRP2E		0.24
RAS-4WHVRP2E		0.24
RAS-5WHVRP2E		0.24
RAS-6WHVRP2E		0.24
RAS-3.5WHRP2E	3N~ 400 V 50 Hz	-
RAS-4WHRP2E		-
RAS-5WHRP2E		-
RAS-6WHRP2E		-
RAS-8WHNPE		-
RAS-10WHNPE		-

9.1.2 Split system - indoor unit

9.1.2.1 airH2O 600S

Model	Power supply	Operation mode	$Z_{max} (\Omega)$
RWM-(1.5-3.0)R3E	~ 230 V 50 Hz	Without electric heaters	-
		With electric heater	-
		With DHW tank heater	-
		With electric and DHW tank heaters	0.29
	3N~ 400 V 50 Hz	Without electric heaters	-
		With electric heater	-
		With DHW tank heater	-
		With electric and DHW tank heaters	-
RWM-(3.5-6.0)R3E	~ 230 V 50 Hz	Without electric heaters	-
		With electric heater	0.28
		With DHW tank heater	-
		With electric and DHW tank heaters	0.19
	3N~ 400 V 50 Hz	Without electric heaters	-
		With electric heater	-
		With DHW tank heater	-
		With electric and DHW tank heaters	-
RWM-(8.0-10.0)N3E	3N~ 400 V 50 Hz	Without electric heaters	-
		With electric heater	-
		With DHW tank heater	-
		With electric and DHW tank heaters	-

NOTE

- The data corresponding to DHW tank heater is calculated in combination with the domestic hot water tank accessory "DHWT-(200/300)S-3.0H2E".
- In case of three phases connection, Z_{max} is not considered.

9.1.2.2 airH2O 600S Combi

Model	Power supply	Operation mode	Z _{max} (Ω)
RWD-(1.5-3.0)RW3E-220S(-K)	~ 230 V 50 Hz	Without electric heaters	-
		With electric heater	-
		With DHW tank heater	-
		With electric and DHW tank heaters	0.29
	3N~ 400 V 50 Hz	Without electric heaters	-
		With electric heater	-
		With DHW tank heater	-
		With electric and DHW tank heaters	-
RWD-(2.0-3.0)RW3E-220S(6H) RWD-(3.5-6.0)RW3E-220S(-K)	~ 230 V 50 Hz	Without electric heaters	-
		With electric heater	0.28
		With DHW tank heater	-
		With electric and DHW tank heaters	0.19
	3N~ 400 V 50 Hz	Without electric heaters	-
		With electric heater	-
		With DHW tank heater	-
		With electric and DHW tank heaters	-

NOTE

The data corresponding to DHW tank heater is calculated in combination with the domestic hot water tank accessory "DHWT-(200/300)S-3.0H2E".

9.2 Harmonics

The status of Harmonics for each model, regarding compliance with EN 61000-3-2 and EN 61000-3-12, is as follows:

	Outdoor units	airH2O 600S	airH2O 600S Combi
Equipment complying with EN 61000-3-2 NOTE: (*) Professional use	-	RWM-1.5R3E(~1)(~3N)	
		RWM-2.0R3E(~1)(~3N)	RWD-1.5RW3E-220S(-K) (1~)(3N~)
		RWM-2.5R3E(~1)(~3N)	RWD-2.0RW3E-220S(-K)(6H) (1~)(3N~)
		RWM-3.0R3E(~1)(~3N)	RWD-2.5RW3E-220S(-K)(6H) (1~)(3N~)
		RWM-3.5R3E(~3N)	RWD-3.0RW3E-220S(-K)(6H) (1~)(3N~)
		RWM-4.0R3E(~3N)	RWD-3.5RW3E-220S(-K) (1~)
		RWM-5.0R3E(~3N)	RWD-4.0RW3E-220S(-K) (1~)
		RWM-6.0R3E(~3N)	RWD-5.0RW3E-220S(-K) (1~)
		RWM-8.0N3E(~3N)	RWD-6.0RW3E-220S(-K) (1~)
		RWM-10.0N3E(~3N)	
Equipment complying with EN 61000-3-12	RAS-(3.5-6)WH(V)RP2E	RWM-3.5R3E(~1)	RWD-3.5RW3E-220S(-K) (3N~)
		RWM-4.0R3E(~1)	RWD-4.0RW3E-220S(-K) (3N~)
		RWM-5.0R3E(~1)	RWD-5.0RW3E-220S(-K) (3N~)
		RWM-6.0R3E(~1)	RWD-6.0RW3E-220S(-K) (3N~)
Installation restrictions may be applied by supply authorities in relation to harmonics	RAS-(8/10)WHNPE	-	-

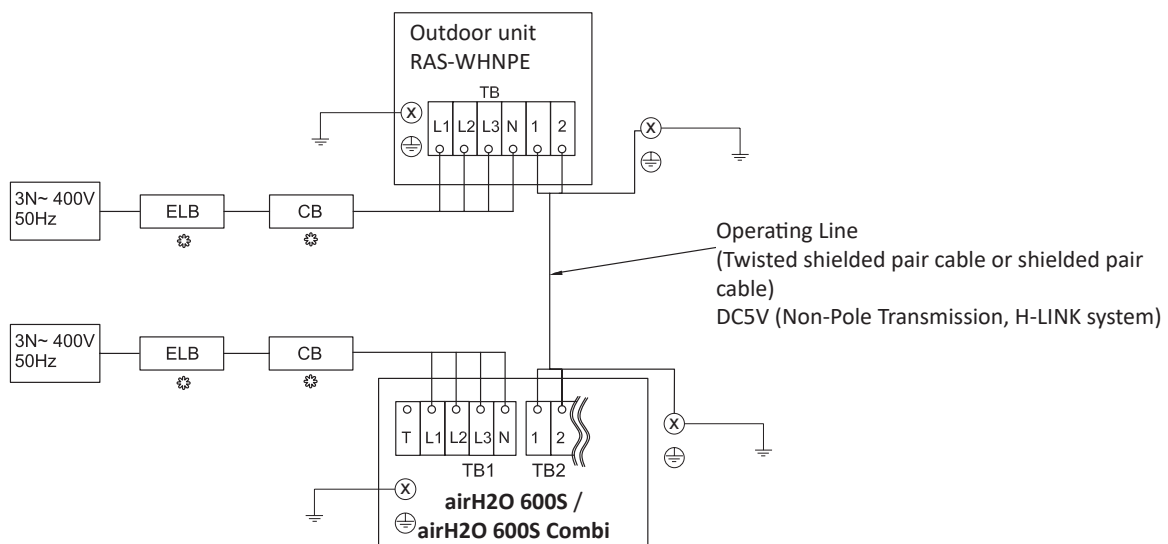
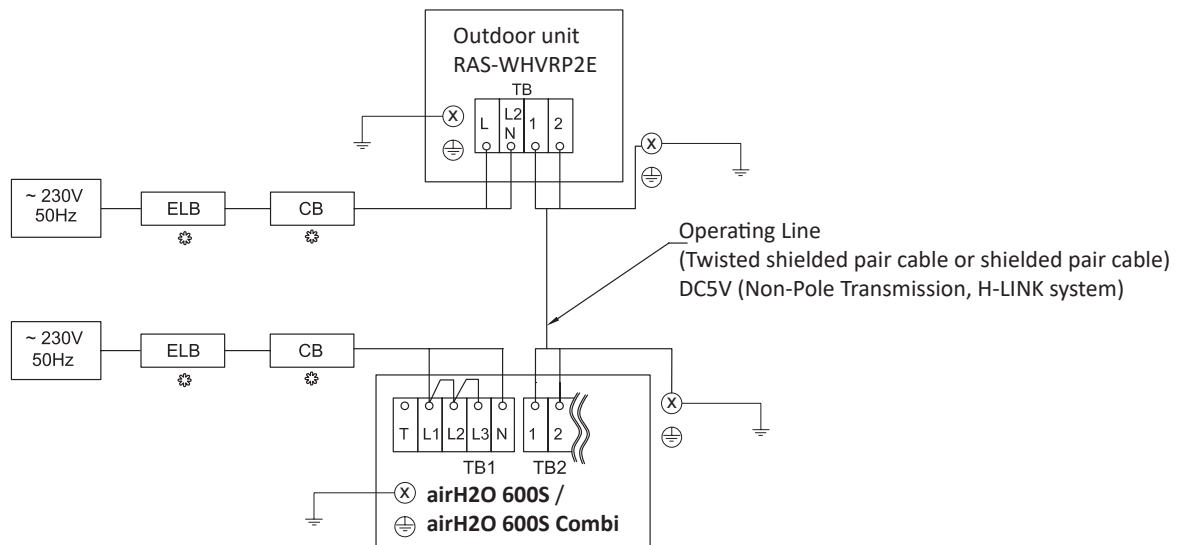
- Check to ensure that existing installation (mains power switches, circuit breakers, wires, connectors and wire terminals) already complies with the national and local regulations.
- The use of the DHW tank heater is disabled as factory setting. If it is desired to enable the DHW tank heater operation during normal indoor unit operation, adjust the DSW4 pin 3 of the PCB1 to the ON position and use the adequate protections. Refer to the section “9.4 Electrical connection” for the detailed information.

9.3 System wiring diagram

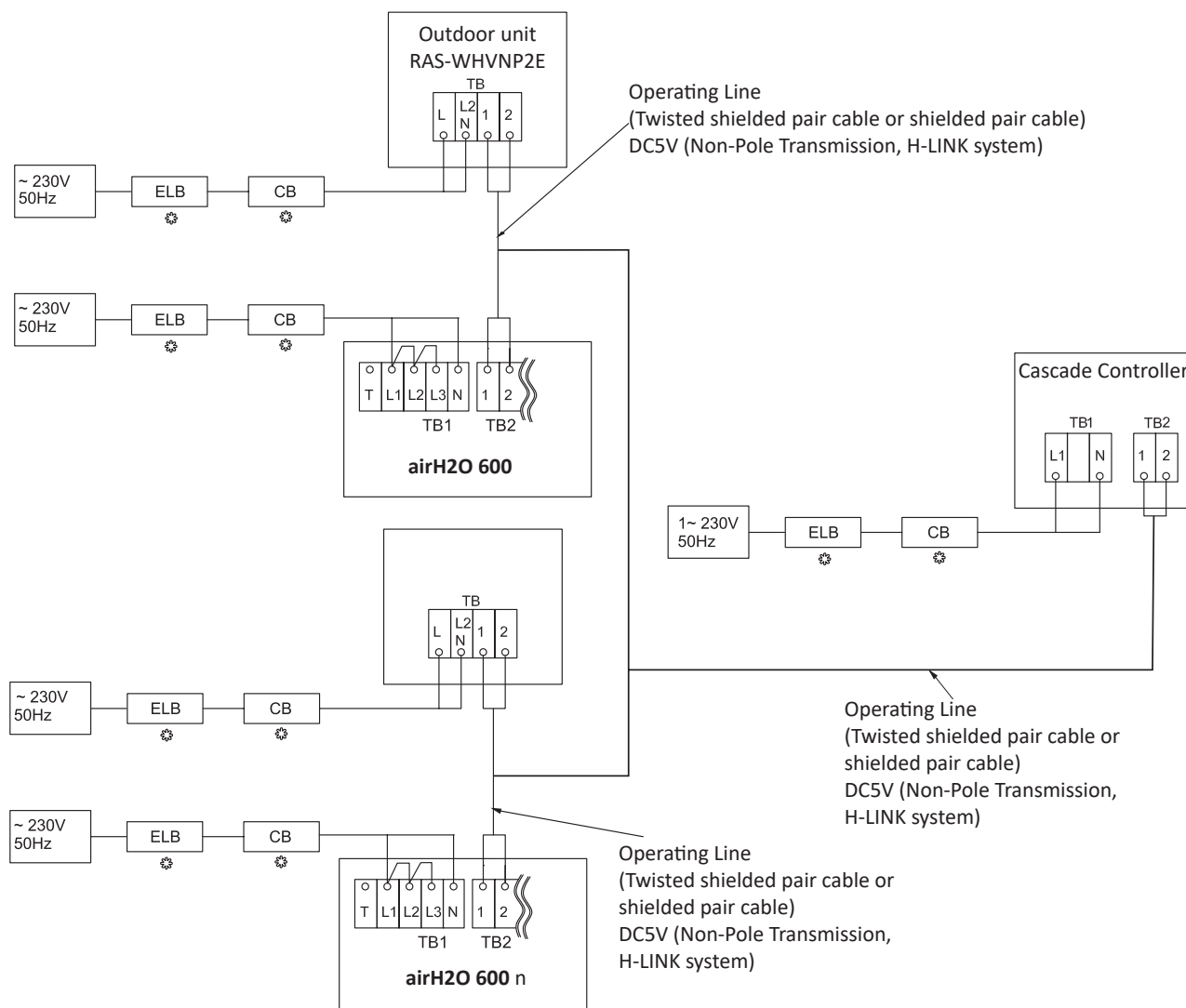
Connect the units according to the following electric diagram:

- | | |
|-----------------------------|------------------------------------|
| TB : Terminal board | — : Field wiring |
| CB : Circuit breaker | ⊗ : Field-supplied |
| ELB : Earth leakage breaker | 1,2 : Outdoor-Indoor communication |
| --- : Internal wiring | |

9.3.1 Split system - airH2O 600S and airH2O 600S Combi



9.3.2 Complementary system - Cascade Controller



9.4 Electrical connection

Common additional information:

Applicable voltage		
Power supply	U max. (V)	U min. (V)
~ 230 V 50 Hz	253	207
3N~ 400 V 50 Hz	440	360
Transmitting cables wiring size (H-LINK cable) EN 60335-1		
2 x 0.75 mm ² (shielded cable)		
Actuator cables wiring size EN 60335-1		
2 x 0.75 mm ² + GND		

CAUTION

- Check to ensure that the field supplied electrical components (mains power switches, circuit breakers, wires, connectors and wire terminals) have been properly selected according to the electrical data indicated on this chapter and they comply with national and local codes. If it is necessary, contact with your local authority in regards to standards, rules, regulations, etc.
- Use a dedicated power circuit for the indoor unit. Do not use a power circuit shared with the outdoor unit or any other appliance.
- Use wires which are not lighter than the polychloroprene sheathed flexible cord (code designation 60245 IEC 57).
- Ensure specifically that there is an Earth Leakage Breaker (ELB) installed for the units (outdoor and indoor unit).
- If the installation is already equipped with an Earth Leakage Breaker (ELB), ensure that its rated current is large enough to hold the current of the units (outdoor and indoor unit).

NOTE

- Electric fuses can be used instead of magnetic Circuit Breakers (CB). In that case, select fuses with similar rated values as the CB.
- The Earth Leakage Breaker (ELB) mentioned on this manual is also commonly known as Residual Current Device (RCD) or Residual Current Circuit Breaker (RCCB).
- The Circuit Breakers (CB) are also known as Thermal-Magnetic Circuit Breakers or just Magnetic Circuit Breakers (MCB)
- The data corresponding to DHW tank heater is calculated in combination with the domestic hot water tank accessory "DHWT-(200/300)S-3.0H2E".
- MC: Maximum current; CB: Circuit breaker; ELB: Earth leakage breaker.

9.4.1 Wiring size and protection devices minimum requirements

9.4.1.1 Split system - outdoor unit

Model	Power supply	Max current (A)	Power supply cables	CB (A)	ELB (nº of poles/A/mA)
		MC	EN 60335-1		
RAS-1.5WHVRP2E	~ 230 V 50 Hz	12.6	2 x 2.5 mm ² + GND	16	2/40/30
RAS-2WHVRP2E		12.6	2 x 2.5 mm ² + GND	16	2/40/30
RAS-2.5WHVRP2E		16.5	2 x 4.0 mm ² + GND	20	2/40/30
RAS-3WHVRP2E		16.5	2 x 4.0 mm ² + GND	20	2/40/30
RAS-3.5WHVRP2E		28.6	2 x 6 mm ² + GND	32	2/40/30
RAS-4WHVRP2E		28.6	2 x 6 mm ² + GND	32	2/40/30
RAS-5WHVRP2E		28.6	2 x 6 mm ² + GND	32	2/40/30
RAS-6WHVRP2E		28.6	2 x 6 mm ² + GND	32	2/40/30
RAS-3.5WHRP2E	3N~ 400 V 50 Hz	16.1	4 x 4 mm ² + GND	20	4/40/30
RAS-4WHRP2E		16.1	4 x 4 mm ² + GND	20	4/40/30
RAS-5WHRP2E		16.1	4 x 4 mm ² + GND	20	4/40/30
RAS-6WHRP2E		16.1	4 x 4 mm ² + GND	20	4/40/30
RAS-8WHNPE		24	4 x 6.0 mm ² + GND	25	4/40/30
RAS-10WHNPE		24	4 x 6.0 mm ² + GND	25	4/40/30

9.4.1.2 Split system - indoor unit

◆ airH2O 600S

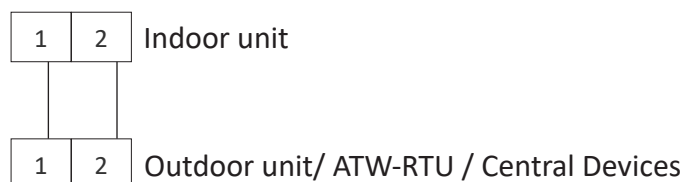
Model	Power supply	Operation mode	Max current (A)	Power supply cables	CB (A)	ELB (n° of poles/A/ mA)
			MC	EN 60335-1		
RWM-(1.5-3.0)R3E	~ 230 V 50 Hz	Without electric heaters	0.64	2 x 0.75 mm ² + GND	5	2/40/30
		With electric heater	13.68	2 x 2.5 mm ² + GND	16	
		With DHW tank heater	12.59	2 x 2.5 mm ² + GND	16	
		With electric and DHW tank heaters	26.73	2 x 6.0 mm ² + GND	32	
	3N~ 400 V 50 Hz	Without electric heaters	0.64	4 x 0.75 mm ² + GND	5	4/40/30
		With electric heater	4.97	4 x 2.5 mm ² + GND	10	
		With DHW tank heater	13.68	4 x 2.5 mm ² + GND	16	
		With electric and DHW tank heaters	18.01	4 x 4.0 mm ² + GND	20	
RWM-(3.5-6.0)R3E	~ 230 V 50 Hz	Without electric heaters	0.66	2 x 0.75 mm ² + GND	5	2/40/30
		With electric heater	26.75	2 x 6 mm ² + GND	32	
		With DHW tank heater	13.7	2 x 2.5 mm ² + GND	16	
		With electric and DHW tank heaters	39.79	2 x 10.0 mm ² + GND	50	
	3N~ 400 V 50 Hz	Without electric heaters	0.66	4 x 0.75 mm ² + GND	5	4/40/30
		With electric heater	9.32	4 x 2.5 mm ² + GND	16	
		With DHW tank heater	13.7	4 x 2.5 mm ² + GND	16	
		With electric and DHW tank heaters	22.36	4 x 6.0 mm ² + GND	25	
RWM-(8.0-10.0)N3E	3N~ 400 V 50 Hz	Without electric heaters	1.16	4 x 0.75 mm ² + GND	5	4/40/30
		With electric heater	14.15	4 x 4 mm ² + GND	20	
		With DHW tank heater	14.2	4 x 4 mm ² + GND	20	
		With electric and DHW tank heaters	27.19	4 x 6.0 mm ² + GND	32	

◆ airH2O 600S Combi

Model	Power supply	Operation mode	Max current (A)	Power supply cables	CB (A)	ELB (n° of poles/A/mA)
			MC	EN 60335-1		
RWD-(1.5-3.0)RW3E-220S(-K)	~ 230 V 50 Hz	Without electric heaters	0.6	2 x 0.75 mm ² + GND	5	2/40/30
		With electric heater	13.7	2 x 2.5 mm ² + GND	16	
		With DHW tank heater	12.6	2 x 2.5 mm ² + GND	16	
		With electric and DHW tank heaters	25.6	2 x 6 mm ² + GND	32	
	3N~ 400 V 50 Hz	Without electric heaters	0.6	4 x 0.75 mm ² + GND	5	4/40/30
		With electric heater	8.7	4 x 2.5 mm ² + GND	10	
		With DHW tank heater	12.6	4 x 2.5 mm ² + GND	16	
		With electric and DHW tank heaters	12.6	4 x 2.5 mm ² + GND	16	
RWD-(2.0-3.0)RW3E-220S-6H	~ 230 V 50 Hz	Without electric heaters	0.6	2 x 0.75 mm ² + GND	5	2/40/30
		With electric heater	26.7	2 x 6.0 mm ² + GND	32	
		With DHW tank heater	12.6	2 x 2.5 mm ² + GND	16	
		With electric and DHW tank heaters	38.7	2 x 10.0 mm ² + GND	50	
	3N~ 400 V 50 Hz	Without electric heaters	0.6	4 x 0.75 mm ² + GND	5	4/40/30
		With electric heater	17.3	4 x 4.0 mm ² + GND	20	
		With DHW tank heater	12.6	4 x 2.5 mm ² + GND	16	
		With electric and DHW tank heaters	17.3	4 x 4.0 mm ² + GND	20	
RWD-(3.5-6.0)NW1E-220S(-K)	~ 230 V 50 Hz	Without electric heaters	0.7	2 x 0.75 mm ² + GND	5	2/40/30
		With electric heater	26.7	2 x 6 mm ² + GND	32	
		With DHW tank heater	12.6	2 x 2.5 mm ² + GND	16	
		With electric and DHW tank heaters	38.7	2 x 10 mm ² + GND	50	
	3N~ 400 V 50 Hz	Without electric heaters	0.7	4 x 0.75 mm ² + GND	5	4/40/30
		With electric heater	17.3	4 x 4.0 mm ² + GND	20	
		With DHW tank heater	12.6	4 x 2.5 mm ² + GND	16	
		With electric and DHW tank heaters	17.3	4 x 6 mm ² + GND	20	

9.5 Transmission wiring

- This is the transmission wiring between outdoor and indoor unit, ATW-RTU communication and Central devices.
- The transmission is wired to terminals 1-2.
- The H-LINK II wiring system requires only two transmission cables that connect the indoor unit and the outdoor unit.



NOTE

- Use twist pair wires (0.75 mm²) for operation wiring between outdoor unit and indoor unit. The wiring must consist of 2-core wires (Do not use wire with more than 3 cores).
- Use shielded wires for intermediate wiring to protect the units from noise interference, with a length of less than 300 m and a size in compliance with local codes.
- In the event that a conduit tube for field-wiring is not used, fix rubber bushes to the panel with adhesive.

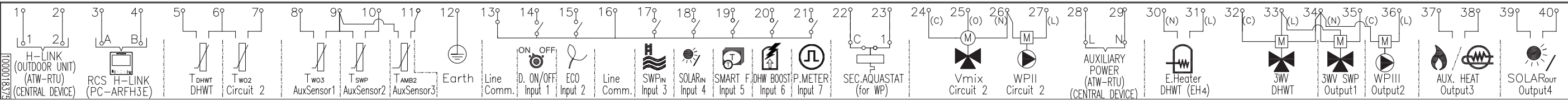
CAUTION

Ensure that the transmission wiring is not wrongly connected to any live part that could be damaged the PCB.

9.6 Optional indoor unit wiring (accessories)

9.6.1 Summary of the terminal board connections for airH2O 600 units

◆ airH2O 600S - RWM-(1.5-10)(N/R)3E

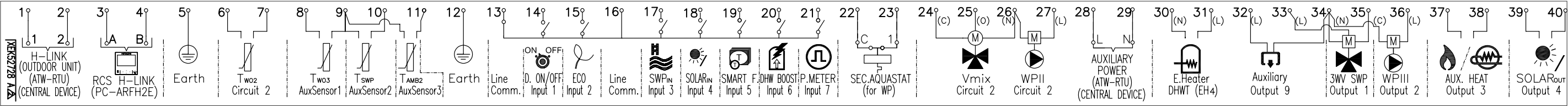


Mark	Part name	Description
TERMINAL BOARD 1 (TB1)		
N	~ 230 V 50 Hz	Main power supply connection
L1		
L2		
L3		
TERMINAL BOARD 2 (TB2)		
1	H-LINK communication	The H-LINK transmission has to be done between the indoor unit and the terminals 1-2 of either outdoor unit, ATW-RTU or any other central device.
2		
3	H-LINK communication for remote control switch	Terminals for the connection of the airH2O 600 unit controller.
4		
5	DHW tank’s thermistor	The DHW sensor is used to control the temperature of the domestic hot water tank.
6	Common thermistor	Common terminal for thermistor.
7	Thermistor for water outlet temperature of second cycle	The sensor is used for the second temperature control and should be positioned after the mixing valve and the circulation pump.
8	Thermistor for water outlet temperature of third cycle	The sensor is used for the third temperature control and should be positioned after the hydraulic separator, buffer tank or boiler combination.
9	Common thermistor	Common terminal for thermistors.
10	Thermistor for swimming pool water temperature	The sensor is used for the swimming pool temperature control and should be positioned inside plate heat exchanger of the swimming pool.
11	Thermistor for second ambient temperature	The sensor is used for the second ambient temperature control and it should be positioned outdoors.
12	Earth	Earth connection for the 3 way valve and water pump.
13	Common line	Terminal Line common for input 1 and input 2.
14	Input 1 (Demand ON/OFF) (*)	The air to water heat pump system has been designed to allow the connection of a remote thermostat to effectively control your home’s temperature. Depending on the room temperature, the thermostat will turn the air to water heat pump system ON and OFF.
15	Input 2 (ECO mode) (*)	Available signal which allows to reduce the water setting temperature of circuit 1, circuit 2 or both.
16	Common line	Terminal Line common for inputs 3, 4, 5, 6, 7.
17	Input 3 (Swimming pool) (*)	Only for swimming pool installations: It is necessary to connect an external input to the air to water heat pump to provide signal when the water pump of swimming pool is ON.
18	Input 4 (Solar) (*)	Available input for Solar combination with Domestic Hot Water Tank.

Mark	Part name	Description
19	Input 5 (Smart function) (*)	For the connection of an external tariff switch device to switch OFF the heat pump during peak electricity demand period. Depending on the setting, the heat pump or DHWT will be blocked when signal is open/closed.
20	Input 6 (DHW boost) (*)	Available input for an instantaneous heating of the domestic hot water of the tank.
21	Input 7 (Power meter)	The measuring of the real power consumption can be done connecting an external power meter. The number of pulses of the power meter is a variable which must be set. By this, every pulse input is added into corresponding operation mode (Heating, Cooling, DHW Operation). Two possible options: - One power meter for all installation (indoor unit + outdoor unit). - Two separated power meters (one for indoor unit and one for outdoor unit).
22	Aquastat security for circuit 1 (WP1)	Terminals intended for the connection of the Aquastat security accessory (ATW-AQT-01) for controlling water temperature of the circuit 1.
23		
24(C)	Mixing valve close	When a mixing system is required for a second temperature control, these outputs are necessary to control the mixing valve.
25(O)	Mixing valve open	
26(N)	Common line	Terminal line common for mixing valve and water pump 2.
27(L)	Water Pump 2 (WP2)	When there is a second temperature application, a secondary pump is the circulating pump for the secondary heating circuit.
28	Auxiliary power	Power supply for ATW-RTU and central device.
29		
30(N)	Electrical Heater DHW Output	If DHW tank contains an electric heater, the air to water heat pump can activate it if the heat pump cannot achieve the required DHW temperature by itself.
31(L)		
32(C)	3-way valve for DHW tank Output	The air to water heat pump can be used to heat DHW. This output will be ON when DHW is activated.
33(L)	Line (phase)	Line terminal for the 3-way valve for DHW tank and swimming pool.
34(N)	Common line (neutral)	Terminal line common for 3-way valve of DHW tank and outputs 1 and 2.
35(C)	Output 1 (3-way valve for swimming pool) (*)	The air to water heat pump can be use to heat swimming pool. This output will be ON when swimming pool is activated.
36(L)	Output 2 (Water pump 3 (WP3)) (*)	When there is a hydraulic separator or buffer tank, additional water pump (WP3) is needed.
37	Output 3 (Auxiliary boiler or electric heater) (*)	The boiler can be used to alternate with the heat pump when the heat pump cannot achieve the required temperature by itself.
38		A water electric heater (as accessory) can be used to provide the additional heating required on the coldest days of the year.
39	Output 4 (Solar) (*)	Output for solar combination with Domestic Hot Water Tank.
40		

(*): Inputs and outputs explained in the table are the factory-set options. By means of the unit controller, some other inputs and outputs functions can be configured and used. Please, refer to the Service Manual for detailed information.

◆ airH2O 600S Combi - RWD-(1.5-6)RW3E-220S(-K/6H)



Mark	Part name	Description
TERMINAL BOARD 1 (TB1)		
N	~ 230 V 50 Hz	Main power supply connection
L1		
L2		
L3		
TERMINAL BOARD 2 (TB2)		
1	H-LINK communication	The H-LINK transmission has to be done between the indoor unit and the terminals 1-2 of either outdoor unit, ATW-RTU or any other central device.
2		
3	H-LINK communication for remote control switch	Terminals for the connection of the airH2O 600 unit controller.
4		
5	Earth	Earth connection for accessories.
6	Common thermistor	Common terminal for thermistor.
7	Thermistor for water outlet temperature of second cycle	The sensor is used for the second temperature control and should be positioned after the mixing valve and the circulation pump.
8	Thermistor for water outlet temperature of third cycle	The sensor is used for the third temperature control and should be positioned after the hydraulic separator, buffer tank or boiler combination.
9	Common thermistor	Common terminal for thermistors.
10	Thermistor for swimming pool water temperature	The sensor is used for the swimming pool temperature control and should be positioned inside plate heat exchanger of the swimming pool.
11	Thermistor for second ambient temperature	The sensor is used for the second ambient temperature control and it should be positioned outdoors.
12	Earth	Earth connection for the 3 way valve and water pump.
13	Common line	Terminal Line common for input 1 and input 2.
14	Input 1 (Demand ON/OFF) (*)	The air to water heat pump system has been designed to allow the connection of a remote thermostat to effectively control your home’s temperature. Depending on the room temperature, the thermostat will turn the air to water heat pump system ON and OFF.
15	Input 2 (ECO mode) (*)	Available signal which allows to reduce the water setting temperature of circuit 1, circuit 2 or both.
16	Common line	Terminal Line common for inputs 3, 4, 5, 6, 7.
17	Input 3 (Swimming pool) (*)	Only for swimming pool installations: It is necessary to connect an external input to the air to water heat pump to provide signal when the water pump of swimming pool is ON.
18	Input 4 (Solar) (*)	Available input for Solar combination with Domestic Hot Water Tank.
19	Input 5 (Smart function) (*)	For the connection of an external tariff switch device to switch OFF the heat pump during peak electricity demand period. Depending on the setting, the heat pump or DHWT will be blocked when signal is open/closed.
20	Input 6 (DHW boost) (*)	Available input for an instantaneous heating of the domestic hot water of the tank.

Mark	Part name	Description
21	Input 7 (Power meter)	The measuring of the real power consumption can be done connecting an external power meter. The number of pulses of the power meter is a variable which must be set. By this, every pulse input is added into corresponding operation mode (Heating, Cooling, DHW Operation). Two possible options: - One power meter for all installation (indoor unit + outdoor unit). - Two separated power meters (one for indoor unit and one for outdoor unit).
22	Aquastat security for circuit 1 (WP1)	Terminals intended for the connection of the Aquastat security accessory (ATW-AQT-01) for controlling water temperature of the circuit 1.
23		
24(C)	Mixing valve close	When a mixing system is required for a second temperature control, these outputs are necessary to control the mixing valve.
25(O)	Mixing valve open	
26(N)	Common line	Terminal line common for mixing valve and water pump 2.
27(L)	Water Pump 2 (WP2)	When there is a second temperature application, a secondary pump is the circulating pump for the secondary heating circuit.
28	Auxiliary power	Power supply for ATW-RTU and central device.
29		
30(N)	Electrical Heater DHW Output	If DHW tank contains an electric heater, the air to water heat pump can activate it if the heat pump cannot achieve the required DHW temperature by itself.
31(L)		
32	Output 9	
33(L)	Line (phase)	Line terminal for valve accessories.
34(N)	Common line (neutral)	Terminal line common for outputs 1, 2 and 9.
35(C)	Output 1 (3-way valve for swimming pool) (*)	The air to water heat pump can be use to heat swimming pool. This output will be ON when swimming pool is activated.
36(L)	Output 2 (Water pump 3 (WP3)) (*)	When there is a hydraulic separator or buffer tank, additional water pump (WP3) is needed.
37	Output 3 (Auxiliary boiler or electric heater) (*)	The boiler can be used to alternate with the heat pump when the heat pump cannot achieve the required temperature by itself.
38		A water electric heater (as accessory) can be used to provide the additional heating required on the coldest days of the year.
39	Output 4 (Solar) (*)	Output for solar combination with Domestic Hot Water Tank.
40		

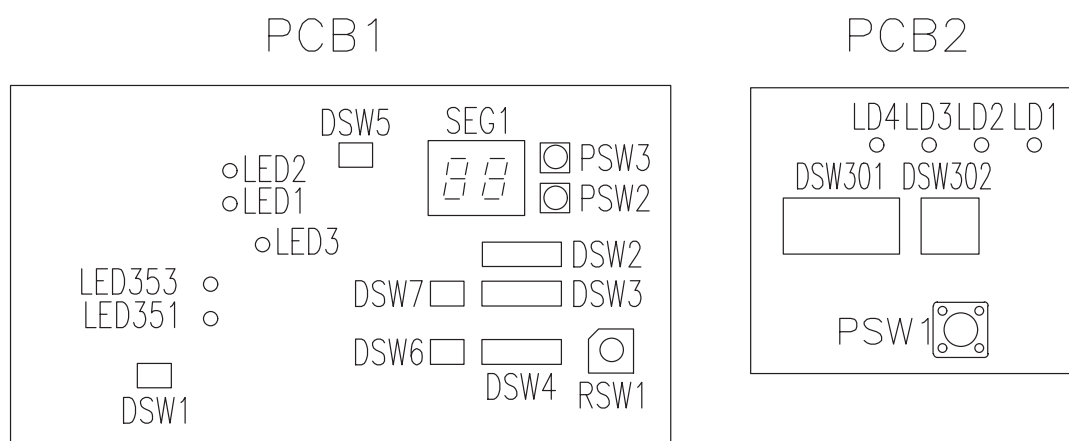
(*): Inputs and outputs explained in the table are the factory-set options. By means of the unit controller, some other inputs and outputs functions can be configured and used. Please, refer to the Service Manual for detailed information.

9.7 Setting of DIP switches and RSW switches

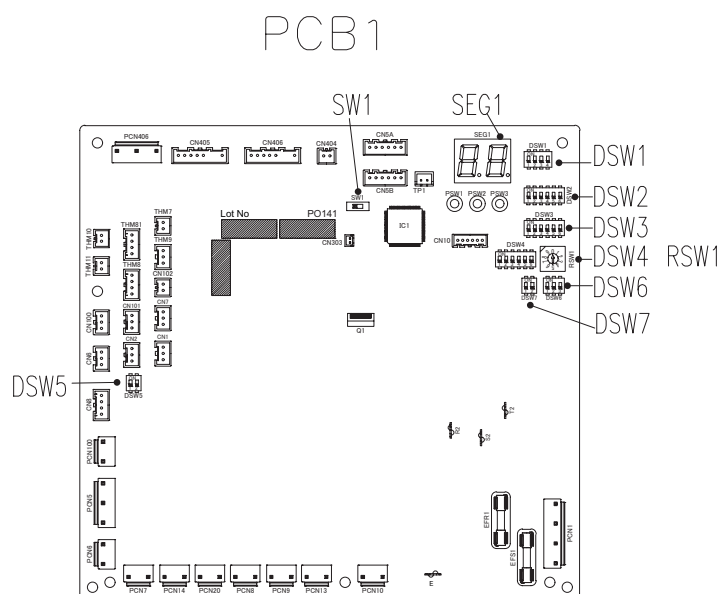
9.7.1 Location of DIP switches and rotary switches for split system - outdoor unit

The PCB in the outdoor unit is operating with DIP switches and push switches. The location is as follows:

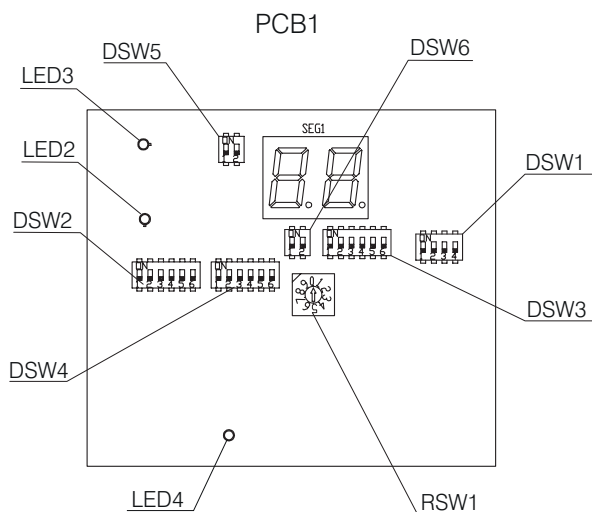
◆ RAS-(1.5-3)WHVRP2E



◆ RAS-(3.5-6)WH(V)RP2E



◆ RAS-(8/10)WHNPE



NOTE

DIP-IPM or PCB2 (depending on model) has a DSW1. When pin number 1 is set to ON position, the electrical current detections is cancelled. Pin number 1 should be to OFF position after electrical work.

9.7.2 Function of DIP switches and rotary switches

 NOTE

- The mark “■” indicates the position of dips switches.
- No mark “■” indicates pin position is not affecting.
- The figures show the settings before shipment or after selection.

 DANGER

Before setting dips switches, first turn the power source off and then set the position of the dips switches. In case of setting the switches without turning the power source off, the contents of the setting are invalid.

9.7.2.1 DSW1

◆ Cancellation of electric current detection

RAS-(1.5-3)WHVRP2E: PCB1

DSW1	RAS-(1.5-3)WHVRP2E
Factory setting	
When set pin to ON, the electric current detection is cancelled. Pin should be set back to OFF after electrical work.	

◆ Test run mode

RAS-(3.5-6)WH(V)RP2E: PCB1

RAS-(8/10)WHNPE: PCB1

DSW1	RAS-(3.5-6)WH(V)RP2E	RAS-(8/10)WHNPE
Factory setting		
Test run for pump down		
Not available		
Not available		
Not available		
Forced stoppage of compressor		

NOTE

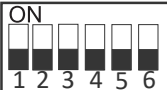
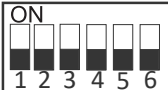
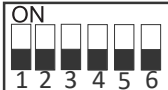
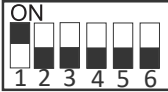
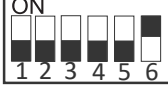
- This operation is reset once the compressor is in Thermo-ON mode.
- During the test run operation the units will operate continuously during 2 hours without Thermo-OFF and the 3 minutes guard for compressor protection will be effective.
- Test run will start within 20 seconds after setting DSW1 pin 1 to ON position.

9.7.2.2 DSW2

◆ Optional Function setting (Setting is required)

RAS-(1.5-6)WH(V)RP2E: PCB1

RAS-(8/10)WHNPE: PCB1

DSW2	RAS-(1.5-3)WHVRP2E	RAS-(3.5-6)WH(V)RP2E	RAS-(8/10)WHNPE
Factory setting			
Pipe length > 10 m	-		-
	-		-
Optional function setting mode (The optional function selection mode becomes available)			
External input, output setting mode (The input /output signals selection mode becomes available).			

9.7.2.3 DSW3

◆ Capacity Setting (No setting is required)

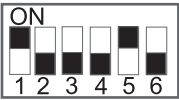
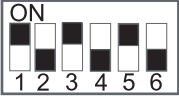
RAS-(1.5-6)WH(V)RP2E: PCB1

RAS-(8/10)WHNPE: PCB1

DSW3	Factory setting
RAS-1.5WHVRP2E	
RAS-2.WHVRP2E	
RAS-2.5WHVRP2E	

DSW3	Factory setting
RAS-3WHVRP2E	
RAS-(3.5-6)WH(V)RP2E	
RAS-8WHNPE	
RAS-10WHNPE	

◆ Capacity Setting (setting required when PCB is replaced)

DSW3	Factory setting
RAS-3.5WHVRP2E	
RAS-4WHVRP2E	
RAS-5WHVRP2E	
RAS-6WHVRP2E	
RAS-3.5WHRP2E	
RAS-4WHRP2E	
RAS-5WHRP2E	
RAS-6WHRP2E	

9.7.2.4 DSW4 / RSW1

◆ Refrigerant cycle selection (no setting is required)

RAS-(1.5-6)WH(V)RP2E: PCB1

RAS-(8/10)WHNPE: PCB1

DSW4 / RSW1		RAS-(1.5-6)WH(V)RP2E
		RAS-(8/10)WHNPE
Factory setting		

9.7.2.5 DSW5

◆ Terminal resistance

RAS-(1.5-6)WH(V)RP2E: PCB1

RAS-(8/10)WHNPE: PCB1

DSW5		RAS-(1.5-6)WH(V)RP2E
		RAS-(8/10)WHNPE
Factory setting		

9.7.2.6 DSW6

◆ No setting is required (do not change)

RAS-(1.5-6)WH(V)RP2E: PCB1

RAS-(8/10)WHNPE: PCB1

DSW6		RAS-(1.5-3)WHVRP2E	RAS-(3.5-6)WH(V)RP2E
		RAS-(8/10)WHNPE	
Factory setting			

9.7.2.7 DSW7

◆ Function selection

RAS-(1.5-6)WH(V)RP2E: PCB1

RAS-(8/10)WHNPE: PCB1

DSW7	RAS-(1.5-3)WHVRP2E RAS-(8/10)WHNPE	RAS-(3.5-6)WH(V)RP2E
		
Factory setting		
Open valve mode together with DSW1#4	Not available	

9.7.2.8 DSW301

◆ Test run mode (Only for RAS-(1.5-3)WHVRP2E)

RAS-(1.5-3)WHVRP2E: PCB2

DSW301	RAS-(1.5-3)WHVRP2E
Factory setting	
Test run for pump down	
Not available	
Not available	
Not available	
Forced stoppage of compressor	

NOTE

- This operation is reset once the compressor is in Thermo-ON mode.
- During the test run operation the units will operate continuously during 2 hours without Thermo-OFF and the 3 minutes guard for compressor protection will be effective.
- Test run will start within 20 seconds after setting DSW1 pin 1 to ON position.

9.7.2.9 DSW302

◆ Optional Function setting (Only for RAS-(1.5-3)WHVRP2E)

RAS-(1.5-3)WHVRP2E: PCB2

DSW302	RAS-(1.5-3)WHVRP2E
Factory setting	
Pipe length (>10 m)	
Pipe length (>30 m)	

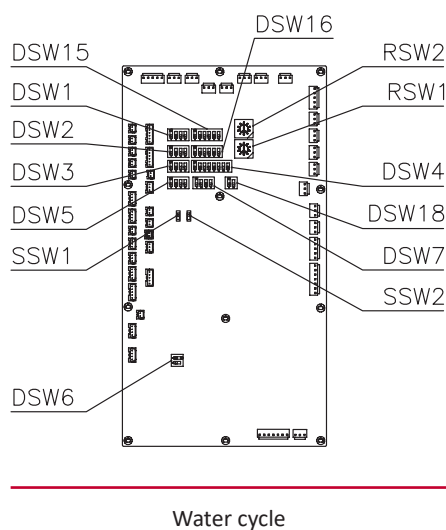
9.7.2.10 LED indication

Name	Colour	Indication
PCB1		
LED1	Red	Power
LED2	Green	Communication with inverter
LED3	Yellow	H-LINK transmission
LED4	Yellow	Not used
LED351	Red	For inspection
LED353	Red	For inspection
PCB2		
LD1	Red	For inspection
LD2	Red	For inspection
LD3	Red	For inspection
LD4	Red	For inspection

9.7.3 Location of DIP switches and rotary switches for split system indoor units

The PCB in the outdoor unit is operating with DIP switches and push switches. The location is as follows:

airH2O 600S, airH2O 600S Combi



9.7.4 Function of DIP switches and rotary switches at the water cycle PCB split system indoor units

9.7.4.1 DSW1

◆ Additional setting 1

Factory setting. No setting is required.

DSW1	RWM-(N/R)3E	RWD-RW3E-220S(-K/6H)
Factory setting (*)		

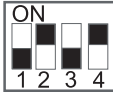
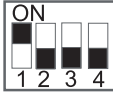
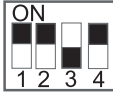
 NOTE

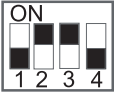
(*): In case of installing the cooling kit accessory, set the pin 4 of DSW1 to ON in order to enable the cooling operation.

9.7.4.2 DSW2

◆ Unit capacity setting

Factory setting. No setting is required.

DSW2	Factory setting
1.5 HP	
2.0 HP	
2.5 HP	
3.0 HP	
3.5 HP	

DSW2	Factory setting
4.0 HP	
5.0 HP	
6.0 HP	
8.0 HP	
10.0 HP	

9.7.4.3 DSW3

◆ Additional setting 1

DSW3	RWM-(N/R)3E	RWD-RW3E-220S(-K/6H)
Factory setting		
1 step heater for 3 phase unit option		

9.7.4.4 DSW4

◆ Additional setting 2

DSW4	RWM-(N/R)3E RWD-RW3E-220S(-K/6H)
Factory setting	
DHW defrost	
Heater forced OFF	
Unit and installation pipes antifreeze protection	
Standard / ECO water pump operation	
Electric heater or boiler emergency mode	
DHW tank's heater operation	
DHW 3-way valve forced ON	
Mirror function (airH2O 600 Mirror)	

⚠ CAUTION

- Never turn all DSW4 DIP switch pins ON. If this happens, the software of the unit will be removed.
- Never activate "Heater Forced OFF" and "Electric heater or boiler emergency mode" at the same time.
- When DSW4#1 is OFF and it is not required any combination with Mirror box accessory, set SSW1 to Local in order to operate without Remote Controller.

9.7.4.5 DSW5

◆ Additional setting 3

In the cases where the outdoor unit is installed into a location where its own outdoor ambient temperature sensor can not give a suitable temperature measurement to the system, it is available the 2nd outdoor ambient temperature sensor as accessory. By means of DSW5 setting, the preferable sensor for each circuit can be selected.

DSW5	RWM-(N/R)3E RWD-RW3E-220S(-K/6H)
Factory setting	
Outdoor unit sensor for circuits 1 and 2	
Outdoor unit sensor for circuit 1; Auxiliary sensor for circuit 2	
Auxiliary sensor for circuit 1; Outdoor unit sensor for circuit 2	
Auxiliary sensor instead of outdoor unit sensor for both circuits	
Maximum temperature value between Two3 (boiler / heater thermistor) and Two (water outlet thermistor) for water control	

9.7.4.6 DSW6 (only if available)

◆ Not used

DSW6	All units
Factory setting (do not change)	

9.7.4.7 DSW7

◆ Additional setting 4

DSW7	RWM-(N/R)3E RWD-RW3E-220S(-K/6H)
Factory setting	
Compatibility with ON/OFF room thermostat (When cooling mode operation is needed)	

9.7.4.8 DSW15 and RSW2

◆ Refrigerant cycle address

DSW15 and RSW2	All units
Factory setting	
Refrigerant cycle address setting (Required only when Cascade Controller is installed)	Example of system setting with a value of: 5

9.7.4.9 DSW16 and RSW1

◆ Not used

DSW16 and RSW1	All units
Factory setting (Do not change)	

9.7.4.10 DSW18

◆ Not used

DSW18		All units
Factory setting		
(Do not change)		

9.7.4.11 SSW1

◆ Remote/Local

SSW1		RWM-(N/R)3E RWD-RW3E-220S(-K/6H)
Factory setting	Remote Local	
Local operation	Remote Local	

9.7.4.12 SSW2

◆ Heat/Cool

SSW2		All units
Factory setting (Heat operation in case of Local)	Heat Cool	
Cool operation in case of Local	Heat Cool	

9.7.4.13 LED indication

Name	Colour	Indication
LED1	Green	Power indication
LED2	Red	Power indication
LED3	Red	Heat pump operation (thermo ON/OFF)
LED4	Yellow	Alarm (flickering with 1 sec interval)
LED5	Green	Not used
LED6	Yellow	H-LINK transmission
LED7	Yellow	H-LINK transmission for unit controller

Additional configurations

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10.1 Additional configurations

For more information refer to Service Manual.

10.1.1 For commissioning

- **Outdoor unit functions:** The LCD offers a new menu that allows to configure outdoor unit optional functions. Configuring outdoor optional functions is as simple as introducing new values to the LCD and they are transferred to the outdoor unit. This new way to set optional function avoids outdoor unit manipulation. To navigate through the optional functions, use the right and left arrow keys. To modify the selected function, use the up and down keys. The adjustment of optional functions can be performed manually via the controller, through data transfer with NFC, or via the CSNET Home Pro platform.
- **Unit Test Run:** Test run is a working mode used when commissioning the installation. Some settings are made to let the installer an easy job.
- **Air Purge:** Air purge function drives the pump in a way for evacuating air bubbles in the installation.
- **Filling the tank's coil :** By means of DSW4#2 being set to ON, the 3WV (3-way valve) is forced in tank position. This option becomes useful when it is required to fill the circuit with water for the first time. Set DSW4#2 to OFF position before starting operation.
- **Floor screed drying function:** This function is used exclusively for the process of drying a newly applied screed to the floor heating system. The water temperature set-point follows a predetermined schedule upon activation of the floor screed drying function.
- **Pump down operation:** By performing a pump down operation compressor starts in cooling mode regardless no configuration for cooling has been made with the purpose to collect refrigerant at the outdoor unit.
- **Hot start control release:** Allows installers to bypass the pre-heating phase of the unit when it is cold, enabling immediate start-up.
- **Remote defrost request:** During commissioning or maintenance tasks it may be useful to force a defrost operation. This operation can be performed by the outdoor unit PSW buttons or from indoor unit PCB unit by pressing PSW1 and PSW4 at the same time.
- **NFC Configuration:** NFC functionality allows to configure all parameters of the LCD in a very fast way at once. It is possible to create a project remotely and load it to the unit the commissioning day. Also it allows to read the data from a given LCD and share it to be inspected, compared with other NFC files or to be loaded to a different unit. Check CSNET Home app to discover all possibilities.

10.1.2 To protect the system

- **Unit and pipes freeze protection control:** By means of the DSW4#6 it is possible to enable the control that protects the unit and water pipes from freezing conditions. During period of inactivity where water pump is OFF, this control checks the temperature of the water sensors. In case the temperature decreases close to the freeze point, water pump is started with the purpose to move the water.
- **Seizure protection for Hydraulic components:** This function prevents seizure in water

components, such as water pumps and 3-way valves, by automatically activating them once a day during inactivity periods. The protection interval can be adjusted through a dedicated menu on the unit's LCD display, ensuring flexibility to suit different operational needs.

10.1.3 User comfort for space heating and space cooling

This section collects all functions purpose of which is to enhance comfort of the user:

- **User offset** If the water temperature setting for zones, as determined by the OTC curve or gradient, does not meet the immediate requirements, the user has the option to apply a +/-5 offset from the Unit LCD without the need to modify advanced parameters.
- **Outdoor temperature average timer:** The average timer corrects the influence of ambient temperature variations. The weather-dependent set point calculation is done on the average outdoor temperature. The outdoor temperature is averaged over the selected time period.
- **Electric heater usage to extend water temperature setting:** (space heating only) By selecting "extend the working range" setting on LCD, electric heater can be used to provide extra water temperature at low ambient temperature conditions where the maximum temperature that can be provided by the heat pump is reduced due to thermodynamic limitations.
- **Emergency operation:** For the use of the electrical heater or boiler in case of outdoor unit fault, additional setting shall be applied into IU setting. Electrical heater emergency can be both automatic or manual switched ON by the user.
- **Mixing valve regulation during DHW operation:** For those installations with C1 and C2 circuits where C1 circuit has a very high inertia, it becomes possible to allow the mixing kit valve to regulate even during DHW operation with the purpose to keep providing energy to C2 circuit. In the same way, in case there is not enough inertia on the system, by means LCD configuration it can be specified that mixing kit is closed during tank operation with the purpose to avoid energy loss on C2.

10.1.4 Options available when using Hitachi wired or wireless thermostat

- **Room temperature compensation:** Purpose of this functionality is to improve user comfort by adjusting water temperature on the installation. After **airH2O 600** has determined the proper water temperature setting by means of OTC curve or gradient, the water temperature setting is afterwards increased or decreased in function of the Room temperature setting and the real room temperature as follows:
 - ✓ In Heating mode:
 - In case room temperature is above room temperature setting, water temperature setting is decreased with the purpose to reduce the thermal load and therefore reduce the power consumption.
 - In case room temperature is below room temperature setting, water temperature setting is increased with the purpose to speed-up heating operation and achieve desired room temperature as fast as possible.
 - ✓ In Cooling mode:
 - In case room temperature is below room temperature setting, water temperature setting is increased with the purpose to reduce the thermal load and therefore reduce the power

consumption.

- In case room temperature is above room temperature setting, water temperature setting is decreased with the purpose to speed-up cooling operation and achieve desired room temperature as fast as possible.

- **Room temperature demand OFF adjustment:** With the purpose to allow heat pump regulation and therefore reduce power consumption it is possible to adjust the amount of degrees it is allowed to overpass room temperature setting before performing demand OFF.

It is also possible to “Deactivate” this control. When deactivated, system does never perform demand OFF operation. In that case, thanks to Room temperature compensation control, water setting temperature is adjusted and system stops the heat pump by thermo OFF after reducing the compressor frequency as much as possible and therefore reduce power consumption of the unit.

10.1.5 Controls for power consumption or noise reduction

- **Economic offset water setting:** Water temperature for space heating and cooling can be modified with the purpose to reduce power consumption of the system. Economic mode can be launched by means a timer or by input function.
- **Reduction of the maximum heating step:** Electric heater has 3 steps. All **airH2O 600** controls that uses electrical heaters are allowed to use all 3 steps unless they are limited with a maximum value configured on LCD.
- **Smart Grid / Smart Function:** This function can be used to block or limit the heat pump or increase demand due to electricity availability. Demand increase is configurable for heating and also for cooling operation.
- **Smart function by timer:** Smart function has the purpose to reduce consumption of the unit. For specific installation, such consumption reduction is desired to be done at a given moment of the day. In this case a timer allows to start Smart function operation without need of setting an input signal.
- **Night shift:** Night shift operation reduce compressor load in order to reduce environmental noise during night. It can be configured as a daily timer. Night shift can be activated by setting an input signal or from the Cset Home app.

10.1.6 For energy and capacity calculation

- **System consumption data:** **airH2O 600** unit performs an estimation of the system consumption. For a real power consumption measure, it is necessary to connect an external power meter.
 - ✓ No power meter connected: The estimation of the system consumption includes outdoor unit, pumps, heaters and electronics. Such consumption estimation is showed on Unit controller. Since it is an estimation, consumption may differ from real measurements by means external power meter.
 - ✓ Power meter connected: The number of pulses of the power meter is a variable which must be set through the unit controller. By this, every pulse input is added into its corresponding operation mode (Heating, Cooling, DHW Operation). Two possible options:
 - One power meter for all installation (indoor unit + outdoor unit).
 - Two separated power meters (one for indoor unit and one for outdoor unit).

- **Capacity calculation:** Due to usage of Water temperature inlet and outlet + water flow level, a estimation of capacity can be checked. This menu show the value of kWh for each zone (Heating, Cooling, DHW, swimming pool and its total) and also the values month by month.
- **Efficiency calculation:** The system is able to calculate the energy efficiency of the system. This data is obtained from the energy consumed divided by the capacity provided by the unit. Having values higher than 1 implies that the system is able to provide more energy than the energy consumed. Usage of electric heaters reduce this figure.

NOTE

Since capacity and input counters may not always align in the same time frame, this can slightly affect the accuracy of the result.

10.1.7 For unit operation

- **Heating Auto ON/OFF:** At higher outside temperatures it doesn't make sense to keep heating the building. The **airH2O 600** System will switch the heating off when the daily average outdoor temperature of previously day rises above the Summer Switch Auto On/Off Activation Temperature.
- **Auto Heat-Cool:** Available only for models with both heating and cooling capabilities when cooling mode is enabled. The end-user selects the desired operation mode—Heating, Cooling, or Automatic—via the user interface.

When Automatic is selected, the system adjusts the operation mode based on the averaged outdoor temperature. It switches between heating and cooling to maintain the desired range, as defined by the space heating OFF temperature for heating and the space cooling ON temperature for cooling. If the outdoor temperature drops, the system switches to heating; if it rises, it switches to cooling.

- **Averaged outdoor temperature:** The average timer corrects the influence of ambient temperature variations. The weather-dependent set point calculation is done on the average outdoor temperature. The outdoor temperature is averaged over the selected time period.
- **Holiday mode:** This menu let the user specify a date and hour for the Room Setting to be OFF with the configured setting.
- **Temperature offset determination for Thermo-ON transition:** Depending on temperature conditions and the load of the system, the heat pump performs transitions to thermo-OFF's. By means of Thermo-ON Heating offset and Thermo-ON Cooling offset editable from the LCD, it is possible to configure the required temperature change of the Twi sensor to perform again the thermos-ON's operation compared with the value of Twi at the moment of the thermo-OFF's transition.

The higher is the setting, the lower will be the number of thermo-ON's transitions and therefore energy consumption will decrease. On the other hand, the efficiency of the next thermo-ON operation will increase since operation will be longer than before and the system will adapt the provided capacity to the real load of the installation.

- **Remote management of the unit:** Thanks to ATW-IOT-02 unit can be managed remotely by means of CSNET Home App or monitored by means installers from CSNET Home Pro.
- **UTC Zone:** Europe spans 7 primary time zones. Most of European countries use daylight saving time and switch to it at the same moment, which is 'harmonise' their summer time adjustment.
- **European summer time:** When European summer time is activated, it should change the time when the country / UTC zone is doing it.

10.1.8 To customize hydraulic installation

- **Hydraulic separator:** In some cases, water pump of the **airH2O 600** unit is not sized for big heating installation (small water pump). In this case, a hydraulic separator or buffer tank and secondary water pump has to be used to ensure proper water pump dimensioning. The boiler is configured in parallel with the heat pump. A hydraulic separator or buffer tank has to be used to ensure proper hydraulic balancing. Additional Water pump (WP3) and water sensor (Two3) are needed for boiler combination control (automatic added when Boiler combination is enabled).
- **DHW tank position (Only for airH2O 600S):** Whenever there is buffer tank or hydraulic separator, user can select position of DHW external tank with respect to the hydraulic separator. This means that it is possible to place 3WV and DHW tank before or after the hydraulic separator. In case 3WV valve and DHW tank is placed before buffer tank, it is not required to heat the whole buffer tank up to the coils temperature whenever DHW operation is performed.
- **Pumps setup:** This option allows to configure between 2 hydraulic schemes when hydraulic separator is used. Standard configuration forces WP3 to operate whenever there is demand from Circuit 2. On the other hand, Parallel configuration, allows to connect WP3 and WP2 to the buffer tank, and operation of WP3 is independent to the operation of WP2.
- **Stop conditions setting for WP1:** For specific installations where **airH2O 600** unit is installed to feed a big buffer tank, **airH2O 600** unit is working in constant demand ON and only stopping when water temperature reaches setting temperature.
- **Fan coil management:** In case fan coil is selected as a Heating/cooling emitter, fan speeds can be controlled from Room thermostat and fan coil's fan speeds are controlled from **airH2O 600** optional outputs.

10.1.9 For DHW operation

- **DHW anti-Legionella protection:** A specific setting is available to protect the DHW system against Legionella, which raises up the DHW temperature over the normal DHW tank temperature setting (using the electric heater of the DHW tank and/or the heat pump) on a periodic basis.
- **DHW re-circulation:** This function allows the activation of the water pump for the re-circulation of the hot water from the DHW tank by means of the heat pump. This function can also be used with the anti-legionella protection function.
- **DHW boost:** With this function enabled, it is possible to request a heating up of the DHW when user requires an instantaneous delivery of DHW.
- **DHW Mode:** DHW operation has 3 different modes, ECONOMIC (only for **airH2O 600S Combi** units), STANDARD and HIGH DEMAND :
 - ✓ ECONOMIC Mode: The heating of the domestic hot water shall be started when water

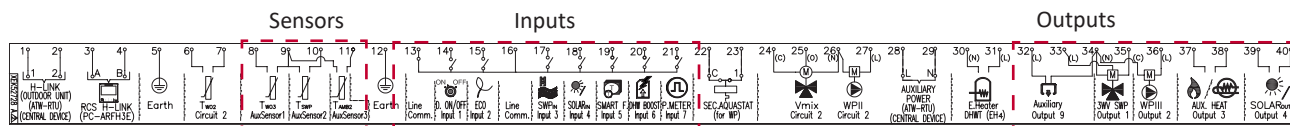
temperature in tank is low enough for Heat Pump to be started measured with the top most tank thermistor. DHW is always started heated by Heat Pump. Usage of this mode, it is reduced the amount of heating up procedures.

- ✓ STANDARD Mode: Behaves the same as Economic mode but it is used the lowest tank sensor to judge water temperature inside tank. This functionality ensure higher quantity of water already heated inside of tank and heating-up process are more frequent.
- ✓ HIGH DEMAND Mode: The heating of the domestic hot water is started if differential is bigger than T_{DHWON} . It will be started with water tank heater only unless water temperature in tank goes below Heat Pump starting temperature measured with the lowest sensor on tank.

10.2 Optional external input, output and sensor configuration signals

The system has 7 input and 4 output optional signals (5 optional signals in case of **airH2O 600S Combi**) and an additional 4 output signals when using the auxiliary output signal box. The new **airH2O 600** series allow different ports to be configured for those I/O signals, as well.

The user can configure those input signals to perform different functions from the unit controller.



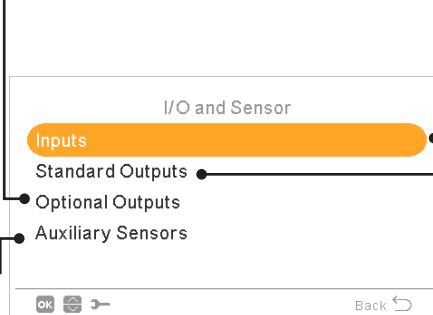
The following input, output and sensor functions can be selected in the “I/O and Sensor” menu of the controller:

Optional outputs:

There 4 additional available outputs to set. These 4 additional outputs are not wired to the **airH2O 600** terminal board. In order to use them, the accessory ATW-AOS-02 is required. Its configuration follow same constrains as Standard outputs.

Auxiliary sensors:

There are 7 available auxiliary sensors to set.



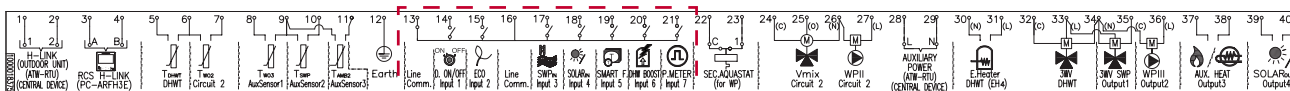
Inputs:

The system allows to set 7 inputs depending on the operations and preferences of the installation.

Standard Outputs:

There are 4 available outputs for **airH2O 600S** and 5 for **airH2O 600S Combi** models to set already wired to the terminal board. There are conditions of setting depending on the installation.

10.2.9.1 Input signals and input ports



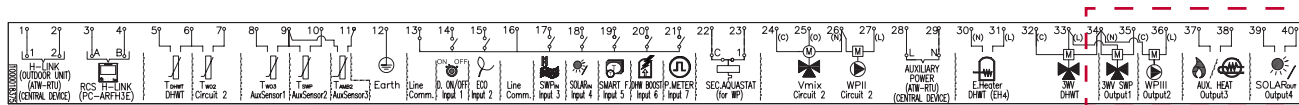
Terminal Board 2

Name	Port	Input
Input 1	#13 and 14	230 V
Input 2	#13 and 15	230 V
Input 3	#16 and 17	230 V
Input 4	#16 and 18	230 V
Input 5	#16 and 19	230 V
Input 6	#16 and 20	230 V
Input 7	#16 and 21	230 V

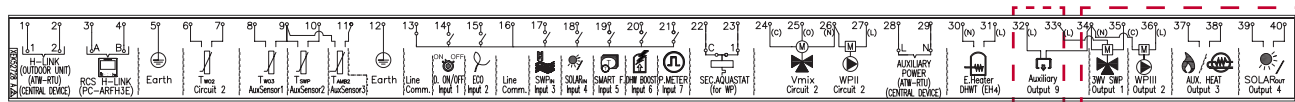
◆ List of available inputs

Deactivated	
Demand ON/OFF	By default in input 1. Send Demand ON or OFF Operation to Circuit 1 and Circuit 2.
Smart Action	Fixed in input 5 if smart action is enabled. This function must be used to block or limit the heat pump when restricted by Electric company. It allows an external Smart switch device to switch off or reduce consumption of the heat pump during time of peak electricity demand. In case Smart action is configured as Smart Grid Ready (SG1), an additional input is required to be configured as SG2. These 2 inputs allow 4 different operation modes: Standard HP mode, External blocking mode, Low price mode, Overcapacity mode.
Swimming pool	Fixed in input 3 if swimming pool is enabled. Input used to let airH2O 600 know swimming pool is in demand ON conditions.
Solar	Fixed in input 4 if solar is enabled. In case of combining airH2O 600 with solar panels, this input is used as a feedback for solar station ready operation.
Operation mode	Cool/Heat must be changed by an input of an external contact signal. Contact signal is edge detection; Cool/Heat changeover by unit controller is also available.
DHW boost	Fixed in input 6 if DHW Boost is enabled. With this function enabled, it is possible to request a heating up of the DHW when user requires an instantaneous delivery of DHW.
Power meter 1	Input used as kWh pulse count for Energy data recording.
Demand ON/OFF C1	Send Demand ON or OFF Operation only to Circuit 1.
Demand ON/OFF C2	Send Demand ON or OFF Operation only to Circuit 2.
Forced heating	Forced Heating Demand by input of contact signal from outside.
Forced cooling	Forced Cooling Demand by input of contact signal from outside.
Power meter 2	Input used as kWh pulse count for Energy data recording.
ECO mode C1 and C2	Water temperature setting for Circuit 1 and Circuit 2 is reduced by ECO operation mode (Default 3°C) by input of contact signal from outside.
ECO mode C1	By default in input 2, if there is circuit 1 in the installation. Water temperature setting for Circuit 1 is reduced by ECO operation mode (Default 3°C) by input of contact signal from outside.
ECO mode C2	Water temperature setting for Circuit 2 is reduced by ECO operation mode (Default 3°C) by input of contact signal from outside.
Force OFF	Force OFF operation for unit. RCS will continue as normally set but will show indication that operation is forbidden.
Smart Grid Ready Input 2	In case Smart action is configured as Smart Grid Ready (SG1), this input is used as a digital input 2 and allow four different operating modes.
Drain pump	In case of configuring this input, alarm is triggered in case input contact is opened. This input can be linked to drain pump kit accessory located at drain pan which by means of a NC contact, notifies there is possibility of water overflow.
Night shift	Set the unit night shift mode.

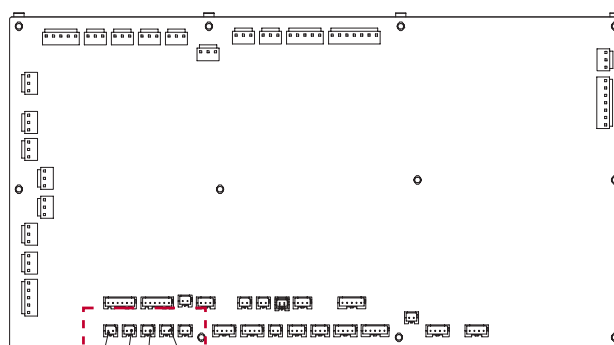
10.2.9.2 Output signals and output ports



airH2O 600S Terminal Board 2



airH2O 600S Combi Terminal Board 2



airH2O 600S and airH2O 600S Combi PCB2

◆ Standard Outputs

Name	Port	Output
Output 1	#34 and 35	230 V
Output 2	#34 and 36	230 V
Output 3	#37 and 38	Free voltage signal
Output 4	#39 and 40	Free voltage signal
Output 9 (only for airH2O 600S Combi)	#32 and 34	230 V

◆ Optional Outputs

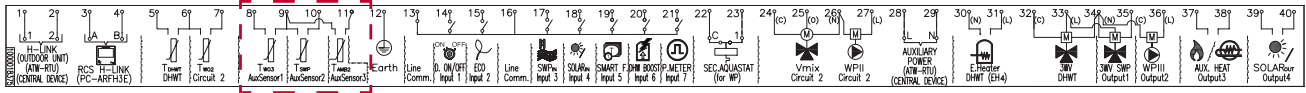
Name	Port	Output
Output 5	CN20 #1-2	12Vdc signal
Output 6	CN21 #1-2	12Vdc signal
Output 7	CN22 #1-2	12Vdc signal
Output 8	CN23 #1-2	12Vdc signal

◆ List of available outputs

Deactivated	
3WV SWP	Fixed in output 1 if swimming pool is enabled. In case of combining airH2O 600 with swimming pool, this output is used to drive 3 way valve swimming pools.
WP3	Fixed in output 2 if buffer tank is installed. In case of combining airH2O 600 with boiler or hydraulic separator, this output is used to drive water pump 3.
Boiler combination	Fixed in output 3 if boiler is enabled. In case of combining airH2O 600 with boiler, this output is used to switch it ON.
Solar pump	Fixed in output 4 if solar pump is enabled. In case of combining airH2O 600 with solar panel, this output is used to drive water pump station .
Alarm signal	By default in output 5. Output when an "Alarm Code" is received from Indoor Unit or outdoor unit.
Operation signal	By default in output 6. Output in case that "Thermo-ON" signal in any condition.
Cooling signal	By default in output 7. Output in case that "Thermo-ON" signal in Cooling operation.
Demand-ON signal circuit 1	By default in output 8. Signal is enabled when circuit 1 is operating in Demand-ON.
Heating signal	Output in case that "Thermo-ON" signal in Heating operation.
DHW signal	Output in case that "Thermo-ON" signal in DHW operation.
Solar overheat	Output in case that solar temperature signal is active when solar overheat (only when solar combination status is total control).
Defrost	Output if the operation state of the outdoor unit when is defrosting.
DHW re-circulation pump	In case of re-circulation pump enabled for DHW tank.
Heater Relay 1	Not available
Heater Relay 2	Not available
Fan 1 Low speed	Output for fan coil speed.
Fan 1 Medium speed	Output for fan coil speed.
Fan 1 High speed	Output for fan coil speed.
Fan 2 Low speed	Output for fan coil speed.
Fan 2 Medium speed	Output for fan coil speed.
Fan 2 High speed	Output for fan coil speed.
Constant Heat	Output in high state whenever operation mode from Unit controller is in heating mode.
Constant cool	Output in high state whenever operation mode from Unit controller is in cooling mode.

10.2.1 Additional functions by accessory sensor

Hitachi offers to its users the option to add more functions to the inputs from signals coming from some specific sensors. The configuration for this purpose is explained below:



Terminal Board 2

10.2.1.1 Function of sensors

Deactivated	
T_{wo3} sensor	Fixed in sensor 1 if boiler is installed. T_{wo3} sensor is required when there is external heating source or useful to track better temperature when there is hydraulic separator or buffer tank.
Swimming pool	Fixed in sensor 2 if swimming pool is installed. When combining airH2O 600 with swimming pool, this sensor is used to read the temperature from the water of the swimming pool.
Solar panel sensor	When combining airH2O 600 with solar panels, this sensor is used to read the temperature from the solar panel.
C1 + C2 ambient sensor	If Aux1 and Aux2 sensors are both connected and enabled at the unit controller configuration, the detection of ambient temperature value is carried out by these sensors. The ambient temperature setting for each circuit is set from the unit controller or central platform. The temperature value detected by each sensor is applied to the corresponding circuit.
C1 ambient sensor	If Aux1 and Aux2 sensors are both connected and enabled at the unit controller configuration, the detection of ambient temperature value is carried out by these sensors. The ambient temperature setting for each circuit is set from the unit controller or central platform. The temperature value detected by each sensor is applied to the circuit 1.
C2 ambient sensor	If Aux1 and Aux2 sensors are both connected and enabled at the unit controller configuration, the detection of ambient temperature value is carried out by these sensors. The ambient temperature setting for each circuit is set from the unit controller or central platform. The temperature value detected by each sensor is applied to the circuit 2.
Outdoor sensor	By default sensor 3. An outside temperature sensor can be directly connected to the controller in case the heat pump is located in a position not suitable for this measurement.

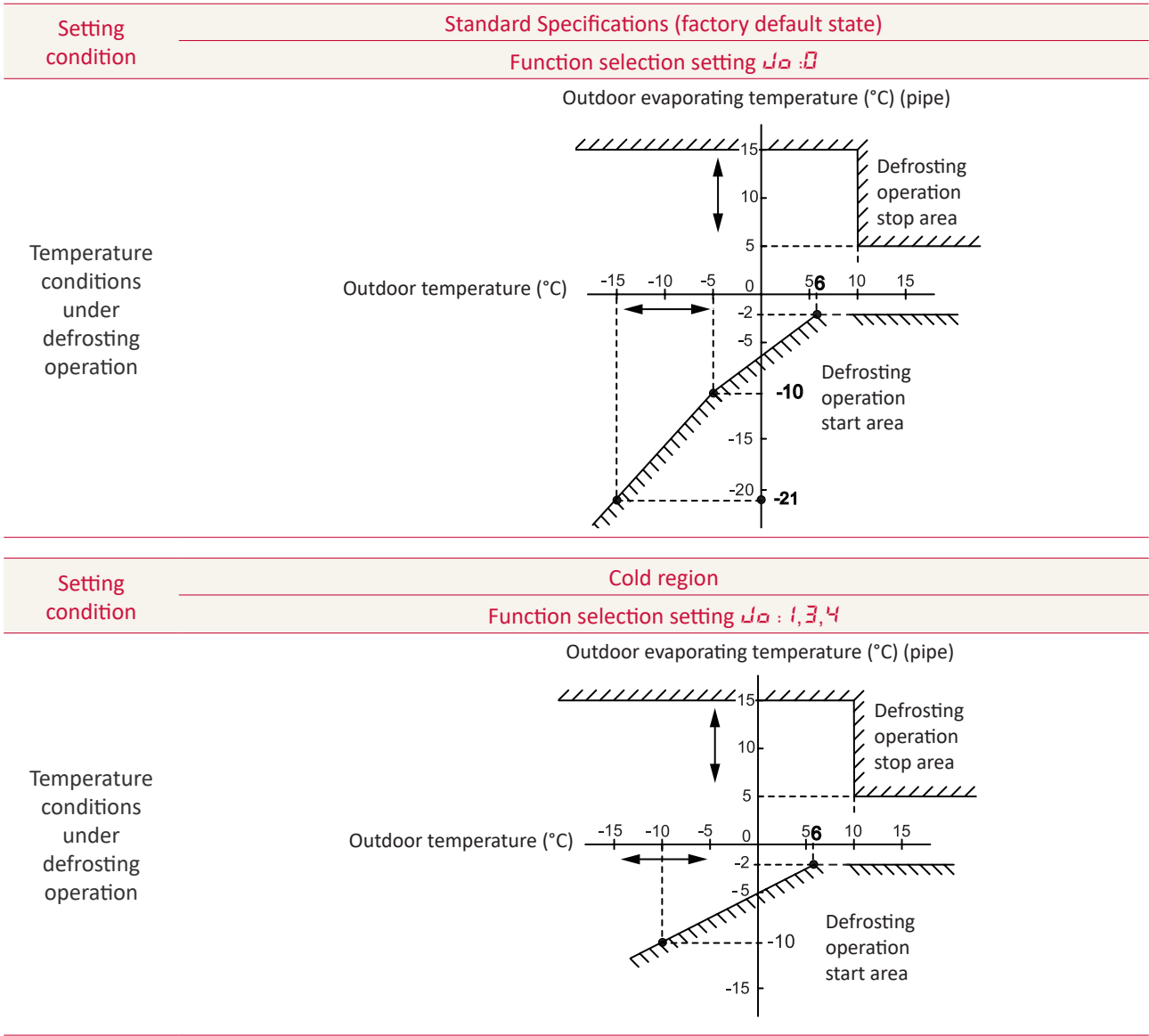
10.3 Additional configurations from outdoor unit 7-segments

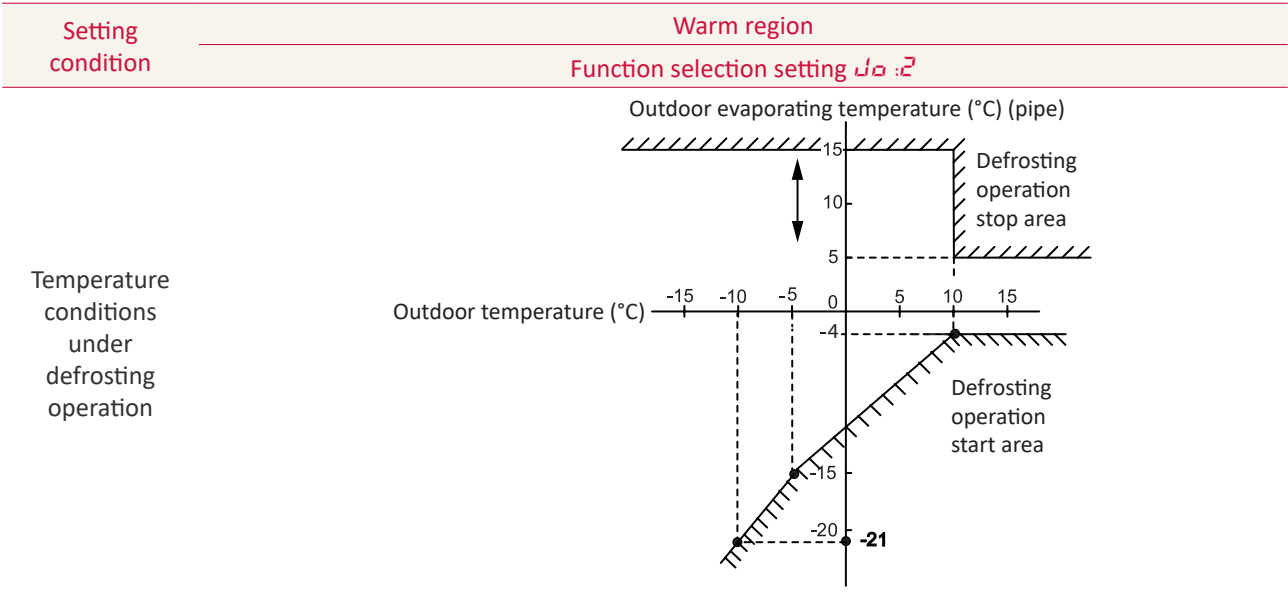
10.3.1 Change of defrost condition

◆ 10 - Change of defrost condition

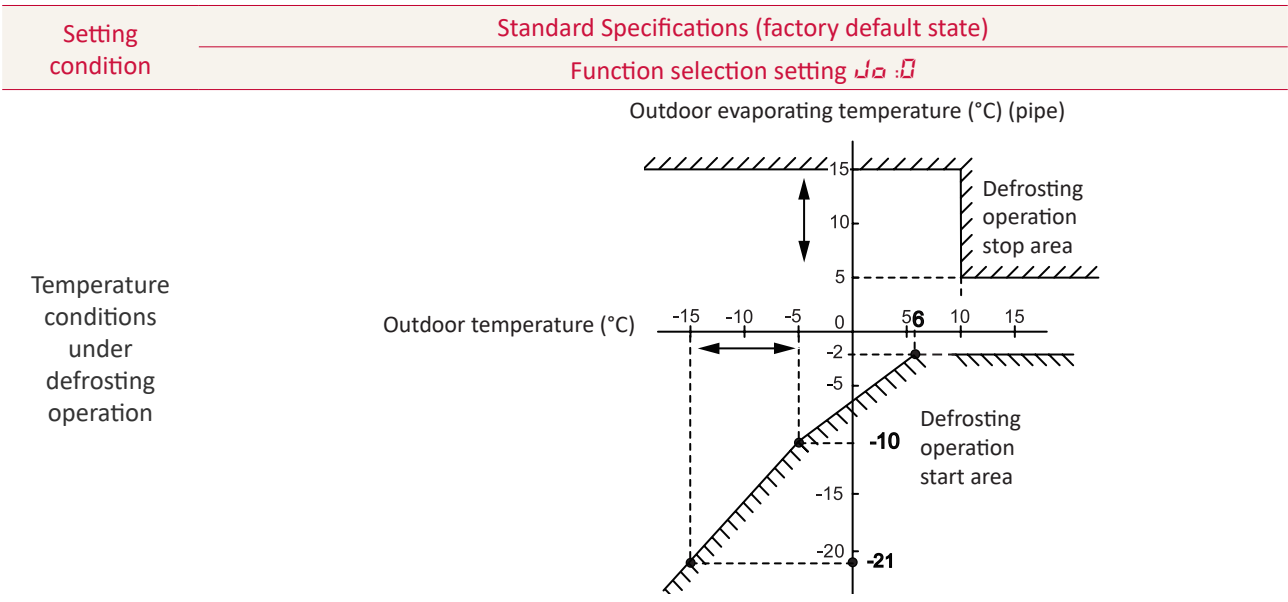
- **Description:** This function enables the adjustment of temperature conditions to induce an earlier defrosting operation. It proves particularly beneficial in installations located in extremely cold regions where continuous frost formation occurs. Initiating an earlier defrosting operation minimizes the accumulation of frost, ensuring higher heating capacity values.

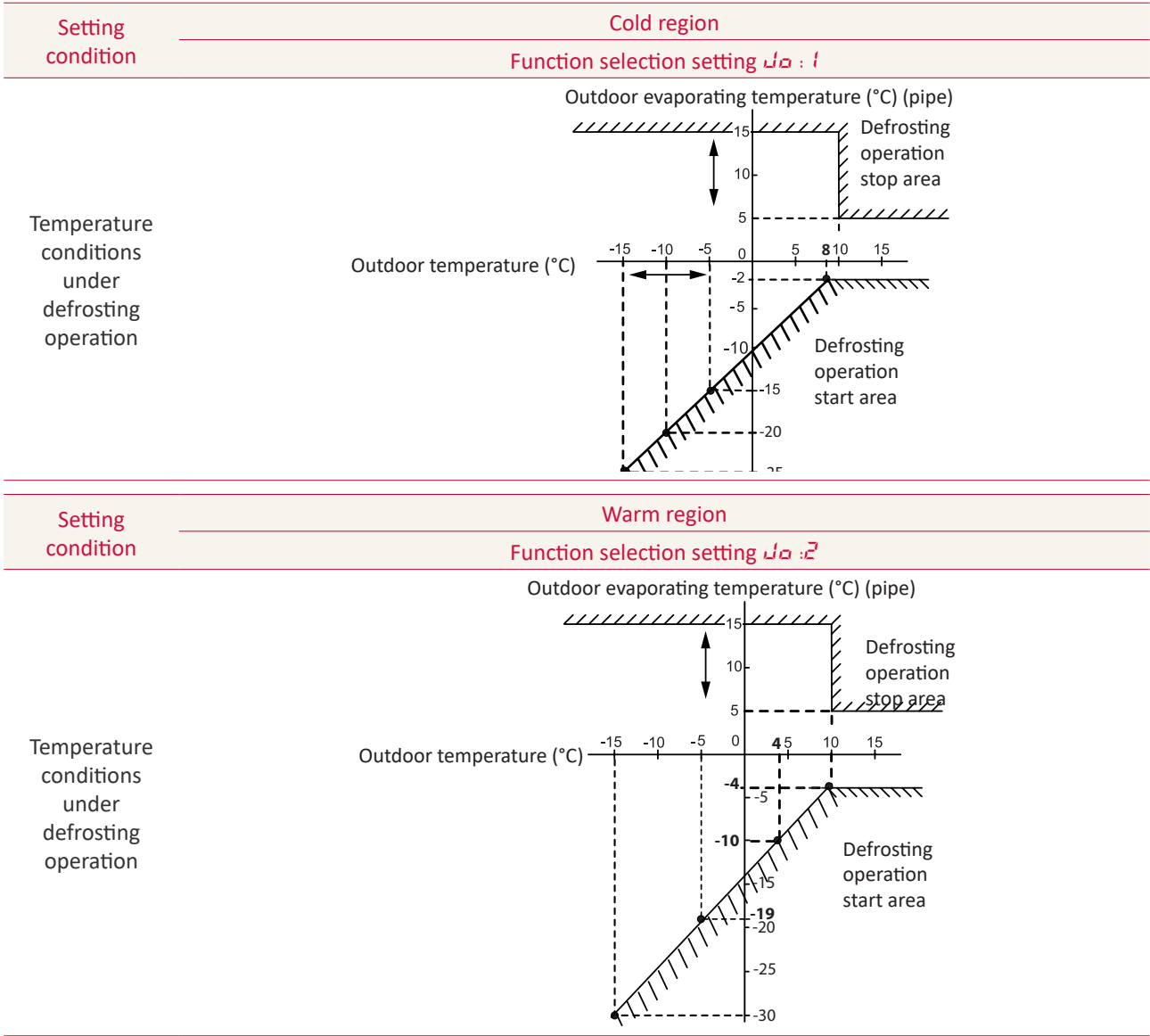
Example for RAS-(1.5-3)WHVRP2E





Example for RAS-(3.5-6)WH(V)RP2E

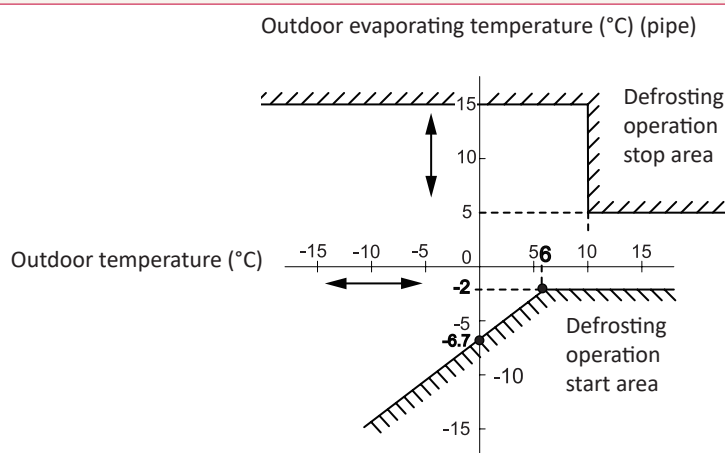




Example for RAS-(8/10)WHNPE

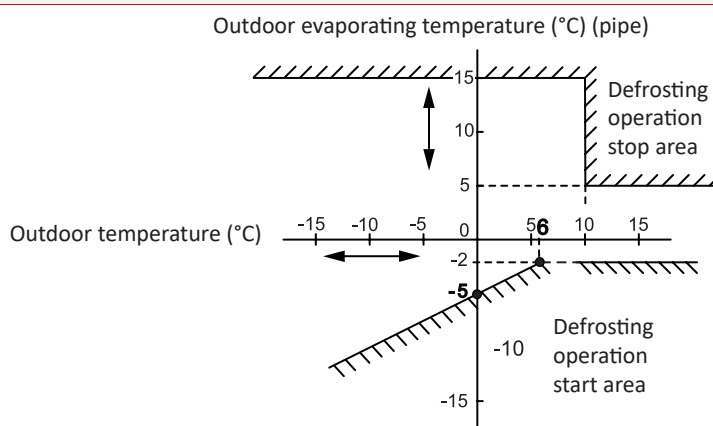
Setting condition	Standard Specifications (factory default state)
	Function selection setting $\text{F} \text{ } \square$: $\square$

Temperature conditions under defrosting operation



Setting condition	Cold region
	Function selection setting $\text{F} \text{ } \square$: I

Temperature conditions under defrosting operation



◆ $\text{F} \text{ } \text{I}$ - Change of defrost operation in extreme conditions

For RAS-(8/10)WHNPE units

- $\text{F} \text{ } \text{I} = \square$, No setting
- $\text{F} \text{ } \text{I} = \text{I}$, Change of the conditions to perform defrost operation for areas with extreme freeze conditions.

10.3.2 Outdoor crankcase heater management

◆ $\text{F} \text{ } \text{B}$ - Crankcase heater control during stoppage:

- **Description:** This optional function enables the stoppage of the crankcase heater in the outdoor unit when the **airH2O 600** unit is turned OFF or in Demand OFF mode.

◆ *H_F* - Cancellation of hot start:

- **Description:** When the **F8** function is activated, the crankcase heater remains OFF when the **airH2O 600** unit is OFF or in Demand OFF. Upon the **airH2O 600** unit requesting the outdoor unit to start, the outdoor unit initiates a compressor pre-heating operation. During this pre-heating, the crankcase heater is switched ON, and compressor operation is temporarily forced OFF. This forced OFF state is released once the compressor reaches a sufficient temperature to start operation, a process that may last up to 4 hours.
- **Enabling optional function *H_F* to *I*:** Allows the outdoor unit to skip the compressor pre-heating operation and start immediately when operation is requested. This means the compressor will start with a crankcase temperature lower than its optimal value. Caution is advised, especially in situations where compressor starting at ambient temperatures below 10°C is expected, as low oil viscosity may lead to compressor damage.

10.3.3 Outdoor fan management

◆ *F_I* - Intermittent operation of outdoor fan motor

- **Description:** This function allows the intermittent starting of the fan motor under specific conditions.

For RAS-(1.5-3)WHVRP2E units

When the outdoor unit is not in operation, and a high state signal is input (configured through external input function number *I_F* and the outdoor temperature (Ta) is less than or equal to 10°C, the fan rotation is triggered intermittently.

The purpose is to expel snow accumulation and maintain the cleanliness of the fan blades.

◆ *F_d* - Intermittent operation of outdoor fan motor

For RAS-(1.5-3)WHVRP2E units

- **Description:** Fan is started according to optional function *F_d* in conjunction with input setting configured as option *I_d*.

When the outdoor unit is not in operation, and a high state signal is input (configured through external input function number *I_d* the fan rotation is triggered intermittently.

The purpose is to expel snow or dust accumulation and maintain the cleanliness of the fan blades.

◆ *F₂* - Accelerate fan after defrost:

- **Description:** After the defrost operation, the fan accelerates to remove water drops before the compressor starts.

10.3.3.1 Outdoor forced Thermo OFF management

◆ **F5** - Thermo OFF setting for the outdoor unit after defrost operation

For RAS-(8/10)WHNPE

- **Description:** When this optional function is set, the outdoor unit enforces Thermo OFF operation for 3 minutes immediately after a defrost operation.

10.3.4 Output/input signals

10.3.4.1 Output signals through 7-segment display on the unit PCB

The system has several output signals, which can be selected using the following connectors of the outdoor unit:

- Output connector CN7, which has two ports to configure two optional output signals.

The selection of these output signals represents the selection of some optional functions programmed in the PCB of the RAS unit through the 7-segment display.

NOTE

- *Do not set same function to multiple output ports. If set, the setting of the higher output number is cleared to 00.*
- *Please refer to the Service Manual for detailed information of optional external input and output signals.*

10.3.5 Input signals

◆ **RAS-(1.5-3)WHVRP2E**

Indication	Input signal	Application
3	Demand stoppage	When signal is input outdoor unit stops operation.
4	Outdoor fan run/stop 1	When signal is input fan starts according to F1 optional function.
12	Outdoor fan run/stop 2	When signal is input fan starts according to F2 optional function.

◆ RAS-(3.5-6)WH(V)RP2E

Indication	Input signal	Application
1	Demand stoppage	When signal is input outdoor unit stops operation.
2	Outdoor fan run/stop 1	When signal is input fan starts according to F 1 optional function.
3	Forced stop	System is forced to stop when input is set to high state.

◆ RAS-(8/10)WHNPE

Indication	Input signal	Application
1	Fix heating mode	Set indoor unit in heating mode when input is set to high state.
2	Fix Cooling Mode	Set indoor unit in cooling mode when input is set to high state.
3	Demand stoppage	When signal is input outdoor unit stops operation.
5	Forced stop	System is forced to stop when input is set to high state.

10.3.6 Output signals

◆ RAS-(1.5-3)WHVRP2E and RAS-(8/10)WHNPE

Indication	Output signal	Application
1	Operation signal	This signal allows to notify that the unit is operating. It enables to start up additional systems such as humidifiers, fans and others.
2	Alarm signal	This signal allows to notify that protection devices have been activated and to transfer it to additional systems.
3	Compressor ON signal	This signal allows to notify that the compressor is activated. This function can be applied for situations such as checking signals during remote-control operation and for the interlock of the unit.
4	Defrost operation signal	This signal allows to notify that the unit is under defrosting operation.

◆ RAS-(3.5-6)WH(V)RP2E

Indication	Output signal	Application
1	Compressor ON signal	This signal allows to notify that the compressor is activated. This function can be applied for situations such as checking signals during remote-control operation and for the interlock of the unit.
2	Defrost operation signal	This signal allows to notify that the unit is under defrosting operation.

Complementary system: Cascade Controller

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11.1 Main features

The Cascade Controller is designed as an extension of the hydraulic control of **airH2O 600** range to establish a larger and efficient heating or cooling system. When Cascade Controller function is active, system separate water generation (hot or cold) from water distribution and consumption.

Water generation is performed on **airH2O 600** Sub units, and water distribution and consumption is done on Main Cascade Controller unit.

- Is a central control device capable to control Sub units that produce hot or cool water.
- Is capable to control up to 8 **airH2O 600** outdoor/indoor units.
- Allows to control the following heating unit models:
 - ✓ **airH2O 600S** (from 3.5-10 HP)
 - ✓ **airH2O 600S** Combi (from 3.5-6 HP)

11.1.1 Multi configurations

The new Cascade Controller has been designed so it can be easily installed in multiple types of system.

The following examples and illustrations are for illustrative purpose and not cover all the possible installations.

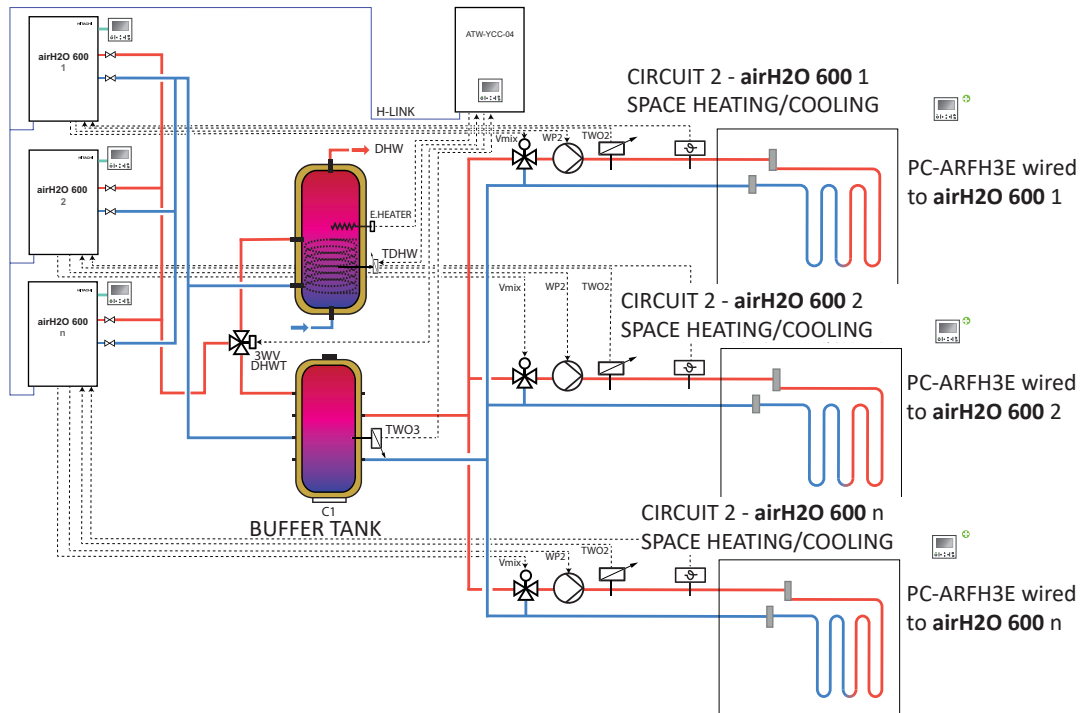
◆ Individual Heating/Cooling household in combination with common DHW production

This installation is suitable in case a high amount of DHW at a specific setting temperature is required.

When Cascade Controller is generating water for DHW tank, production of hot or chilled water for Space Heating/Cooling application is stopped until DHW production stops.

In this scenario, Cascade Controller manage DHW tank and Water temperature production for Space Heating or Cooling:

- C1 buffer tank depicted in the picture is C1 circuit for Cascade Controller.
- C1 buffer tank is managed by means Cascade Controller unit without thermostat.
- Each C2 circuit of each **airH2O 600** Sub unit is assigned to a specific household.
- Each C2 mixing kit of each **airH2O 600** Sub unit guarantees C2 water temperature at each household.
- Each C2 circuit can have a wired or wireless thermostat which is connected to each Sub unit
- Each C2 circuit can have an Outdoor OTC Temperature by Outdoor unit or Wired Sensor accessory.

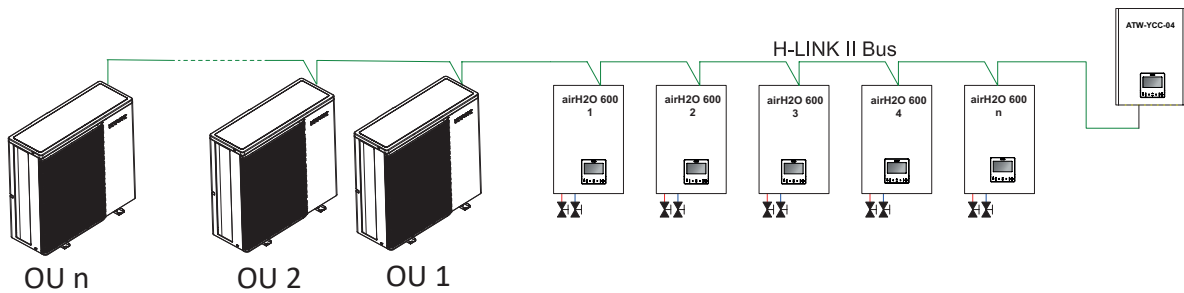


Example for illustrative purpose, refer to the installation manual for more installation examples.

11.1.2 Installation benefits

◆ H-LINK connection between airH2O 600 Sub Units and the Cascade Controller

The airH2O 600 Units and the Cascade Controller are interconnected through the H-LINK II bus, consisting of 2 non-polarity cables and accepting lengths of up to 1,000 m.



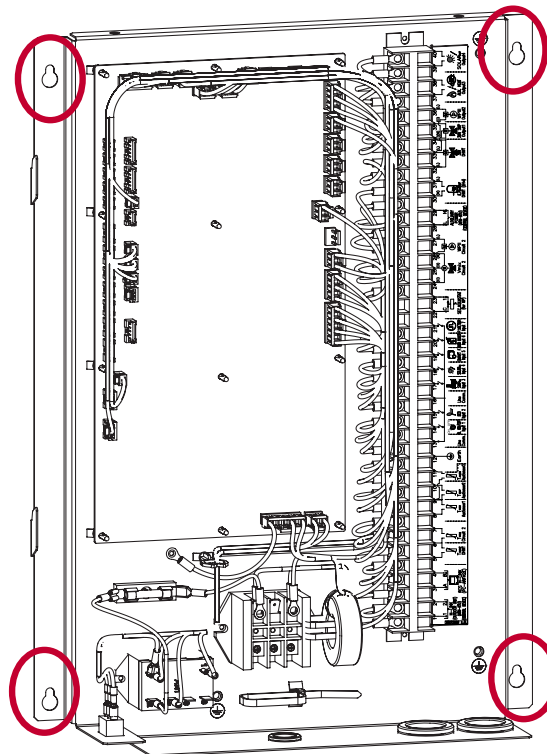
◆ No additional device into each sub unit

No additional devices need to be installed into individual heat pumps.

◆ Universal mounting concept

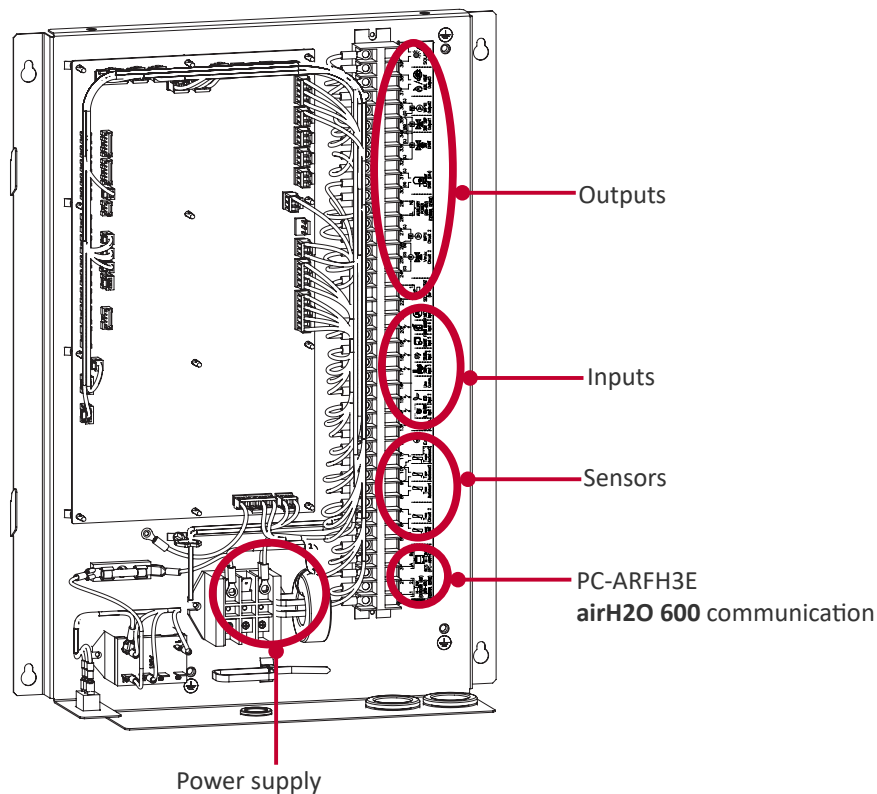
The Cascade Controller is designed for direct wall mounting.

The shape of the screw holes allows to preset the screws on the wall, then placing the electrical box and finally tightening the screws.



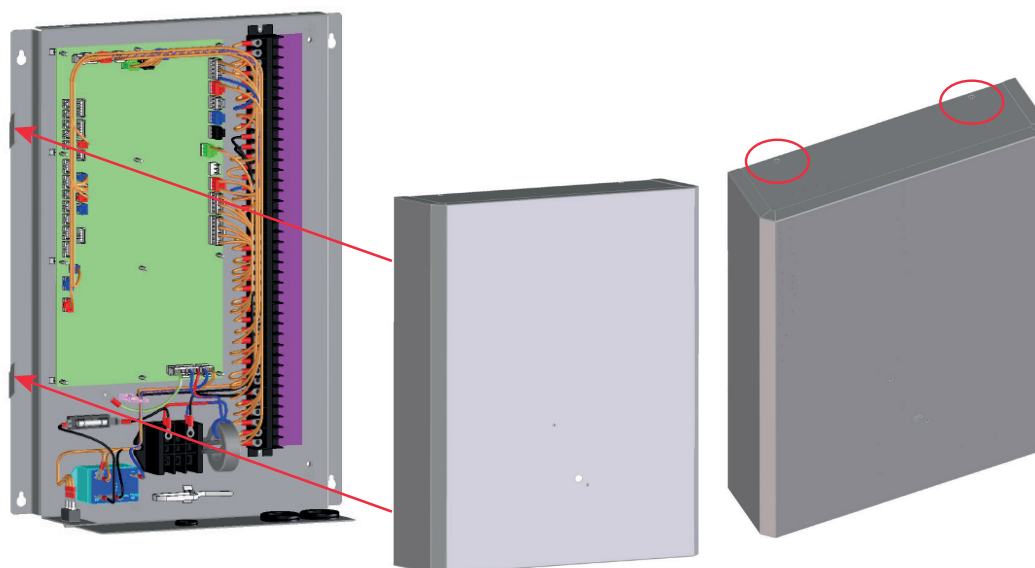
◆ Connection by areas

The connections for power supply and optional function are placed in separate areas of the terminal board.



◆ Electrical box with easy cover (service cover)

The service cover can be easily placed by just fitting the holes in the cover with the tabs on the electrical box, then fixing two screws at the top side.



11.1.3 Maintenance benefits

◆ Checking of the operational data of the Sub unit

The Cascade Controller allows monitoring the status of Sub units and therefore provides the user with information about the status of the whole system. The parameters that can be checked for each Sub module are the following:

- Operation status for Sub unit "n"
- Water inlet temperature for Sub unit "n"
- Water outlet temperature for module "n"
- Outdoor unit compressor frequency for module "n"
- Status of DHW for module "n"
- Type of DHW production (Main or Sub) in case that "Status of DHW" for module "n" is "Enabled"

◆ Alarm control

The Cascade Controller has been designed in order to manage alarm notifications generated at the Cascade Controller side and also alarms generated at the Sub unit side. In any case, both types of alarms are displayed at the bottom-left corner of the display of the LCD controller as it is done on the **airH2O 600** Unit.

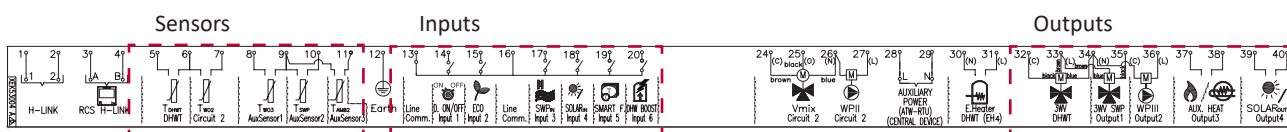
- Cascade Controller alarms: These alarms are generated at the Cascade Controller side. Alarms can be due to factors such as sensor abnormality, wrong setup of the Cascade Controller, high temperature limitation, freeze protection or abnormalities related to wireless thermostats. Some of these alarms trigger protection controls allowing to continue the operation of the Cascade Controller, while others stop the Cascade Controller in order to protect the unit.
- Sub unit alarms: Alarms generated at the Sub unit side are displayed at the LCD controller with alarm code 21X, where X indicates the number of the Sub unit in which the alarm occurred. For instance, should an alarm of any kind (thermistor, flow, wireless thermostat...) occur in Sub module 3, it is displayed in the LCD controller as "Alarm 213". As a rule, operation of the Cascade Controller is not stopped in the event of a Sub unit alarm. The only case in which the operation of the Cascade Controller is stopped due to Sub unit alarms (and emergency operation starts as long as it is enabled) is when all the Sub units in the system are in alarm.

11.1.4 Control features

◆ I/O and sensor functions

The terminal board of the new Cascade Controller allows a wide range of configurations, just as in the **airH2O 600** units. In addition to factory presets, the unit controller offers the possibility to adjust the detailed settings of every input, output and sensor port.

The factory default functions of the controller are those indicated in the label of terminal 2, as shown below:



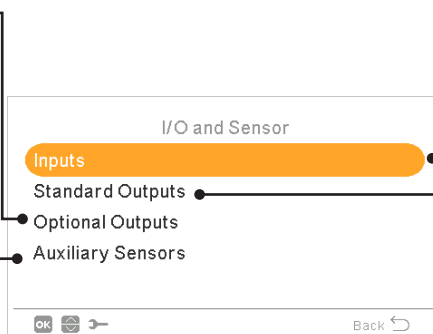
The following input, output and sensor functions can be selected in the “I/O and Sensor” menu of the controller:

Optional outputs:

There 4 additional available outputs to set. These 4 additional outputs are not wired to the **airH2O 600** terminal board. In order to use them it is required accessory (field supplied). Its configuration follow same constrains as Standard outputs.

Auxiliary sensors:

There are 7 available auxiliary sensors to set.



Inputs:

The system allows to set 7 inputs depending on the operations and preferences of the installation.

Standard Outputs:

There are 4 available outputs to set already wired to the terminal board. There are conditions of setting depending on the installation.

◆ List of available inputs

Demand ON/OFF	By default in input 1. Send Demand ON or OFF Operation to Circuit 1 and Circuit 2.
Smart Action	Fixed in input 5 if smart action is enabled. This function must be used to block or limit the heat pump when restricted by Electric company. It allows an external Smart switch device to switch off or reduce consumption of the heat pump during time of peak electricity demand. In case Smart action is configured as Smart Grid Ready (SG1), an additional input is required to configured as SG2. These 2 inputs allows 4 different operation modes: Standard HP mode, External blocking mode, Low price mode, Overcapacity mode.
Swimming pool	Fixed in input 3 if swimming pool is enabled. Input used to let airH2O 600 know swimming pool is in demand ON conditions.
Solar	Fixed in input 4 if solar is enabled. In case of combine airH2O 600 with solar panels, this input is used as a feedback for solar station ready operation.
Operation mode	Cool/Heat must be changed by an input of an external contact signal. Contact signal is edge detection; Cool/Heat changeover by unit controller is also available.
DHW boost	Fixed in input 6 if is DHW Boost is enabled. With this function enabled, it is possible to request a heating up of the DHW when user requires an instantaneous delivery of DHW.
Power meter 1	Input used as kW/h pulse count for Energy data recording.
Demand ON/OFF C1	Send Demand ON or OFF Operation only to Circuit 1.
Demand ON/OFF C2	Send Demand ON or OFF Operation only to Circuit 2.
Forced heating	Forced Heating Demand by input of contact signal from outside.
Forced cooling	Forced Cooling Demand by input of contact signal from outside.
Power meter 2	Input used as kW/h pulse count for Energy data recording.
ECO mode C1 and C2	Water temperature setting for Circuit 1 and Circuit 2 it is reduced by ECO operation mode (Default 3°C) by input of contact signal from outside.
ECO mode C1	By default in input 2, if there is circuit 1 in the installation. Water temperature setting for Circuit 1 it is reduced by ECO operation mode (Default 3°C) by input of contact signal from outside.
ECO mode C2	Water temperature setting for Circuit 2 it is reduced by ECO operation mode (Default 3°C) by input of contact signal from outside.
Force OFF	Force OFF operation for unit. RCS will continue as normally set but will show indication that operation is forbidden.
Smart Grid Ready Input 2	In case Smart action is configured as Smart Grid Ready (SG1), this input is used as a digital input 2 and allow four different operating modes.
Drain pump	In case of configuring this input, alarm is triggered in case input contact is opened. This input can be linked to drain pump kit accessory located at drain pane which by means of a NC contact, notifies there is possibility of water overflow.

◆ List of available outputs

Output	Description
Deactivated	
3WV SWP	Fixed in output 1 if swimming pool is enabled. In case of combine airH2O 600 with swimming pool, this output is used to drive 3 way valve swimming pools.
WP3	Fixed in output 2 if buffer tank is installed. In case of combine airH2O 600 with boiler or hydraulic separator, this output is used to drive water pump 3.
Boiler combination	Fixed in output 3 if boiler is enabled. In case of combine airH2O 600 with boiler, this output is used to switch ON it.
Solar pump	Fixed in output 4 if solar pump is enabled. In case of combine airH2O 600 with solar panel, this output is used to drive water pump station .
Alarm signal	By default in output 5. Output when an "Alarm Code" is received from Indoor Unit or outdoor unit.
Operation signal	By default in output 6. Output in case that "Thermo-ON" signal in any condition.
Cooling signal	By default in output 7. Output in case that "Thermo-ON" signal in Cooling operation.
Demand-ON signal circuit 1	By default in output 8. Signal is enabled when circuit 1 is operating in Demand-ON.
Heating signal	Output in case that "Thermo-ON" signal in Heating operation.
DHW signal	Output in case that "Thermo-ON" signal in DHW operation.
Solar overheat	Output in case that solar temperature signal is active when solar overheat (only when solar combination status is total control).
Defrost	Output if the operation state of the outdoor unit when is defrosting.
DHW re-circulation pump	In case of re-circulation pump enabled for DHW tank.
Heater Relay 1	Not available
Heater Relay 2	Not available
Fan 1 Low speed	Output for fan coil speed.
Fan 1 Medium speed	Output for fan coil speed.
Fan 1 High speed	Output for fan coil speed.
Fan 2 Low speed	Output for fan coil speed.
Fan 2 Medium speed	Output for fan coil speed.
Fan 2 High speed	Output for fan coil speed.
Constant Heat	Output in high state whenever operation mode from Unit controller is in heating mode.
Constant cool	Output in high state whenever operation mode from Unit controller is in cooling mode.

◆ List of available sensors

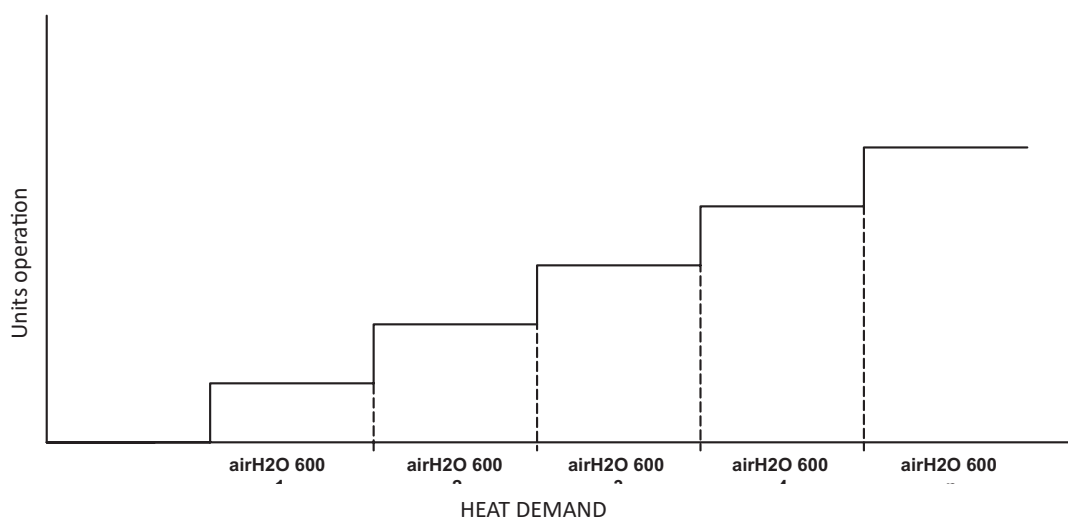
Sensor	Description
Deactivated	
T _{wo3} sensor	Fixed in sensor 1 if boiler is installed. T _{wo3} sensor is required when there is external heating source or useful to track better temperature when there is hydraulic separator or buffer tank.
Swimming pool	Fixed in sensor 2 if swimming pool is installed. When combining airH2O 600 with swimming pool, this sensor is used to read the temperature from the water of the swimming pool.
Solar panel sensor	When combining airH2O 600 with solar panels, this sensor is used to read the temperature from the solar panel.
C1 + C2 ambient sensor	If Aux1 and Aux2 sensors are both connected and enabled at the unit controller configuration, the detection of ambient temperature value is carried out by these sensors. The ambient temperature setting for each circuit is set from the unit controller or central platform. The temperature value detected by each sensor is applied to the corresponding circuit.
C1 ambient sensor	If Aux1 and Aux2 sensors are both connected and enabled at the unit controller configuration, the detection of ambient temperature value is carried out by these sensors. The ambient temperature setting for each circuit is set from the unit controller or central platform. The temperature value detected by each sensor is applied to the circuit 1.
C2 ambient sensor	If Aux1 and Aux2 sensors are both connected and enabled at the unit controller configuration, the detection of ambient temperature value is carried out by these sensors. The ambient temperature setting for each circuit is set from the unit controller or central platform. The temperature value detected by each sensor is applied to the circuit 2.
Outdoor sensor	By default sensor 3. An outside temperature sensor can be directly connected to the controller in case the heat pump is located in a position not suitable for this measurement.

11.1.5 Cascade control

The new Cascade control determines whether a **airH2O 600** Sub unit has to be switched ON or OFF according to heating demand (Water temperature and Water setting temperature).

Up to 8 basic modules can be connected to the Cascade Controller.

The combination of these modules operates as a single system, and allows to achieve higher capacities.



When this control determines that a unit has to be switched ON or OFF, it is the rotary token control which determines the concrete unit to be switched ON or OFF.

11.1.6 Rotary token control

A different Sub unit is started first in each heating up process, in order to balance operation between them.

In case that the Cascade PID Control determines that a unit has to be switched ON in order to satisfy capacity requirements, the Rotary Control switches ON the “Next available Unit”.

In case that the Cascade PID Control determines that a unit has to be switched OFF as it is no longer required to satisfy capacity requirements, the Rotary Control switches OFF the unit that had been switched ON in first place.

Example of Rotary Token Control diagram:

Time line (1 min)		SU-1	SU-2	SU-3	SU-4	SU-5	SU-6	SU-7	SU-8
1	All Units OFF	0	0	0	0	0	0		0
2	PID determine to switch ON module. YCC switches ON next available Sub Unit	1	0	0	0	0	0		0
3	PID determine to switch ON module. YCC switches ON next available Sub Unit	1	2	0	0	0	0		0
4	PID determine to switch ON module. YCC switches ON next available Sub Unit	1	2	3	0	0	0		0
5	PID determine to switch ON module. YCC switches ON next available Sub Unit	1	2	3	4	0	0		0
6	PID determine to switch ON module. YCC switches ON next available Sub Unit	1	2	3	4	5	0		0
7	Heat Demand. PID does not determine new Unit to be started	1	2	3	4	5	0		0
8	Module 3 is in alarm. YCC switches ON new module instead	1	2		3	4	5		0
9	PID determines to switch OFF a module. YCC switches OFF first module started	0	1		2	3	4		0
10	PID determines to switch OFF a module. YCC switches OFF first module started	0	0		1	2	3		0
11	PID determines to switch ON Module. YCC switches ON next available Unit	0	0	0	1	2	3		4
12	PID determine to switch ON module. YCC switches ON next available Sub Unit	5	0	0	1	2	3		4
13	Sub Unit switches to DHW operation. DHW Sub Unit also. YCC switches ON same amount of Units	3	4	5			1	0	2
14	PID determines to switch OFF a module. YCC switches OFF first module started	2	3	4			0	0	1
15	PID determines to switch OFF a module. YCC switches OFF first module started	1	2	3	0	0	0	0	0
16	In case of Thermo-OFF or Demand OFF, YCC switches OFF all modules	0	0	0	0	0	0	0	0

Unit OFF

Unit ON for C1

Unit ON for Main DHW tank

Unit ON for Sub DHW tank

Unit in alarm

Disabled

11.1.7 Synchronized defrost

The defrosting process of the **airH2O 600** Sub units operating with the Cascade Controller as a group has been improved in order to avoid the drop of heating capacity by not defrosting units at the same time.

The defrost operation of **airH2O 600** outdoor units connected to a Cascade Controller operating as a group is timed in order to limit the effect of the drop in heating capacity caused by simultaneous defrost. This improvement results in a more stable capacity and better comfort.

The beginning of defrosting operation of each **airH2O 600** outdoor unit is established according to the total number of units connected to the Cascade Controller and the individual need to defrost of each **airH2O 600** outdoor unit.

Number of airH2O 600 units	Number of units in concurrent defrost
2 or 3	Only 1 airH2O 600 can defrost
4 or 5	Only 1 airH2O 600 can defrost
5 or 6	Up to 2 airH2O 600 can defrost at the same time
6 or 7	Up to 2 airH2O 600 can defrost at the same time
7 or 8	Up to 2 airH2O 600 can defrost at the same time

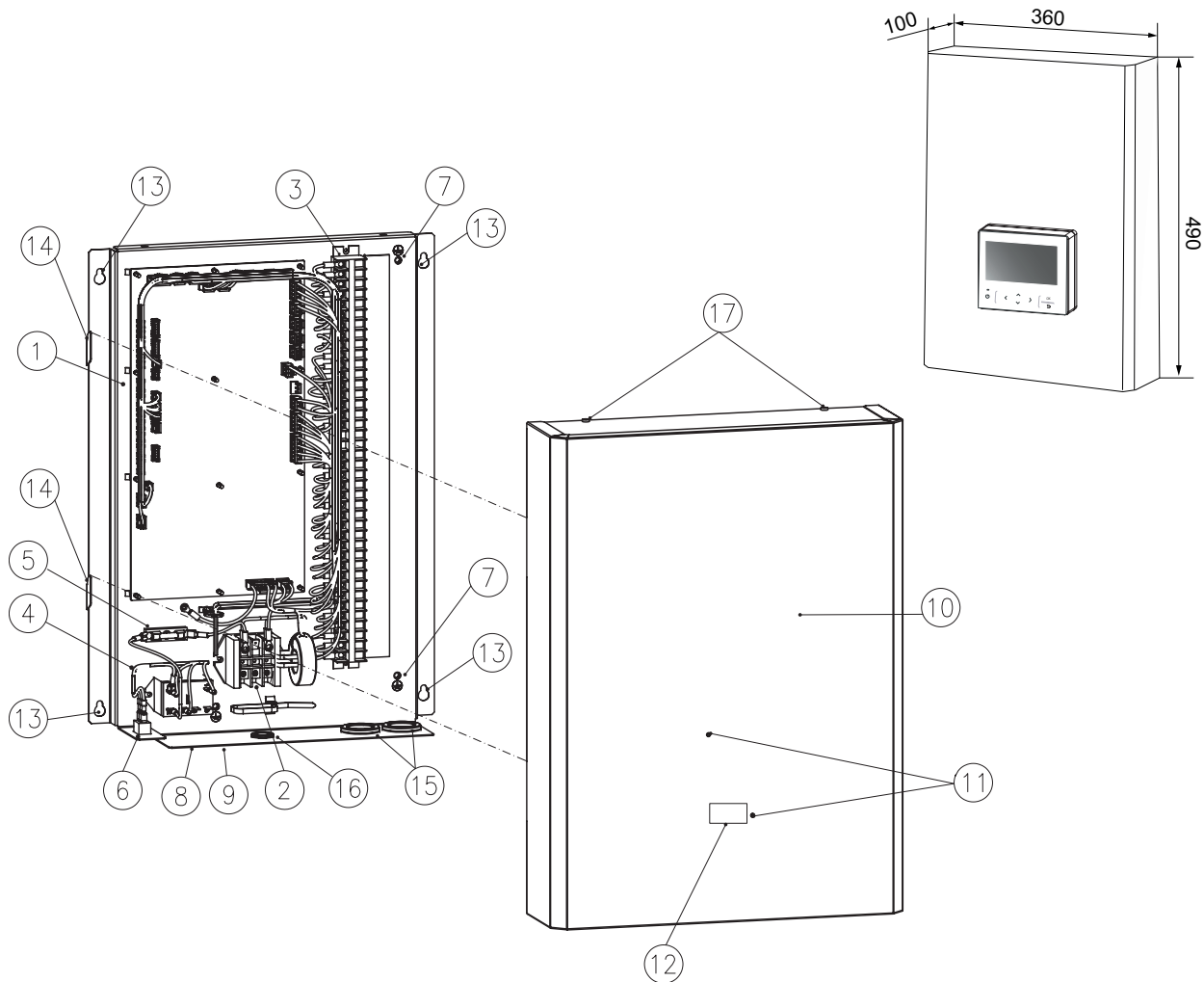
11.2 General data

Cascade Controller - ATW-YCC-04	
Power supply	~ 230 V 50 Hz
Maximum current (with DHWT Electrical Heater) / Maximum current (Only Electrical BOX)	19 A / 5 A
Maximum input (with DHWT Electrical Heater) / Maximum input (Only Electrical BOX)	3.2 kW / 0.8 kW
Ambient temperature range in operation	0 to 40°C
Humidity range in operation	0 to 80% RH non-condensing
Product dimensions	490 x 360 x 100 mm
Packaging dimensions	510 x 380 x 150 mm
Net weight	5.45 kg
Colour of the cover	White, RAL 9016
Maximum diameter of power wiring harness	12 mm

11.3 Electrical data

Model	Main unit power			Applicable voltage		MC [A]
	U [V]	PH	F [Hz]	U max [V]	U min [V]	
ATW-YCC-04 (with DHW E.Heater)	230	~	50	253	207	16
ATW-YCC-04 (only EBOX)	230	~	50	253	207	5

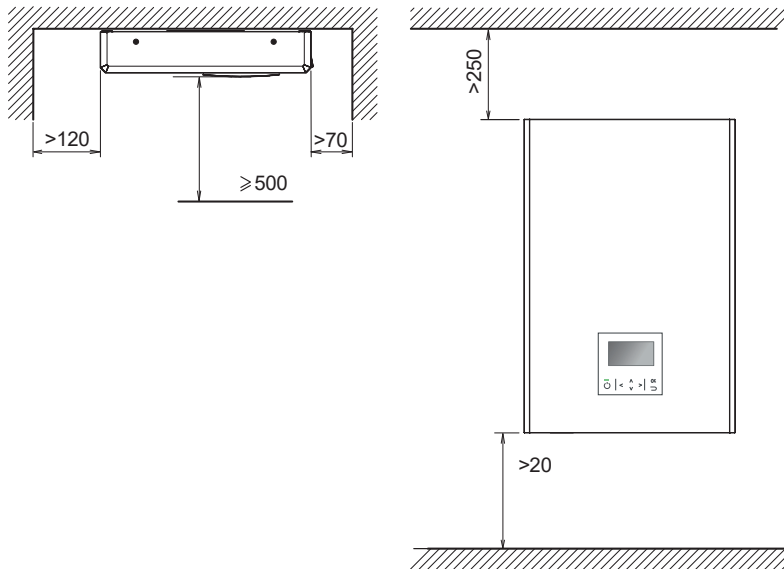
11.4 Name of parts



1. Electrical Box
2. Terminal Board (TB1)
3. Terminal Board (TB2)
4. Relay (AR1)
5. Fuse (EF1) and Fuse holder
6. Switch for DHW emergency operation
7. Earth screw
8. Model Label (Bottom)
9. Electrical data label (Bottom)
10. Service cover
11. LCD unit controller assembly holes (x2)
12. LCD unit controller routing hole
13. Wall mounting holes (x4)
14. Service cover assembly hooks (x2)
15. Rubber bushing for control wiring (x2)
16. Rubber bushing for power supply wiring
17. Service cover fixation screws (x2)

11.5 Service space

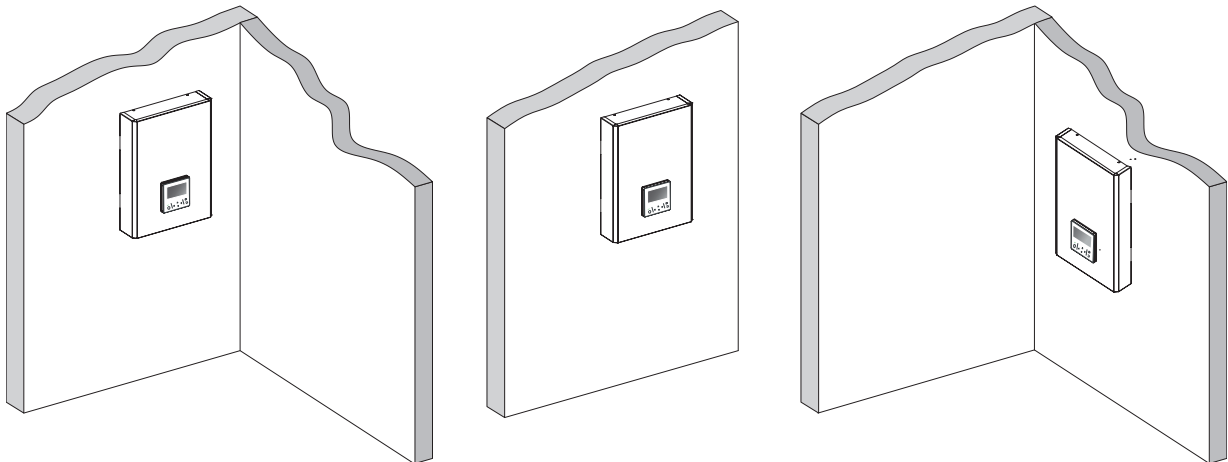
Units: mm



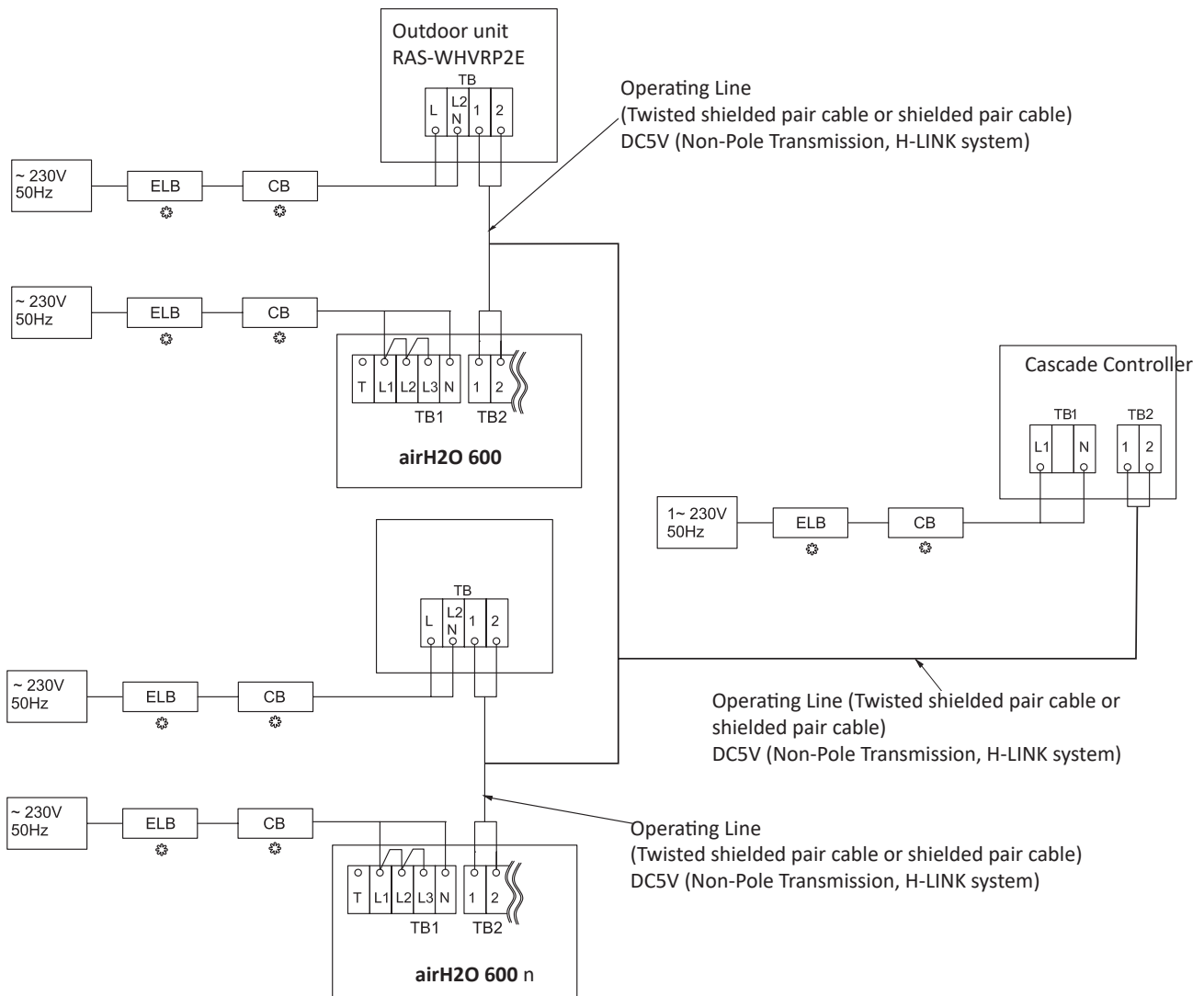
NOTE

Keep a minimum distance for the installation of cables

Examples for placement



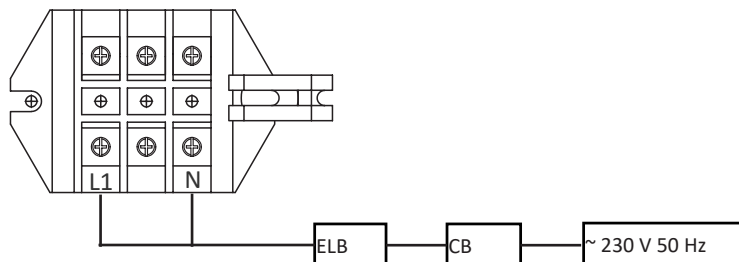
11.6 Electrical wiring



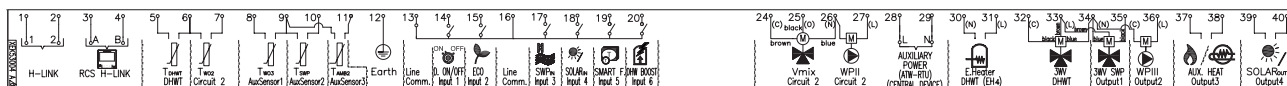
11.7 Transmission wiring

11.7.1 Connections on the Terminal board 1 (TB1)

The followings connections on the Terminal board 1 of the Cascade Controller are required:



11.7.2 Connections on the Terminal board 2 (TB2)

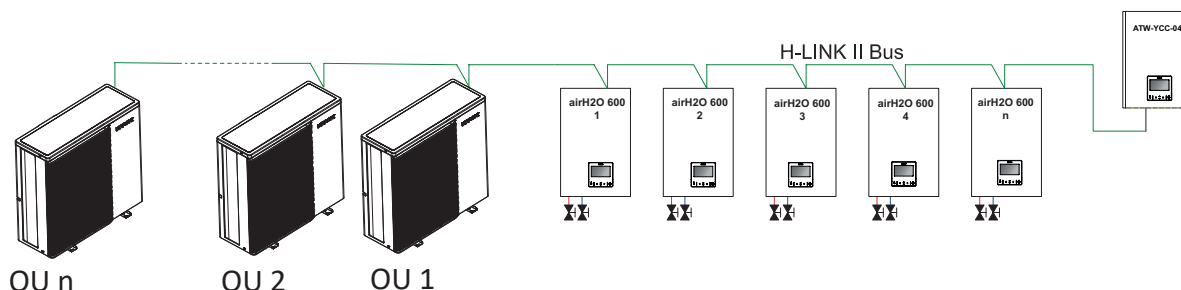


⚠ CAUTION

When installing the Cascade Controller (ATW-YCC-04) electrical connections for the control of the system must be done on the terminal board 2 of the Cascade Controller rather than perform those connections on the terminal board of the airH2O 600.

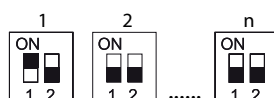
◆ H-LINK connection

The **airH2O 600** units, Cascade Controller and outdoor units are interconnected via bus called H-LINK II, consisting of 2 non-polarity cables and accepting lengths of up to 1000 m. All **airH2O 600** and Outdoor units which are controlled by the same Cascade Controller unit must be connected at the same H-LINK II line:

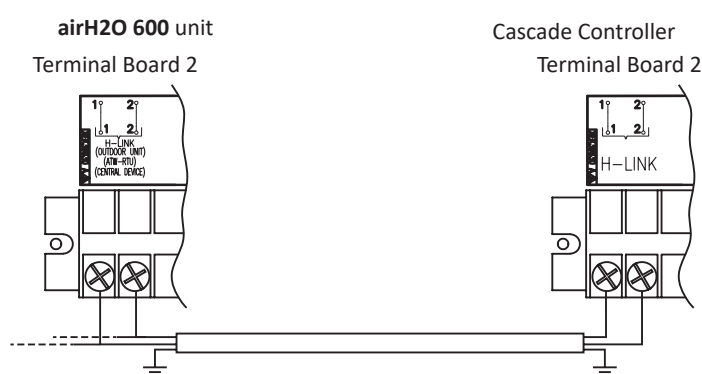


Setting of End Terminal Resistance

When connecting outdoor units to an H-LINK II line, it is necessary to set the end terminal resistance as active (DSW5-1 ON) in only one of the units. Pin 1 of DSW5 is factory set to ON in all the outdoor units. Therefore, when connecting multiple outdoor units to an H-LINK II line, please check and make sure that only one of the units has pin 1 of DSW5 set to ON, and the rest of the units have pin 1 of DSW5 set to OFF.



The H-LINK II connection must be done as it is shown in the figure below:



- The H-LINK wiring system requires only two transmission cables that connect the indoor unit and the outdoor unit.
- Use twist pair wires (0.75 mm²) for operation wiring between outdoor unit and indoor unit. The wiring must consist of 2-core wires (Do not use wire with more than 3 cores).
- Use shielded wires for intermediate wiring to protect the units from noise interference. Total H-LINK circuit length shall not exceed 1000 m and a size in compliance with local codes.
- In the event that a conduit tube for field-wiring is not used, fix rubber bushes to the panel with adhesive.

CAUTION

Ensure that the transmission wiring is not wrongly connected to any live part that could be damaged the PCB.

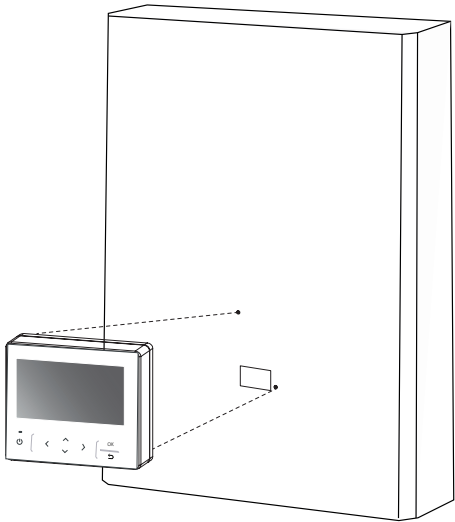
◆ LCD unit controller (PC-ARFH3E) installation and connection

LCD unit controller (PC-ARFH3E) is supplied bundled with the unit as an accessory.

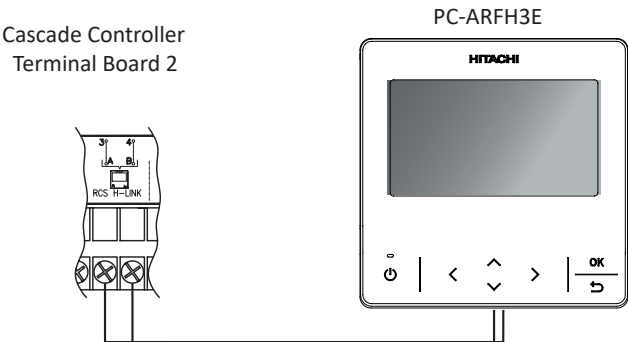
⚠ CAUTION

It is mandatory to install the unit controller (PC-ARFH3E) in the service cover.

- 1 Screw the unit controller to the service cover using the assembly holes.
- 2 Pass the cables of the unit controller through the routing hole.



- 3 Connection for the LCD unit controller PC-ARFH3E should be done on the terminal board 2 of the Cascade Controller as shown in the next figure:

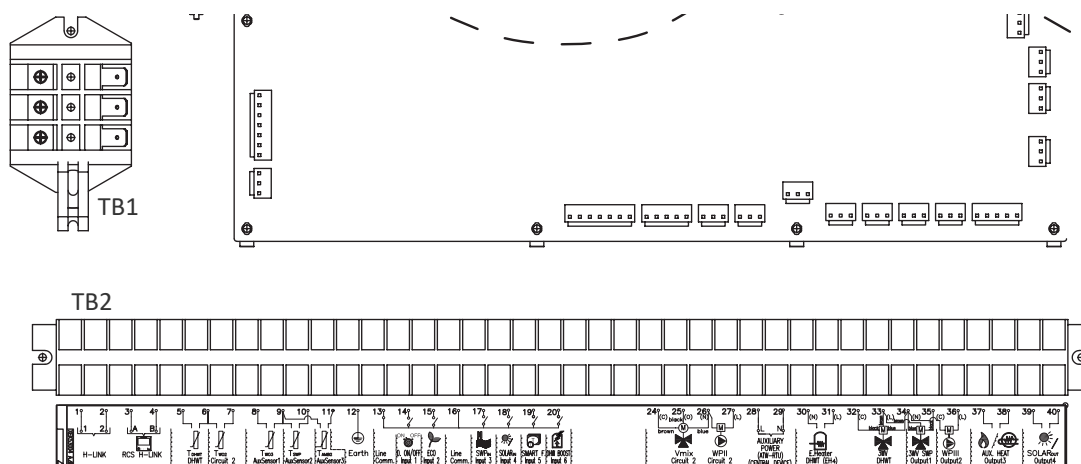


For this purpose, a H-LINK cable (accessory) is necessary.

The torque for the tightening of the screws of each terminal board is explained in the table below.

Terminal board	Tightening Torque (Nm)
TB1	2.0~2.5
TB2	1.0~1.3

11.7.3 Summary of the terminal board connections for Cascade Controller



Mark	Part name	Description
TERMINAL BOARD 2 (TB2)		
1	Commutation	Communication between the Cascade Controller and terminals 1-2 of the airH2O 600 unit, and additionally ATW-RTU-08/09 (for temperature control) and/or ATW-MBS-02 (only for system monitoring).
2		
3	H-LINK communication for remote control switch	Terminals for the connection of the LCD unit controller (PC-ARFH3E) and Wired Room Thermostat (PC-ARFH3E).
4		
5	DHW tank's thermistor	The DHW sensor is used to control the temperature of the domestic hot water tank.
6	Common thermistor	Common terminal for thermistor.
7	Thermistor for water outlet temperature of second cycle	The sensor is used for the second temperature control and should be positioned after the mixing valve and the circulation pump.
8	Thermistor for water outlet temperature after hydraulic separator	Water sensor for hydraulic separator, buffer tank or boiler combination.
9	Common thermistor	Common terminal for thermistors.
10	Thermistor for swimming pool water temperature	The sensor is used for the swimming pool temperature control and should be positioned inside plate heat exchanger of the swimming pool.
11	Thermistor for second ambient temperature	The sensor is used for the second ambient temperature control and it should be positioned outdoors.
12	Earth	Earth connection for the 3 way valve and water pump.
13	Common line	Terminal Line common for input 1 and input 2.
14	Input 1 (Demand ON/OFF) (*)	The air to water heat pump system has been designed to allow the connection of a remote thermostat to effectively control your home's temperature. Depending on the room temperature, the thermostat will turn the split air to water heat pump system ON and OFF.
15	Input 2 (ECO mode) (*)	Available signal which allows to reduce the water setting temperature of circuit 1, circuit 2 or both.

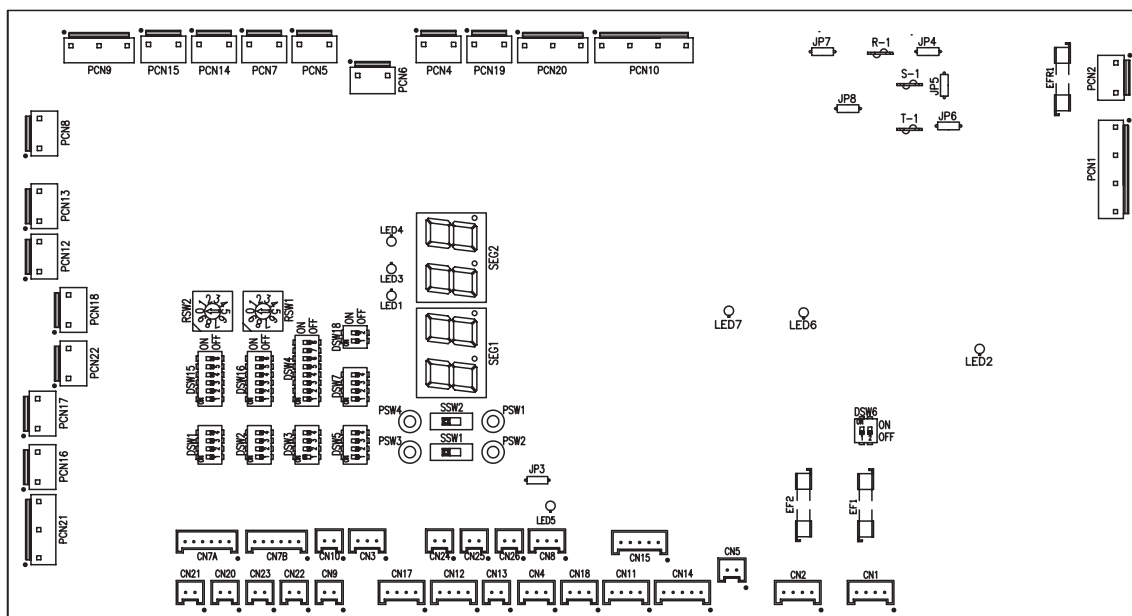
Mark	Part name	Description
16	Common line	Terminal Line common for inputs 3, 4, 5, 6, 7.
17	Input 3 (Swimming pool) (*)	Only for swimming pool installations: It is necessary to connect an external input to the air to water heat pump to provide signal when the water pump of swimming pool is ON.
18	Input 4 (Solar) (*)	Available input for Solar combination with Domestic Hot Water Tank.
19	Input 5 (Smart function) (*)	For the connection of an external tariff switch device to switch OFF the heat pump during peak electricity demand period. Depending on the setting, the heat pump or DHWT will be blocked when signal is open/closed.
20	Input 6 (DHW boost) (*)	Available input for an instantaneous heating of the domestic hot water of the tank.
21	Input 7 (Power meter)	The measuring of the real power consumption can be done connecting an external power meter. The number of pulses of the power meter is a variable which must be set. By this, every pulse input is added into corresponding operation mode (Heating, Cooling, DHW Operation). Two possible options: - One power meter for all installation (indoor unit + outdoor unit). - Two separated power meters (one for indoor unit and one for outdoor unit).
24(C)	Mixing valve close	When a mixing system is required for a second temperature control, these outputs are necessary to control the mixing valve.
25(O)	Mixing valve open	
26(N)	N Common	
27(L)	Water Pump 2 (WP2)	When there is a second temperature application, a secondary pump is the circulating pump for the secondary heating circuit.
28	Auxiliary power	Power supply for ATW-RTU and central device.
29		
30(N)	Electrical Heater	If DHW tank contains an electric heater, the air to water heat pump can activate it if the heat pump cannot achieve the required DHW temperature by itself.
31(L)	DHW Output	
32(C)	3-way valve for DHW tank (output)	The air to water heat pump can be used to heat DHW. This output will be on when DHW is activated.
33(L)	Line (phase)	Line terminal for the 3-way valve for DHW tank and swimming pool.
34(N)	N common (neutral)	Neutral terminal common for 3-way valve of DHW tank and outputs 1 and 2.
35(L)	Output 1 (3-way valve for swimming pool) (*)	The air to water heat pump can be use to heat swimming pool. This output will be ON when swimming pool is activated.
36(L)	Output 2 (Water pump 3 (WP3)) (*)	When there is a hydraulic separator or buffer tank, additional water pump (WP3) is needed.
37	Output 3 (Auxiliary boiler or electric heater) (*)	The boiler can be used to alternate with the heat pump when the heat pump cannot achieve the required temperature by itself.
38		A water electric heater (as accessory) can be used to provide the additional heating required on the coldest days of the year.
39	Output 4 (Solar) (*)	Output for solar combination with Domestic Hot Water Tank.
40		

NOTE

(*): Inputs and outputs explained in the table are the factory-set options. By means of the unit

controller, some other inputs and outputs functions can be configured and used. Refer to the Cascade Controller technical documentation and operation manual for detailed information.

11.7.4 Location of DIP switches and rotary switches



11.7.4.1 Function of DIP switches and rotary switches

NOTE

- The mark “■” indicates the dip switches positions.
- No mark “■” indicates pin position is not affected.
- The figures show the settings before shipment or after selection.
- “Not used” means that the pin must not be changed. A malfunction might occur if changed.

CAUTION

Before setting dip switches, first turn the power supply OFF and then set the position of dip switches. If the switches are set without turning the power supply OFF, the contents of the setting are invalid.

11.7.4.2 DSW1

◆ Additional setting 1

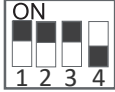
DSW1	RWM-(N/R)3E	RWD-RW3E-220S(-K/6H)
Factory setting (*)		

(*): In case of installing the “Cooling kit” accessory, set the pin 4 of DSW1 to ON in order to enable the cooling operation.

11.7.4.3 DSW2

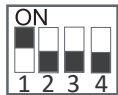
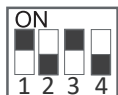
◆ Unit capacity setting

Setting is required in order to match with the model of the Sub **airH2O 600** installed.

DSW2	Factory setting
3.5 HP	
4.0 HP	
5.0 HP	
6.0 HP	
8.0 HP	
10.0 HP	

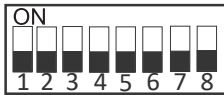
11.7.4.4 DSW3

◆ Additional setting 1

DSW3	
Factory setting	
1 step heater for 3 phase unit option	

11.7.4.5 DSW4

◆ Additional setting 2

DSW4	
Setting before shipment	
Heater forced OFF	
Unit and installation pipes antifreeze protection	
Standard / ECO water pump operation	
Electric heater or boiler emergency mode	
DHW tank's heater operation	

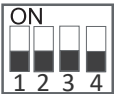
⚠ CAUTION

- Never turn all DSW4 dip switch pins ON. If this happens, the software of the unit will be removed.
- Never activate “Heater Forced OFF” and “Electric heater or boiler emergency mode” at the same time.

11.7.4.6 DSW5

◆ Additional setting 3

In the cases where the outdoor unit is installed into a location where its own outdoor ambient temperature sensor can not give a suitable temperature measurement to the system, it is available the 2nd outdoor ambient temperature sensor as accessory. By means of DSW5 setting, the preferable sensor for each circuit can be selected.

DSW5	
Factory setting	
Outdoor unit sensor for circuits 1 and 2.	
Outdoor unit sensor for circuit 1; Auxiliary sensor for circuit 2.	
Auxiliary sensor for circuit 1; Outdoor unit sensor for circuit 2.	
Auxiliary sensor instead of outdoor unit sensor for both circuits.	

11.7.4.7 DSW6 (only if available)

◆ Not used

DSW6		All units
Factory setting (do not change)		

11.7.4.8 DSW7

◆ Additional setting 4

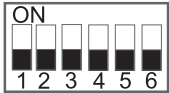
DSW7	
Factory setting	
Compatibility with ATW-RTU-04 (When cooling mode operation is needed)	

11.7.4.9 DSW15 and RSW2

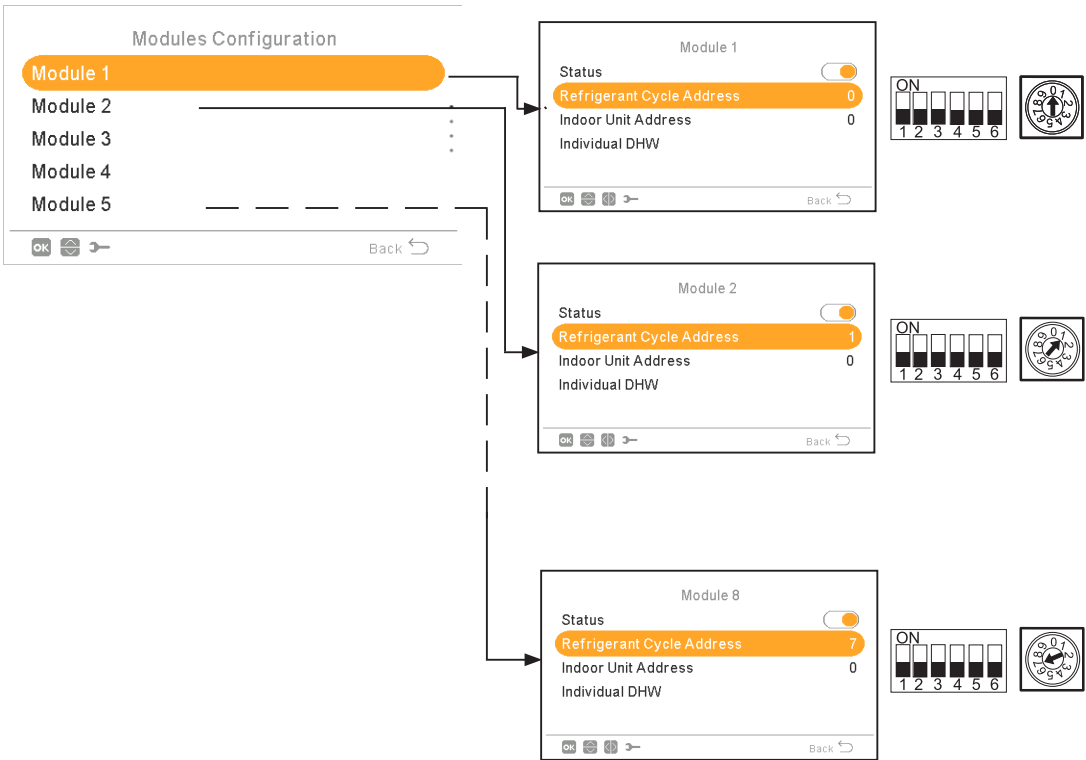
◆ Refrigerant cycle number setting for Cascade Controller

Set and assign to each outdoor unit a different refrigerant cycle number through DSW4 and RSW1 on the outdoor units PCB.

Set for each unit the same refrigerant cycle number than its outdoor unit (DSW15 and RSW2).

	DSW15	RSW2
Factory setting		

It is recommended to set the refrigerant cycle number from 0 and correlatively (1,2,3,...) per each module in order to match with the address number shown in the LCD remote controller. If a different rule is used for assign the refrigerant cycle number it is necessary to set the same refrigerant cycle number in the LCD remote controller.



11.7.4.10 DSW16 and RSW1

◆ Not used

	DSW16	RSW1
Factory setting		

Don't change this setting, otherwise malfunction will be occur.

11.7.4.11 SSW1

◆ Not used

	SSW1
Factory setting	
Remote operation	

11.7.4.12 SSW2

◆ Not used

SSW2		
Factory setting		
Mode operation		

11.7.4.13 LED indication

Name	Colour	Indication
LED1	Green	Power indication
LED2	Red	Power indication
LED3	Red	Heat pump operation (thermo ON/OFF)
LED4	Yellow	Alarm (flickering with 1 sec interval)
LED6	Yellow	H-Link transmission
LED7	Yellow	H-Link transmission for unit controller

11.8 Additional configurations

For more information refer to Service Manual.

11.8.1 For commissioning

- **Air Purge:** Air purge function drives the pump in a way for evacuating air bubbles in the installation.
- **Filling the tank's coil :** By means of DSW4#2 being set to ON, the 3WV (3-way valve) is forced in tank position. This option becomes useful when it is required to fill the circuit with water for the first time. Set DSW4#2 to OFF position before starting operation.
- **Floor screed drying function:** This function is used exclusively for the process of drying a newly applied screed to the floor heating system. The water temperature set-point follows a predetermined schedule upon activation of the floor screed drying function.
- **NFC Configuration:** NFC functionality allows to configure all parameters of the LCD in a very fast way at once. It is possible to create a project remotely and load it to the unit the commissioning day. Also it allows to read the data from a given LCD and share it to be inspected, compared with other NFC files or to be loaded to a different unit. Check CSNET Home app to discover all possibilities.

11.8.2 To protect the system

- **Unit and pipes freeze protection control:** By means of the DSW4#6 it is possible to enable the control that protects the unit and water pipes from freezing conditions. During period of inactivity where water pump is OFF, this control checks the temperature of the water sensors. In case the temperature decreases close to the freeze point, water pump is started with the purpose to move the water.
- **Seizure protection for Hydraulic components:** This function prevents seizure in water components, such as water pumps and 3-way valves, by automatically activating them once a day during inactivity periods. The protection interval can be adjusted through a dedicated menu on the unit's LCD display, ensuring flexibility to suit different operational needs.

11.8.3 User comfort for space heating and space cooling

This section collects all functions purpose of which is to enhance comfort of the user:

- **User offset** If the water temperature setting for zones, as determined by the OTC curve or gradient, does not meet the immediate requirements, the user has the option to apply a +/-5 offset from the Unit LCD without the need to modify advanced parameters.
- **Outdoor temperature average timer:** The average timer corrects the influence of ambient temperature variations. The weather-dependent set point calculation is done on the average outdoor temperature. The outdoor temperature is averaged over the selected time period.
- **Electric heater usage to extend water temperature setting:** (space heating only) By selecting "extend the working range" setting on LCD, electric heater can be used to provide extra water temperature at low ambient temperature conditions where the maximum temperature that can be provided by the heat pump is reduced due to thermodynamic limitations.

- **Emergency operation:** For the use of the electrical heater or boiler in case of outdoor unit fault, additional setting shall be applied into IU setting. Electrical heater emergency can be both automatic or manual switched ON by the user.
- **Mixing valve regulation during DHW operation:** For those installations with C1 and C2 circuits where C1 circuit has a very high inertia, it becomes possible to allow the mixing kit valve to regulate even during DHW operation with the purpose to keep providing energy to C2 circuit. In the same way, in case there is not enough inertia on the system, by means LCD configuration it can be specified that mixing kit is closed during tank operation with the purpose to avoid energy loss on C2.

11.8.4 Options available when using Hitachi wired or wireless thermostat

- **Room temperature compensation:** Purpose of this functionality is to improve user comfort by adjusting water temperature on the installation. After **airH2O 600** has determined the proper water temperature setting by means of OTC curve or gradient, the water temperature setting is afterwards increased or decreased in function of the Room temperature setting and the real room temperature as follows:
 - ✓ In Heating mode:
 - In case room temperature is above room temperature setting, water temperature setting is decreased with the purpose to reduce the thermal load and therefore reduce the power consumption.
 - In case room temperature is below room temperature setting, water temperature setting is increased with the purpose to speed-up heating operation and achieve desired room temperature as fast as possible.
 - ✓ In Cooling mode:
 - In case room temperature is below room temperature setting, water temperature setting is increased with the purpose to reduce the thermal load and therefore reduce the power consumption.
 - In case room temperature is above room temperature setting, water temperature setting is decreased with the purpose to speed-up cooling operation and achieve desired room temperature as fast as possible.
- **Room temperature demand OFF adjustment:** With the purpose to allow heat pump regulation and therefore reduce power consumption it is possible to adjust the amount of degrees it is allowed to overpass room temperature setting before performing demand OFF.
It is also possible to “Deactivate” this control. When deactivated, system does never perform demand OFF operation. In that case, thanks to Room temperature compensation control, water setting temperature is adjusted and system stops the heat pump by thermo OFF after reducing the compressor frequency as much as possible and therefore reduce power consumption of the unit.

11.8.5 Controls for power consumption or noise reduction

- **Economic offset water setting:** Water temperature for space heating and cooling can be modified with the purpose to reduce power consumption of the system. Economic mode can be launched by means a timer or by input function.
- **Reduction of the maximum heating step:** Electric heater has 3 steps. All **airH2O 600** controls that uses electrical heaters are allowed to use all 3 steps unless they are limited with a maximum value configured on LCD.
- **Smart Grid / Smart Function:** This function can be used to block or limit the heat pump or increase demand due to electricity availability. Demand increase is configurable for heating and also for cooling operation.
- **Smart function by timer:** Smart function has the purpose to reduce consumption of the unit. For specific installation, such consumption reduction is desired to be done at a given moment of the day. In this case a timer allows to start Smart function operation without need of setting an input signal.

11.8.6 For unit operation

- **Heating Auto ON/OFF:** At higher outside temperatures it doesn't make sense to keep heating the building. The **airH2O 600** System will switch the heating off when the daily average outdoor temperature of previously day rises above the Summer Switch Auto On/Off Activation Temperature.
- **Auto Heat-Cool:** Available only for models with both heating and cooling capabilities when cooling mode is enabled. The end-user selects the desired operation mode—Heating, Cooling, or Automatic—via the user interface.
When Automatic is selected, the system adjusts the operation mode based on the averaged outdoor temperature. It switches between heating and cooling to maintain the desired range, as defined by the space heating OFF temperature for heating and the space cooling ON temperature for cooling. If the outdoor temperature drops, the system switches to heating; if it rises, it switches to cooling.
- **Averaged outdoor temperature:** The average timer corrects the influence of ambient temperature variations. The weather-dependent set point calculation is done on the average outdoor temperature. The outdoor temperature is averaged over the selected time period.
- **Holiday mode:** This menu let the user specify a date and hour for the Room Setting to be OFF with the configured setting.
- **Remote management of the unit:** Thanks to ATW-IOT-02 unit can be managed remotely by means of CSNET Home App or monitored by means installers from CSNET Home Pro.
- **UTC Zone:** Europe spans 7 primary time zones. Most of European countries use daylight saving time and switch to it at the same moment, which is 'harmonise' their summer time adjustment.
- **European summer time:** When European summer time is activated, it should change the time when the country / UTC zone is doing it.

11.8.7 To customize hydraulic installation

- **Hydraulic separator:** In some cases, water pump of the **airH2O 600** unit is not sized for big heating installation (small water pump). In this case, a hydraulic separator or buffer tank and

secondary water pump has to be used to ensure proper water pump dimensioning. The boiler is configured in parallel with the heat pump. A hydraulic separator or buffer tank has to be used to ensure proper hydraulic balancing. Additional Water pump (WP3) and water sensor (Two3) are needed for boiler combination control (automatic added when Boiler combination is enabled).

- **DHW tank position (Only for airH2O 600S):** Whenever there is buffer tank or hydraulic separator, user can select position of DHW external tank with respect to the hydraulic separator. This means that it is possible to place 3WV and DHW tank before or after the hydraulic separator. In case 3WV valve and DHW tank is placed before buffer tank, it is not required to heat the whole buffer tank up to the coils temperature whenever DHW operation is performed.
- **Pumps setup:** This option allows to configure between 2 hydraulic schemes when hydraulic separator is used. Standard configuration forces WP3 to operate whenever there is demand from Circuit 2. On the other hand, Parallel configuration, allows to connect WP3 and WP2 to the buffer tank, and operation of WP3 is independent to the operation of WP2.
- **Fan coil management:** In case fan coil is selected as a Heating/cooling emitter, fan speeds can be controlled from Room thermostat and fan coil's fan speeds are controlled from **airH2O 600** optional outputs.

11.8.8 For DHW operation

- **DHW anti-Legionella protection:** A specific setting is available to protect the DHW system against Legionella, which raises up the DHW temperature over the normal DHW tank temperature setting (using the electric heater of the DHW tank and/or the heat pump) on a periodic basis.
- **DHW re-circulation:** This function allows the activation of the water pump for the re-circulation of the hot water from the DHW tank by means of the heat pump. This function can also be used with the anti-legionella protection function.
- **DHW boost:** With this function enabled, it is possible to request a heating up of the DHW when user requires an instantaneous delivery of DHW.
- **DHW Mode:** DHW operation has 2 different modes STANDARD and HIGH DEMAND :
 - ✓ STANDARD Mode: Behaves the same as Economic mode but it is used the lowest tank sensor to judge water temperature inside tank. This functionality ensure higher quantity of water already heated inside of tank and heating-up process are more frequent.
 - ✓ HIGH DEMAND Mode: The heating of the domestic hot water is started if differential is bigger than T_{DHWON} . It will be started with water tank heater only unless water temperature in tank goes below Heat Pump starting temperature measured with the lowest sensor on tank.

11.9 Additional functions by accessory sensor

Hitachi offers to its users the option to add more functions to the inputs from signals coming from some specific sensors. The configuration for this purpose is explained below:

I/O Terminal name		Port for setting (Connector number)	Factory default setting		Input/Output type
I/O	Display		Setting contents	Function #	
Sensor 1	A1	CN26 #2	T _{wo3}	0	NTC
Sensor 2	A2	CN25 #1-2	Disabled	0	NTC
Sensor 3	A3	CN5 #1	Disabled	0	NTC

Function of sensors

Function #	Input	Description
0	Disabled	-
1	T _{wo3} sensor	T _{wo3} sensor is used when there is external heating source or useful to track better temperature when there is hydraulic separator or buffer tank.
2	Swimming pool	When combining airH2O 600 with swimming pool, this sensor is used to read the temperature from the water of the swimming pool.
3	Solar panel sensor	When combining airH2O 600 with solar panels, this sensor is used to read the temperature from the solar panel.
4	Zone 1 and 2 ambient sensor	If Aux1 and Aux2 sensors are both connected and enabled at the unit controller configuration, the detection of ambient temperature value is carried out by these sensors. The ambient temperature setting for each circuit is set from the unit controller or central platform. The temperature value detected by each sensor is applied to the corresponding circuit.
5	Zone 1 ambient sensor	If Aux1 and Aux2 sensors are both connected and enabled at the unit controller configuration, the detection of ambient temperature value is carried out by these sensors. The ambient temperature setting for each circuit is set from the unit controller or central platform. The temperature value detected by each sensor is applied to the circuit 1.
6	Zone 2 ambient sensor	If Aux1 and Aux2 sensors are both connected and enabled at the unit controller configuration, the detection of ambient temperature value is carried out by these sensors. The ambient temperature setting for each circuit is set from the unit controller or central platform. The temperature value detected by each sensor is applied to the circuit 2.
7	Second outdoor ambient	An outside temperature sensor can be directly connected to the controller in case the heat pump is located in a position not suitable for this measurement.



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Johnson Controls-Hitachi Air Conditioning Spain, S.A.U.
Ronda Shimizu, 1 - Políg. Ind. Can Torrella
08233 Vacarisses (Barcelona) Spain

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