

TECHNICAL CATALOGUE

YUTAKI

R32 / R410A SERIES

MODELS

SPLIT SYSTEM

YUTAKI S: RWM-(2.0-10.0)(R/N)1E

YUTAKI S Combi: RWD-(2.0-6.0)(R/N)W1E-220S(-K)

YUTAKI S80: RWH-(4.0-6.0)(V)NF(W)E

YUTAKI S80 TANK: DHW(200/260)S-2.7H2E(-W)

OUTDOOR UNITS: RAS-(2-3)WHVRP1 / RAS-(4-10)WH(V)NPE

MONOBLOC SYSTEM

OUTDOOR UNITS: YUTAKI M - RASM-(2-7)(V)R(1)E

HYDROSPLIT SYSTEM

YUTAKI H: HWM-WE

YUTAKI H Combi: HWD-WE-220S(-K)

OUTDOOR UNITS: RASM-(4-7)(V)RW1E



Cooling & Heating



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1.1 General information

1.1.1 General notes

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1.1.2 Introduction

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

YUTAKI 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 YUTAKI 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-ARFH2E) 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 YUTAKI system

◆ Split system - YUTAKI S, YUTAKI S Combi and YUTAKI S80

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:

YUTAKI S

The indoor unit of YUTAKI S 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...).

YUTAKI S Combi

The indoor unit of YUTAKI S 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 YUTAKI S units, it meets the needs of installations with low capacity requirements.

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

YUTAKI S80

The YUTAKI S80 is a standalone indoor unit that generates hot water up to 80°C ; the hottest water temperature in the domestic heating market using renewable energy.

The extra innovation in the YUTAKI S80 lies in that it has two compressors, working in a smart cascade system, with two refrigerant cycles (R-410A and R-134a). To maximize seasonal efficiency, the second refrigerant cycle is only operated as a booster, when very high water temperature is required - the rest of the time, only one cycle is used.

The YUTAKI S80 is ideal for existing properties, in particular older installations where high water supply temperatures may be required to keep the house warm – as well as for new buildings. It is designed for the replacement of boilers, offering heating and sanitary hot water all year round, without boiler back-up.

Two different models have been designed for different purposes: one model for space heating only and the other one for space heating as well as for DHW operation. For DHW operation (optional), Hitachi offers two specific YUTAKI S80 DHW tanks (DHWS200S-2.7H2E and DHWS260S-2.7H2E) which may be placed on top of the indoor unit or besides it, as an integrated unit to provide high-temperature domestic hot water enjoying the benefits of the high efficiency of the heat pump.

◆ Monobloc system - YUTAKI M

YUTAKI M is a monobloc air to water heat pump system composed by only an special outdoor unit, which carries out the function of an air-to-water heat pump. This results in an excellent solution when installation space available is limited.

YUTAKI M is designed to be installed outdoors, in any kind of dwelling (house, apartment, villa,...), whether in a new construction or in an existing building. Installation work is greatly simplified thanks to the lack of refrigerant piping connections.

◆ Hydrosplit system - YUTAKI H and YUTAKI H Combi

YUTAKI Hydrosplit is connected just with a water pipe to the indoor unit (YUTAKI H or YUTAKI H Combi), without need of using refrigerant pipes.

YUTAKI Hydrosplit system consists of one outdoor unit (refrigerant cycle) and one indoor unit (water cycle).

Two types of indoor unit can be used in Hydrosplit systems:

YUTAKI H

The indoor unit of YUTAKI H is designed for space heating, in wall-mounted installation.

YUTAKI H Combi

The indoor unit of YUTAKI H 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.

Furthermore, new YUTAKI H Combi models have been designed for the UK market that meet the UK requirements referred in the UK Building Regulations.

1.1.2.2 Summary of operations

Space heating

YUTAKI 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 YUTAKI S, YUTAKI S80 type1, YUTAKI M and YUTAKI H, the Hitachi accessory “DHWT-(200/300) S-3.0H2E” can be used for the production of DHW.

In case of YUTAKI S Combi and YUTAKI H 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

YUTAKI 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

YUTAKI 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, YUTAKI system can be used to heat up the water temperature of swimming pools up to a value between 24 and 33°C .

1.2 Applied symbols

During normal air conditioning system 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.



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. 517/2014 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 / R134a into the atmosphere: R32 / R410A / R134a are fluorinated greenhouse gases covered by the Kyoto protocol global warming potential (GWP) R32=675 / R410A=2088 / R134a=1430.

Tn 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 air conditioners. 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 nonspecified 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 air system)									
Position-separating hyphen (fixed)									
Compressor power (HP): 2, 2.5, 3, 4, 5, 6, 8, 10									
For water combination									
Heat pump									
V: Single phase unit (~ 230V 50Hz) —: Three phase unit (3N~ 400V 50Hz)									
N: R410A refrigerant R: R32 refrigerant									
Premium series									
Serie 1									
Made in Europe									
RAS	-	X	W	H	(V)	(X)	P	(1)	(E)

1.4.1.2 Split system - Indoor unit

◆ YUTAKI S

Unit type: YUTAKI S (Split system - Single water module (Indoor unit) - Medium/Low temperature)					
Position-separating hyphen (fixed)					
Compressor power of the combined outdoor unit (HP): 2.0, 2.5, 3.0, 4.0, 5.0, 6.0, 8.0, 10.0					
N: R410A refrigerant R: R32 refrigerant					
Serie 1					
Made in Europe					
RWM	-	X.X	(X)	1	E

◆ YUTAKI S80

RWD	-	X.X	(X)	W	1	E	-	220	S	(-K)
-----	---	-----	-----	---	---	---	---	-----	---	------

Indoor unit

Made in Europe

RWH	-	X.X	(V)	N	F	(W)	E
-----	---	-----	-----	---	---	-----	---

Domestic hot water tank (For combination with YUTAKI S80 indoor unit standalone version)

Unit type: YUTAKI S80 domestic hot water tank							
Model: 200/260 litres							
Tank material: Stainless steel							
Position-separating hyphen (fixed)							
Electric heater of 2.7 kW							
Series							
Made in Europe							
-W: Without LCD Controller (sold separately as accessory)							
DHWS	XXX	S	-	2.7H	2	E	(-W)

1.4.1.3 Monobloc system - YUTAKI M

◆ YUTAKI M

Unit type: YUTAKI M (Monobloc system - Single water module (Outdoor unit) - Low/Medium temperature)							
Position-separating hyphen (fixed)							
Compressor power (HP): 2.0, 3.0, 4.0, 5.0, 6.0, 7.0							
V: Single phase unit (~ 230V 50Hz) —: Three phase unit (3N~ 400V 50Hz)							
R32 refrigerant							
Serie 1							
Made in Europe							
RASM	-	X.X	(X)	R	(1)	E	

1.4.1.4 Hydrosplit system - Outdoor unit

◆ RASM-(4-7)(V)WR1E

Unit type: YUTAKI Hydrosplit (R32) (Hydrosplit system (Outdoor unit) - Low/Medium temperature)							
Position-separating hyphen (fixed)							
Compressor power (HP): 4.0, 5.0, 6.0, 7.0							
V: Single phase unit (~ 230V 50Hz)				-: Three phase unit (3N~ 400V 50Hz)			
R32 refrigerant							
W: Hydrosplit system							
1: series							Made in Europe
RASM	-	X.X	(V)	R	W	1	E

1.4.1.5 Hydrosplit system - Indoor unit

◆ YUTAKI H

Unit type: YUTAKI H (Hydrosplit system - Single water module (Indoor unit) - Medium/Low temperature)			
Position-separating hyphen (fixed)			
W: Water to water			
Made in Europe			
HWM	-	W	E

◆ YUTAKI H Combi

Unit type: YUTAKI H Combi (Split system - Dual water module (Indoor unit + Domestic hot water tank) - Medium/Low temperature)							
Position-separating hyphen (fixed)							
Water-to-water DHW heat exchanger							
Made in Europe							
Position-separating hyphen (fixed)							
Tank model: 220 litres							
Tank material: Stainless steel							-K: Model for UK market
HWD	-	W	E	-	220	S	(-K)

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

1.4.2.1 Split system - Outdoor unit

 () () () () ()			
Model	Power supply	Model code	Picture
RAS-2WHVRP1	~ 230V 50Hz	60289258	
RAS-2.5WHVRP1		60289259	
RAS-3WHVRP1		60289260	
RAS-4WHVNPE		7E350007	
RAS-5WHVNPE		7E350008	
RAS-6WHVNPE	3N~ 400V 50Hz	7E350009	
RAS-4WHNPE		7E350107	
RAS-5WHNPE		7E350108	
RAS-6WHNPE		7E350109	
RAS-8WHNPE		7E350110	
RAS-10WHNPE		7E350111	

1.4.2.2 Split system - Indoor unit

◆ YUTAKI S

			
Model	Power supply	Model code	Picture
RWM-2.0R1E	~ 230V 50Hz 3N~ 400V 50Hz	7E475216	
RWM-2.5R1E		7E475217	
RWM-3.0R1E		7E475218	
RWM-4.0N1E		7E475020	
RWM-5.0N1E		7E475021	
RWM-6.0N1E		7E475022	
RWM-8.0N1E		7E475023	
RWM-10.0N1E		7E475024	

For cooling operation, refer to the Cooling kit accessory for YUTAKI S units.

◆ YUTAKI S Combi

Standard model

			
Model	Power supply	Model code	Picture
RWD-2.0RW1E-220S	~ 230V 50Hz 3N~ 400V 50Hz	7E483503	
RWD-2.5RW1E-220S		7E483504	
RWD-3.0RW1E-220S		7E483505	
RWD-4.0NW1E-220S		7E483507	
RWD-5.0NW1E-220S		7E483508	
RWD-6.0NW1E-220S		7E483509	

Model for UK market

			
Model	Power supply	Model code	Picture
RWD-2.0RW1E-220S-K	~ 230V 50Hz 3N~ 400V 50Hz	7E483516	
RWD-2.5RW1E-220S-K		7E483517	
RWD-3.0RW1E-220S-K		7E483518	
RWD-4.0NW1E-220S-K		7E483520	
RWD-5.0NW1E-220S-K		7E483521	
RWD-6.0NW1E-220S-K		7E483522	

◆ YUTAKI S80

NOTE

In “TYPE 1: Version for operation in DHW but with a remote tank”, the required unit controller (PC- ARFH1E) has to be ordered as accessory.

In “TYPE 2 - Combi version: Version for operation with Hitachi DHW tank”, the domestic hot water tank of model DHWS200S-2.7H2E(-W) or DHWS260S-2.7H2E(-W) is required. The DHW tank has to be ordered separately. The unit controller (PC-ARFH1E) is factory supplied with DHWS200S-2.7H2E and DHWS260S-2.7H2E models (integrated in the front cover). The tank can be installed in 2 ways: on top of the indoor unit (integrated installation) or next to it. In this second case, the specific accessory kit installation (ATW-FWP-02, ordered as an accessory) is required.

Indoor unit

				
Model	Power supply	Model code	Remarks	Picture
RWH-4.0VNFE	~ 230V 50Hz	7E482207	TYPE 1: Version for operation in DHW but with a remote tank (Tank cannot be plugged on top of the unit)	
RWH-5.0VNFE		7E482208		
RWH-6.0VNFE		7E482209		
RWH-4.0NFE	3N~ 400V 50Hz	7E482307		
RWH-5.0NFE		7E482308		
RWH-6.0NFE		7E482309		

				
Model	Power supply	Model code	Remarks	Picture
RWH-4.0VNFWE	~ 230V 50Hz	7E482007	TYPE 2: Version for operation with Hitachi DHW tank (Tank can be plugged on top of the unit or next to it)	
RWH-5.0VNFWE		7E482008		
RWH-6.0VNFWE		7E482009		
RWH-4.0NFWE	3N~ 400V 50Hz	7E482107		
RWH-5.0NFWE		7E482108		
RWH-6.0NFWE		7E482109		

YUTAKI S80 domestic hot water tank

			
Model	Power supply	Model code	Picture
DHWS200S-2.7H2E	~ 230V 50Hz	7E544104	
DHWS260S-2.7H2E		7E544105	
			
Model	Power supply	Model code	Picture
DHWS200S-2.7H2E-W	~ 230V 50Hz	7E544106	
DHWS260S-2.7H2E-W		7E544107	

1.4.2.3 Monobloc system - YUTAKI M

				
Model	Power supply	Model code	Remarks	Picture
RASM-2VRE	~ 230V 50Hz	7E351016	Monobloc air-to-water heat pump system	
RASM-3VRE		7E351026		
RASM-4VR1E		7E352007		
RASM-5VR1E		7E352008		
RASM-6VR1E		7E352009		
RASM-4R1E	3N~ 400V 50Hz	7E352107		
RASM-5R1E		7E352108		
RASM-6R1E		7E352109		
RASM-7R1E		7E352158		

For cooling operation, refer to the Cooling kit accessory.

NOTE

The unit controller has to be ordered separately as accessory:

- » PC-ARFH2E model for YUTAKI RASM-(4-7)(V)R1E.
- » PC-ARFH1E(02-03) model for YUTAKI RASM-(2/3)VRE.

1.4.2.4 Hydrosplit system - Outdoor unit

				
Model	Power supply	Model code	Remarks	Picture
RASM-4VRW1E	~ 230V 50Hz	7E352020	Hydrosplit air-to-water heat pump system	
RASM-5VRW1E		7E352021		
RASM-6VRW1E		7E352022		
RASM-4RW1E	3N~ 400V 50Hz	7E352120		
RASM-5RW1E		7E352121		
RASM-6RW1E		7E352122		
RASM-7RW1E		7E352159		

For cooling operation, refer to the Cooling kit accessory.

1.4.2.5 Hydrosplit system - Indoor unit

◆ YUTAKI H

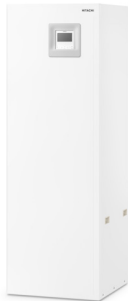
				
Model	Power supply	Model code	Remarks	Picture
HWM-WE	~ 230V 50Hz 3N~ 400V 50Hz	7E545900	Wall mounted indoor unit for Hydrosplit air-to- water heat pump system	

◆ YUTAKI H Combi

Standard model

				
Model	Power supply	Model code	Remarks	Picture
HWD-WE-220S	~ 230V 50Hz 3N~ 400V 50Hz	7E549958	Floor standing indoor units with integrated DHW tank for Hydrosplit air-to-water heat pump system	

Model for UK market

				
Model	Power supply	Model code	Remarks	Picture
HWD-WE-220S-K	~ 230V 50Hz 3N~ 400V 50Hz	7E549966	Floor standing indoor units with integrated DHW tank (UK version) for Hydrosplit air-to-water heat pump system	

1.4.2.6 Complementary system - YUTAKI Cascade Controller

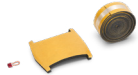
Model	Unit reference
For YUTAKI S units (RWM-(2.0-10.0)(N/R)1E)	S
For YUTAKI S Combi units (RWD-(2.0-6.0)(N/R)W1E-220S(-K))	SC
For YUTAKI S80 (RWH-(4.0-6.0)(V)NF(W)E)	S80
For YUTAKI M (RASM-(2-7)(V)R(1)E)	M
For YUTAKI H (RWM-WE)	H
For YUTAKI H Combi (RWD-WE-220S)	HC

Accessory	Compatible units	Name	Code	Figure
ATW-YCC-01	S80	YUTAKI Cascade Controller (Languages EN, ES, DE, FR, IT, PT, SL)	7E549949	
ATW-YCC-02	S80	YUTAKI Cascade Controller (Languages EN, DA, SV, FI, NL, HR, EL)	7E549950	
ATW-YCC-03	S (*) SC (*) H (*) HC (*) M (*)	YUTAKI Cascade Controller New controller generation (26 languages) (*) Only compatible for 4-10 HP units	7E549963	

1.4.3 Accessory code list

Model	Unit reference
For YUTAKI S units (RWM-(2.0-10.0)(N/R)1E)	S
For YUTAKI S Combi units (RWD-(2.0-6.0)(N/R)W1E-220S(-K))	SC
For YUTAKI S80 (RWH-(4.0-6.0)(V)NF(W)E)	S80
For YUTAKI M (RASM-(2-7)(V)R(1)E)	M
For YUTAKI H (RWM-WE)	H
For YUTAKI H Combi (RWD-WE-220S)	HC
For YUTAKI Cascade Controller (ATW-YCC-01/02)	YCC-01/02
For YUTAKI Cascade Controller (ATW-YCC-03)	YCC-03
All models	A

1.4.3.1 Cooling kit accessories

Accessory	Compatible units	Name	Code	Figure
ATW-CKM-01	M	Cooling operation kit for YUTAKI M R32	7E549931	
ATW-CKS-01	S	Cooling operation kit for YUTAKI S (For 2.0-3.0HP)	7E549927	
ATW-CKS-02	S H	Cooling operation kit for YUTAKI S (For 4.0-6.0HP) and YUTAKI H	7E549928	
ATW-CKS-03	S	Cooling operation kit for YUTAKI S (For 8.0-10.0HP)	7E549929	
ATW-CKSC-02	SC HC	Cooling operation kit for YUTAKI S Combi and H Combi - Insulations + Jumper	7E549959	
ATW-CKSC-03	SC HC	Cooling operation kit for YUTAKI S Combi and H Combi - Insulations + Jumper + Drain Pump	7E549960	

1.4.3.2 Control accessories

Accessory	Compatible units	Name	Code	Figure
PC-ARFH1E	M(*) S80 YCC-01/02	Unit controller Wired room thermostat (Languages EN, ES, DE, FR, IT, NL, SL) (*) Only for 2/3HP models	7E543011	
PC-ARFH1E-02	M(*) S80 YCC-01/02	Unit controller Wired room thermostat (Languages EN, DA, SV, FI, PT, HR, EL) (*) Only for 2/3HP models	7E543012	
PC-ARFH1E-03	M(*) S80 YCC-01/02	Unit controller Wired room thermostat (Languages EN, PL, UK, HU, RO, SL, CS) (*) Only for 2/3HP models	7E543013	
PC-ARFH2E	S SC H HC M (*) YCC-03	Unit controller Wired room thermostat (*) Only for 4-7HP models	7E543016	
PC-ARFH1E1 (New temporary replacement solution for PC-ARFH2E)	S SC H HC M (*) YCC-03	Unit controller (Only for YUTAKI M) Wired room thermostat (Languages EN, ES, DE, FR, IT, NL, SL) (*) Only for 4-7HP models	7E543019	
PC-ARFH1E1-02 (New temporary replacement solution for PC-ARFH2E)	S SC H HC M (*) YCC-03	Unit controller (Only for YUTAKI M) Wired room thermostat (Languages EN, DA, SV, FI, PT, HR, EL) (*) Only for 4-7HP models	7E543020	
PC-ARFH1E1-03 (New temporary replacement solution for PC-ARFH2E)	S SC H HC M (*) YCC-03	Unit controller (Only for YUTAKI M) Wired room thermostat (Languages EN, PL, UK, HU, RO, SL, CS) (*) Only for 4-7HP models	7E543021	
ATW-RTU-04	A	Wireless ON/OFF thermostat (Receiver + Room thermostat)	7E543003	

Accessory	Compatible units	Name	Code	Figure
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	
ATW-RTU-08	A	Wireless Intelligent thermostat (Receiver + Room thermostat)	70543017	
ATW-RTU-09	A	Wireless Intelligent thermostat for 2nd circuit (Only Room thermostat. For Intelligent thermostat application). Can be combined with ATW-RTU-08.	70543018	
AHP-SMB-01	A	SmartBox (Hi-Box)	70549919	
ATW-KNX-02	S SC H HC S80 M	KNX interface for YUTAKI units	7E549925	
ATW-TAG-02	S SC H HC S80 M	Home automation gateway for YUTAKI units	70549926	
ATW-AOS-02	A	Auxiliary output signal box (Relay board for additional output signals)	7E549935	

Accessory	Compatible units	Name	Code	Figure
HC-A16MB	A	MODBUS gateway for multi YUTAKI systems (up to 8 YUTAKI units max., with YUTAKI Cascade Controller 2 units max. or without YUTAKI Cascade Controller)	7E513210	
HC-A64MB	A	MODBUS gateway for multi YUTAKI systems (up to 8 YUTAKI units max., with YUTAKI Cascade Controller 2 units max. or without YUTAKI Cascade Controller)	7E513205	
ATW-MBS-02	S SC H HC S80 M	MODBUS gateway for YUTAKI units	7E549924	
ATW-YMM-01	M 2-3HP	YUTAKI M Mirror	7E549936	
 ATW-YMM-02	M 4-7HP	YUTAKI M Mirror	7E549962	
ATW-FCP-01	S80	Unit controller cover	7E549938	
 ATW-FCP-03	H HC S SC	Unit controller cover	7E549964	

1.4.3.3 Temperature sensor accessories

Accessory	Compatible units	Name	Code	Figure
ATW-2OS-02	A	2nd. outdoor temperature sensor	9E500017	
ATW-ITS-01	A	Indoor wired room temperature sensor	7E549932	
ATW-WTS-02Y	A	Universal water temperature sensor	9E500004	

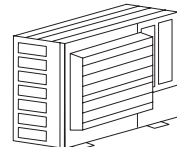
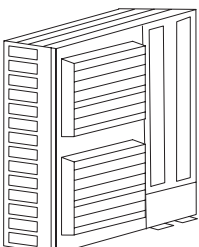
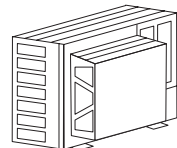
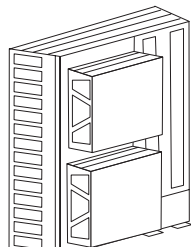
1.4.3.4 Water circuit accessories

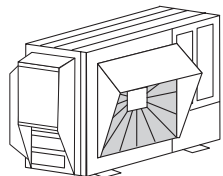
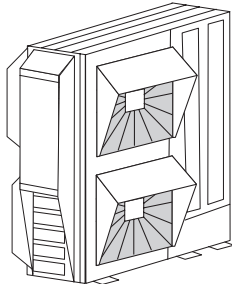
Accessory	Compatible units	Name	Code	Figure
ATW-2TK-07	A	2nd zone mixing kit (Wall mounted model)	7E549951	
ATW-2TK-08	SC HC	2nd zone mixing kit (Integrable in YUTAKI S Combi and H Combi)	7E549965	
ATW-CP-05	SC HC	Active Anode (Cathodic Protection)	7E549954	
DHWT-200S-3.0H2E	S H S80 M	Domestic hot water tank (200 litres)	70544002	
DHWT-300S-3.0H2E		Domestic hot water tank (300 litres)	70544003	
ATW-HSK-01	A	Hydraulic separator	7E549905	

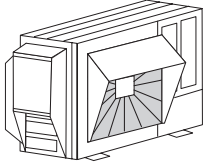
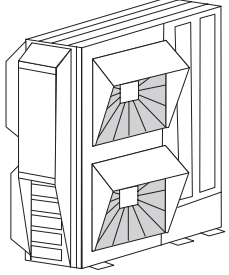
Accessory	Compatible units	Name	Code	Figure
ATW-AQT-01	A	Aquastat security	7E549907	
ATW-3WV-01	A	3-way valve (Internal thread and spring return)	7E549906	
ATW-WCV-01	A	Water check valve	9E500014	
WEH-6E	M S80 YCC-02-03	Water electric heater	90500002	
ATW-DPOV-01	A	Differential pressure overflow valve	7E549916	

1.4.3.5 Outdoor unit accessories code list

Model	Ref.
RAS-(2.0-3.0)WHVRP1 / RASM-(2/3)VRE	A
RAS-(4.0-10.0)WH(V)NPE / RASM-(4-7)(V)R(W)1E	B

Accessory	Compatible units	Name	Code	Figure
DBS-12L	A	Drain discharge connection	60291491	
DBS-26	B		60299192	
AG-264	A	Air flow guide	60209100	
AG-335A	B		60291431	
WSP-264	A	Wind guard	60291831	
WSP-160A	B		60291753	

Accessory	Compatible units	Name	Code	Figure
ASG-SP10FTB (Half)	A		60292336	
ASG-SP11FTB (Full)	A	Snow protection hood (Air outlet - Zinc plate)	60292339	
ASG-NP335F1	B		60291771	
ASG-SP11FC	B		60291783	
ASG-SP10BTB	A		60292337	
ASG-NP160B	B	Snow protection hood (Air inlet of rear side - Zinc plate)	60291777	
ASG-SP11BA	B		60291785	
ASG-SP10LTB	A		60292338	
ASG-NP160L	B	Snow protection hood (Air inlet of side face - Zinc plate)	60291779	
ASG-SP11LA	B		60291787	

Accessory	Compatible units	Name	Code	Figure
ASG-SP10FTBS (Half)	A		60292352	
ASG-SP11FTBS (Full)	A		60292355	
ASG-NP335FS4	B	Snow protection hood (Air outlet - Stainless plate)	60291940	
ASG-SP11FCS2	B		60291948	
ASG-SP10BTBS (Half)	A		60292353	
ASG-NP280BS4	B	Snow protection hood (Air inlet of rear side - Stainless plate)	60291945	
ASG-SP11BAS2	B		60291949	
ASG-NP280LS4	B	Snow protection hood (Air inlet of side face - Stainless plate)	60291946	
ASG-SP11LAS2	B		60291950	
DH-SP63A	A	Drain heater	60292335	
 DH-SP280A	B	Drain heater	60292340	

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2.1 Capacity tables

2.1.1 Nominal capacity-performance tables

2.1.1.1 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.
- DHW performance based on the EN 16147.

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)

2.1.1.2 Capacity-performance data

◆ YUTAKI Outdoor unit + YUTAKI S / YUTAKI S Combi

		HP		2.0 HP	2.5 HP	3.0 HP	4.0 HP	5.0 HP	6.0 HP	8.0 HP	10.0 HP
		Outdoor unit		RAS-2WHVRP1	RAS-2.5WHVRP1	RAS-3WHVRP1	RAS-4WH(V)NPE	RAS-5WH(V)NPE	RAS-6WH(V)NPE	RAS-8WHNPE	RAS-10WHNPE
		Indoor unit		RWM-2.0R1E	RWM-2.5R1E	RWM-3.0R1E	RWM-4.0N1E	RWM-5.0N1E	RWM-6.0N1E	RWM-8.0N1E	RWM-10.0N1E
				RWD-2.0RW1E-220S(-K)	RWD-2.5RW1E-220S(-K)	RWD-3.0RW1E-220S(-K)	RWD-4.0NW1E-220S(-K)	RWD-5.0NW1E-220S(-K)	RWD-6.0NW1E-220S(-K)	-	-
OAT (DB/WB)	WIT / WOT	-	Unit	Heating operation							
7 / 6 °C	30 / 35 °C	CAP (Min./Nom./Max.)	kW	1.85 / 4.30 / 6.50	1.8 / 6.00 / 8.6	2.1 / 8.00 / 11.0	4.3 / 11.0 / 15.2	4.8 / 14.0 / 16.7	5.5 / 16.0 / 17.8	9.0 / 20.0 / 25.5	10.0 / 24.0 / 32.0
		COP (Nom.)	-	5.25	4.80	4.60	5.00	4.71	4.57	4.30	4.29
	47 / 55 °C	CAP (Nom./Max.)	kW	4.30 / 6.00	6.00 / 7.00	8.00 / 9.00	11.0 / 13.5	14.0 / 15.2	16.0 / 17.0	20.0 / 24.0	24.0 / 25.5
		COP (Nom.)	-	3.00	2.85	2.80	3.00	2.80	2.50	2.72	2.65
2 / 1 °C	* / 35 °C	CAP (Nom.)	kW	3.50	4.50	5.50	9.50	10.5	11.1	12.3	13.0
		COP (Nom.)	-	4.00	3.65	3.53	3.61	3.55	3.41	3.41	3.31
-7 / -8 °C	30 / 35 °C	CAP (Nom./Max.)	kW	4.50 / 5.30	5.30 / 6.20	5.80 / 7.50	9.7 / 10.6	11.5 / 12.0	12.0 / 13.0	14.2 / 17.9	16.5 / 21.0
		COP (Nom.)	-	2.8	2.70	2.70	2.74	2.65	2.57	2.57	2.46
	47 / 55 °C	CAP (Nom./Max.)	kW	4.00 / 4.20	4.7 / 5.00	5.00 / 5.50	8.7 / 9.7	9.7 / 11.2	10.5 / 12.0	12.5 / 14.5	15.5 / 17.3
		COP (Nom.)	-	2.00	1.80	1.75	1.78	1.85	1.75	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	4.00 / 5.00	5.30 / 6.00	6.50 / 7.00	7.2 / 11.8	9.5 / 12.6	10.5 / 13.7	14.0 / 16.4	17.5 / 20.6
		EER (Nom.)	-	4.00	3.60	3.35	3.54	3.40	3.23	3.12	2.81
	23 / 18 °C	CAP (Nom./Max.)	kW	5.50 / 6.40	6.30 / 7.20	7.00 / 9.00	10.4 / 15.0	12.9 / 16.0	13.5 / 17.5	17.0 / 23.5	20.0 / 27.0
		EER (Nom.)	-	5.40	5.30	4.80	4.50	4.48	4.23	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.

◆ YUTAKI S Combi Domestic Hot Water tank performance

Tank	HP		(2.0-3.0) HP		(4.0-6.0) HP	
	Outdoor unit model		RAS-(2-3)WHVRP1		RAS-(4-6)WH(V)NPE	
	Indoor unit model		RWD-(2.0-3.0)RW1E-220S(-K)		RWD-(4.0-6.0)NW1E-220S(-K)	
220 litres	Load profile	-	-	L		L
	COPdhw (SCOPdhw)	-	-	3.2		3.1
	Heating up time	t _h	h:min	1:55		1:05
	Standby power input	Pes	W	30		34
	Mixed water at 40 °C	Vmax	l	288		288
	Ref hot water temperature	θ'wh	°C	52.55		52.55
	Efficiency	ηwh	%	130		127
	Energy class	-	-	A+		A+

◆ YUTAKI Outdoor unit + YUTAKI S80

		HP		4.0 HP		5.0 HP		6.0 HP	
		Outdoor unit model		RAS-4WH(V)NPE		RAS-5WH(V)NPE		RAS-6WH(V)NPE	
		Indoor unit model		RWH-4.0(V)NF(W)E		RWH-5.0(V)NF(W)E		RWH-6.0(V)NF(W)E	
OAT(DB/WB)	WIT / WOT	-	Unit	Heating operation					
7 / 6 °C	30 / 35 °C	CAP (Nom./Max.)	kW	11.0/15.2		14.0/16.7		16.0/17.8	
		COP (Nom.)	-	5.00		4.71		4.57	
	40 / 45 °C	CAP (Nom./Max.)	kW	11.0/14.5		14.0/17.0		16.0/18.0	
		COP (Nom.)	-	3.90		3.78		3.60	
	47 / 55 °C	CAP (Nom./Max.)	kW	11.0/14.5		14.0/17.0		16.0/18.0	
		COP (Nom.)	-	3.32		3.19		3.10	
	55 / 65 °C	CAP (Nom./Max.)	kW	11.0/14.5		14.0/17.0		16.0/18.0	
		COP (Nom.)	-	2.90		2.88		2.73	
-7 / -8 °C	30 / 35 °C	CAP (Nom./Max.)	kW	9.7/10.6		11.5/12.2		12.1/13.0	
		COP (Nom.)	-	2.74		2.65		2.57	
	40 / 45 °C	CAP (Nom./Max.)	kW	11.0/12.5		14.0/14.5		16.0/16.0	
		COP (Nom.)	-	2.40		2.30		2.20	
	47 / 55 °C	CAP (Nom./Max.)	kW	11.0/12.5		14.0/14.5		16.0/16.0	
		COP (Nom.)	-	2.30		2.20		2.08	
	55 / 65 °C	CAP (Nom./Max.)	kW	11.0/12.5		14.0/14.5		16.0/16.0	
		COP (Nom.)	-	2.10		2.05		1.95	

◆ YUTAKI M R32/ YUTAKI M Hydrosplit R32

		HP	2.0 HP	3.0 HP
		Outdoor unit model	RASM-2VRE	RASM-3VRE
		Indoor unit model	-	-
OAT(DB/WB)	WIT / WOT	-	Unit	Heating operation
7 / 6 °C	30 / 35 °C	CAP (Min. /Nom./Max.)	kW	1.85 / 4.30 / 6.50
		COP (Nom.)	-	5.25
	47 / 55 °C	CAP (Nom./Max.)	kW	4.30 / 6.00
		COP (Nom.)	-	3.00
2 / 1 °C	* / 35 °C	CAP (Nom.)	kW	3.50
		COP (Nom.)	-	4.00
	30 / 35 °C	CAP (Nom./Max.)	kW	4.50 / 5.30
		COP (Nom.)	-	2.80
-7 / -8 °C	47 / 55 °C	CAP (Nom./Max.)	kW	4.00 / 4.20
		COP (Nom.)	-	2.00
	30 / 35 °C	CAP (Nom./Max.)	kW	5.80 / 7.50
		COP (Nom.)	-	2.70
35 / -- °C	12 / 7 °C	CAP (Nom/Max)	kW	4.00 / 5.00
		EER (Nom.)	-	4.00
	23 / 18 °C	CAP (Nom/Max)	kW	5.50 / 6.40
		EER (Nom.)	-	5.40
OAT (DB/WB)	WIT / WOT	-	Unit	Cooling operation (Using cooling kit accessory)
35 / -- °C	12 / 7 °C	CAP (Nom/Max)	kW	4.00 / 5.00
		EER (Nom.)	-	4.00
	23 / 18 °C	CAP (Nom/Max)	kW	5.50 / 6.40
		EER (Nom.)	-	5.40

		HP		4.0 HP	5.0 HP	6.0 HP	4.0 HP	5.0 HP	6.0 HP	7.0 HP
		Outdoor unit model		RASM-4VR(W)1E	RASM-5VR(W)1E	RASM-6VR(W)1E	RASM-4R(W)1E	RASM-5R(W)1E	RASM-6R(W)1E	RASM-7R(W)1E
		Indoor unit model		HWM-WE / HWD-WE-220S(-K)						
OAT (DB/WB)	WIT / WOT	-	Unit	Heating operation						
7 / 6 °C	30 / 35 °C	CAP (Min./Nom./Max.)	kW	3.9 / 11.0 / 14.0	5.0 / 12.0 / 15.0	5.9 / 13.0 / 16.0	3.70 / 11.0 / 14.0	5.0 / 12.0 / 15.0	5.9 / 13.0 / 16.0	6.1 / 16.0 / 18.0
		COP (Nom.)	-	4.70	4.50	4.50	4.70	4.50	4.50	4.42
	47 / 55 °C	CAP (Nom./Max.)	kW	11.0 / 14.0	12.0 / 15.0	13.0 / 16.0	11.0 / 14.0	12.0 / 15.0	13.0 / 16.0	16.0 / 18.0
		COP (Nom.)	-	2.72	2.55	2.64	2.72	2.55	2.64	2.74
2 / 1 °C	* / 35 °C	CAP (Nom.)	kW	11.0	12.0	13.0	11.0	12.0	13.0	16.0
		COP (Nom.)	-	3.40	3.35	3.38	3.40	3.35	3.38	3.38
-7 / -8 °C	30 / 35 °C	CAP (Nom./Max.)	kW	11.0 / 11.0	12.0 / 12.5	13.0 / 14.0	11.0 / 11.0	12.0 / 12.5	13.0 / 14.0	16.0 / 16.0
		COP (Nom.)	-	2.87	2.81	2.81	2.87	2.81	2.81	2.82
	47 / 55 °C	CAP (Nom./Max.)	kW	11.0 / 11.0	12.0 / 12.0	13.0 / 13.0	11.0 / 11.0	12.0 / 12.0	13.0 / 13.0	16.0 / 16.0
		COP (Nom.)	-	2.13	2.05	2.08	2.13	2.05	2.08	2.18
OAT (DB/WB)	WIT / WOT	-	Unit	Cooling operation (Using cooling kit accessory)						
35 / -- °C	12 / 7 °C	CAP (Nom/Max)	kW	11.0 / 12.0	12.0 / 14.0	13.0 / 15.0	11.0 / 12.0	12.0 / 14.0	13.0 / 15.0	14.0 / 15.5
		EER (Nom.)	-	3.37	3.30	3.22	3.32	3.30	3.22	3.16
	23 / 18 °C	CAP (Nom/Max)	kW	11.0 / 15.0	13.0 / 16.5	14.0 / 17.5	11.0 / 15.0	13.0 / 16.5	14.0 / 17.5	15.0 / 19.9
		EER (Nom.)	-	4.82	4.71	4.65	5.04	4.71	4.65	4.60

*: 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.

◆ YUTAKI H Combi Tank performance

			HP	4.0 HP	5.0 HP	6.0 HP	4.0 HP	5.0 HP	6.0 HP	7.0 HP
			Outdoor unit model	RASM-4VRW1E	RASM-5VRW1E	RASM-6VRW1E	RASM-4RW1E	RASM-5RW1E	RASM-6RW1E	RASM-7RW1E
			Indoor unit model	HWD-WE-220S(-K)						
Tank 220 litres	Load profile	-	-	L	L	L	L	L	L	L
	COPdhw (SCOPdhw)	-	-	2.68	2.68	2.68	2.3	2.3	2.3	2.3
	Heating up time	th	h:min	1:10	1:10	1:10	1:10	1:10	1:10	1:10
	Standby power input	Pes	W	41	41	41	56	56	56	56
	Mixed water at 40 °C	Vmax	l	288	288	288	288	288	288	288
	Ref hot water temperature	θ'wh	°C	52.85	52.85	52.85	52.85	52.85	52.85	52.85
	Efficiency	ηwh	%	110	110	110	95	95	95	95
	Energy class	-	-	A	A	A	A	A	A	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. 517/2014.
- 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-ARFH2E)		
	Wireless room thermostat (ATW-RTU-04)		
	Wireless Intelligent thermostat (ATW-RTU-07)		
	Wireless Intelligent thermostat (ATW-RTU-08)		
	Wired room thermostat (PC-ARFH1E(1)-(01/02-/03))		
	Wired room sensor (ATW-ITS-01)		
Temperature control class	II	Temperature control class	VI
Energy efficiency contribution	+2%	Contribution to the nominal energy efficiency	+4%

2.2.2 General ERP data for space heaters

2.2.2.1 Split system - YUTAKI S and YUTAKI S Combi

◆ AVERAGE climate

			HP		2.0 HP		2.5 HP		3.0 HP		4.0 HP		5.0 HP		6.0 HP	
			Outdoor unit		RAS-2WHVRP1		RAS-2.5WHVRP1		RAS-3WHVRP1		RAS-4WHVNPE		RAS-5WHVNPE		RAS-6WHVNPE	
					RWM-2.0R1E		RWM-2.5R1E		RWM-3.0R1E		RWM-4.0N1E		RWM-5.0N1E		RWM-6.0N1E	
					RWD-2.0RW1E-220S(-K)		RWD-2.5RW1E-220S(-K)		RWD-3.0RW1E-220S(-K)		RWD-4.0NW1E-220S(-K)		RWD-5.0NW1E-220S(-K)		RWD-6.0NW1E-220S(-K)	
Water outlet temperature			35°C	55°C	35°C	55°C	35°C	55°C	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	Yes	Yes	Yes	Yes	Yes
	Heat pump combination heater		-	No	No	No	No	No	No	No	No	No	No	No	No	No
	Low temperature heat pump		-	No	No	No	No	No	No	No	No	No	No	No	No	No
	Complementary heater		-	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Design capacity (P _{DESIGN})			kW	4.0	4.0	6.0	5.0	7.0	6.0	11.0	10.0	14.0	12.0	16.0	14.0	
Nominal energy efficiency (η _s)			%	180 (184)	130 (132)	177 (180)	127 (128)	177 (179)	125 (126)	181 (183)	135 (136)	183 (185)	133 (133)	162 (163)	134 (135)	
Nominal energy class			-	A+++	A++	A+++	A++	A+++	A++	A+++	A++	A+++	A++	A+++	A++	
Data for Packaged Fiche	Energy efficiency with OTC control (η _c) (*)		%	182 (186)	132 (134)	179 (182)	129 (130)	179 (181)	127 (129)	183 (185)	137 (138)	185 (187)	135 (135)	164 (165)	136 (137)	
	Energy class with OTC control		-	A+++	A++	A+++	A++	A+++	A++	A+++	A++	A+++	A++	A+++	A++	
	Energy efficiency with thermostats/sensors (η _c) (*)		%	183 (187)	133 (135)	181 (184)	131 (132)	181 (183)	129 (131)	184 (186)	138 (139)	186 (188)	136 (136)	165 (166)	137 (138)	
	Energy class with thermostats		-	A+++	A++	A+++	A++	A+++	A++	A+++	A++	A+++	A++	A+++	A++	
Supplementary capacity (P _{SUP})			kW	0.0	0.9	0.7	1.1	1.4	1.0	0.5	2.6	1.9	3.0	1.9	3.5	
Type of energy used			-	Electricity	Electricity	Electricity	Electricity	Electricity	Electricity	Electricity	Electricity	Electricity	Electricity	Electricity	Electricity	Electricity
Declared capacity (P _{dh}) and coefficient of performance (COP _d) at partial load under the following outdoor temperatures:	Outdoor temperature (T _j) = -7°C	P _{dh}	kW	3.54	3.50	5.10	4.42	5.90	5.10	9.45	8.60	12.00	10.25	13.80	11.20	
		COP _d	-	3.20	2.00	2.70	1.65	2.65	1.84	3.05	1.80	2.55	1.70	2.40	1.94	
	Outdoor temperature (T _j) = +2°C	P _{dh}	kW	2.35	2.16	3.10	2.69	3.59	3.10	5.75	5.23	7.30	6.24	8.40	6.82	
		COP _d	-	4.43	3.25	4.60	3.30	4.30	3.10	4.50	3.60	4.70	3.60	3.90	3.35	
	Outdoor temperature (T _j) = +7°C	P _{dh}	kW	3.00	2.43	3.00	2.43	3.20	2.00	3.70	3.52	4.70	4.01	5.40	4.38	
		COP _d	-	7.41	5.20	6.20	4.95	7.00	4.65	6.00	4.80	6.54	4.60	6.16	4.80	
	Outdoor temperature (T _j) = +12°C	P _{dh}	kW	3.05	2.80	3.05	2.80	3.50	2.20	3.70	3.60	3.50	3.50	3.50	3.60	
		COP _d	-	9.24	6.90	8.35	6.78	9.70	6.55	7.50	5.80	7.55	5.50	7.10	7.05	
	Outdoor temperature (T _j) = Bivalent temperature (T _{biv})	P _{dh}	kW	3.54	3.50	5.10	4.42	5.90	5.10	9.45	8.60	12.00	10.25	13.80	11.20	
		COP _d	-	3.20	2.00	2.70	1.65	2.65	1.84	3.05	1.80	2.55	1.70	2.40	1.94	
	Outdoor temperature (T _j) = Limit operation temperature (TOL)	P _{dh}	kW	4.00	3.10	5.30	3.90	5.60	5.00	10.50	7.40	12.10	9.00	14.10	10.5	
		COP _d	-	2.75	1.90	2.50	1.70	2.30	1.50	2.65	1.70	2.50	1.60	2.30	1.40	
Bivalent temperature (T _{biv})			°C	-7	-7	-7	-7	-7	-7	-7	-7	-7	-7	-7	-7	
Limit operation temperature (TOL)			°C	-10	-10	-10	-10	-10	-10	-10	-10	-10	-10	-10	-10	
Water limit operation temperature (WTOL)			°C	55	55	55	55	55	55	55	55	55	55	55	55	
Degradation coefficient (C _{dh})			-	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9	
Annual energy consumption (Q _{HE})			kW·h	1811 (1767)	2463 (2420)	2652 (2608)	3186 (3143)	3068 (3024)	3723 (3680)	4801 (4753)	5815 (5767)	6022 (5974)	7066 (7018)	7822 (7774)	7640 (7592)	

			HP		4.0 HP		5.0 HP		6.0 HP		4.0 HP		5.0 HP		6.0 HP	
			Outdoor unit		RAS-4WHNPE		RAS-5WHNPE		RAS-6WHNPE		RAS-4WHVNPE		RAS-5WHVNPE		RAS-6WHVNPE	
					RWM-4.0N1E		RWM-5.0N1E		RWM-6.0N1E		RWM-4.0N1E		RWM-5.0N1E		RWM-6.0N1E	
			Indoor unit		RWD-4.0NW1E-220S(-K)		RWD-5.0NW1E-220S(-K)		RWD-6.0NW1E-220S(-K)		RWD-4.0NW1E-220S(-K)		RWD-5.0NW1E-220S(-K)		RWD-6.0NW1E-220S(-K)	
Water outlet temperature			35°C	55°C	35°C	55°C	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	Yes	Yes	Yes	Yes	
	Heat pump combination heater		-	No	No	No	No	No	No	No	No	No	No	No	No	
	Low temperature heat pump		-	No	No	No	No	No	No	No	No	No	No	No	No	
	Complementary heater		-	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	
Design capacity (P _{DESIGN})			kW	11.0	10.0	14.0	12.0	16.0	14.0	11.0	10.0	14.0	12.0	16.0	14.0	
Nominal energy efficiency (η _s)			%	180 (183)	135 (136)	182 (185)	132 (133)	161 (163)	134 (135)	181 (183)	135 (136)	183 (185)	133 (133)	162 (163)	134 (135)	
Nominal energy class			-	A+++	A++	A+++	A++	A++	A++	A+++	A++	A+++	A++	A++	A++	
Data for Packaged Fiche	Energy efficiency with OTC control (η _s) (*)		%	182 (185)	137 (139)	184 (187)	134 (135)	163 (165)	136 (137)	183 (185)	137 (138)	185 (187)	135 (135)	164 (165)	136 (137)	
	Energy class with OTC control		-	A+++	A++	A+++	A++	A++	A++	A+++	A++	A+++	A++	A++	A++	
	Energy efficiency with thermostats/sensors (η _s) (*)		%	183 (186)	138 (140)	185 (188)	135 (136)	164 (166)	137 (138)	184 (186)	138 (139)	186 (188)	136 (136)	165 (166)	137 (138)	
	Energy class with thermostats		-	A+++	A++	A+++	A++	A++	A++	A+++	A++	A+++	A++	A++	A++	
Supplementary capacity (P _{SUP})			kW	0.5	2.6	1.9	3.0	1.9	3.5	0.5	2.6	1.9	3.0	1.9	3.5	
Type of energy used			-	Electricity	Electricity	Electricity	Electricity	Electricity	Electricity	Electricity	Electricity	Electricity	Electricity	Electricity	Electricity	
Declared capacity (P _{dh}) and coefficient of performance (COP _d) at partial load under the following outdoor temperatures:	Outdoor temperature (T _j) = -7°C	P _{dh}	kW	9.45	8.60	12.00	10.25	13.80	11.20	9.45	8.60	12.00	10.25	13.80	11.20	
		COP _d	-	3.05	1.80	2.55	1.70	2.40	1.94	3.05	1.80	2.55	1.70	2.40	1.94	
	Outdoor temperature (T _j) = +2°C	P _{dh}	kW	5.75	5.23	7.30	6.24	8.40	6.82	5.75	5.23	7.30	6.24	8.40	6.82	
		COP _d	-	4.50	3.60	4.70	3.60	3.90	3.35	4.50	3.60	4.70	3.60	3.90	3.35	
	Outdoor temperature (T _j) = +7°C	P _{dh}	kW	3.70	3.52	4.70	4.01	5.40	4.38	3.70	3.52	4.70	4.01	5.40	4.38	
		COP _d	-	6.00	4.80	6.54	4.60	6.16	4.80	6.00	4.80	6.54	4.60	6.16	4.80	
	Outdoor temperature (T _j) = +12°C	P _{dh}	kW	3.70	3.60	3.50	3.50	3.50	3.60	3.70	3.60	3.50	3.50	3.50	3.60	
		COP _d	-	7.50	5.80	7.55	5.50	7.10	7.05	7.50	5.80	7.55	5.50	7.10	7.05	
	Outdoor temperature (T _j) = Bivalent temperature (T _{biv})	P _{dh}	kW	9.45	8.60	12.00	10.25	13.80	11.20	9.45	8.60	12.00	10.25	13.80	11.20	
		COP _d	-	3.05	1.80	2.55	1.70	2.40	1.94	3.05	1.80	2.55	1.70	2.40	1.94	
	Outdoor temperature (T _j) = Limit operation temperature (TOL)	P _{dh}	kW	10.50	7.40	12.10	9.00	14.10	10.50	10.50	7.40	12.10	9.00	14.10	10.5	
		COP _d	-	2.65	1.70	2.50	1.60	2.30	1.40	2.65	1.70	2.50	1.60	2.30	1.40	
Bivalent temperature (T _{biv})			°C	-7	-7	-7	-7	-7	-7	-7	-7	-7	-7	-7	-7	
Limit operation temperature (TOL)			°C	-10	-10	-10	-10	-10	-10	-10	-10	-10	-10	-10	-10	
Water limit operation temperature (WTOL)			°C	55	55	55	55	55	55	55	55	55	55	55	55	
Degradation coefficient (C _{dh})			-	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9	
Annual energy consumption (Q _{HE})			kW·h	4823 (4753)	5837 (5767)	6044 (5974)	7088 (7018)	7844 (7774)	7662 (7592)	4801 (4753)	5815 (5767)	6022 (5974)	7066 (7018)	7822 (7774)	7640 (7592)	

◆ WARMER climate

		HP	2.0 HP	2.5 HP	3.0 HP	4.0 HP	5.0 HP	6.0 HP	4.0 HP	5.0 HP	6.0 HP	8.0 HP	10.0 HP
		Outdoor unit	RAS-2WHVRP1	RAS-2.5WHVRP1	RAS-3WHVRP1	RAS-4WHVNPE	RAS-5WHVNPE	RAS-6WHVNPE	RAS-4WHNPE	RAS-5WHNPE	RAS-6WHNPE	RAS-8WHNPE	RAS-10WHNPE
		Indoor unit	RWM-2.0R1E	RWM-2.5R1E	RWM-3.0R1E	RWM-4.0N1E	RWM-5.0N1E	RWM-6.0N1E	RWM-4.0N1E	RWM-5.0N1E	RWM-6.0N1E	RWM-8.0N1E	RWM-10.0N1E
	RWD-2.0RW1E-220S(-K)		RWD-2.5RW1E-220S(-K)	RWD-3.0RW1E-220S(-K)	RWD-4.0NW1E-220S(-K)	RWD-5.0NW1E-220S(-K)	RWD-6.0NW1E-220S(-K)	RWD-4.0NW1E-220S(-K)	RWD-5.0NW1E-220S(-K)	RWD-6.0NW1E-220S(-K)	-	-	
Design capacity (P _{DESIGN})		kW	4.0	5.0	6.0	10	12	14	10	12	14	16	18
Nominal energy efficiency (η _s)		%	185 (194)	182 (189)	170 (175)	193 (198)	183 (186)	177 (180)	191 (198)	181 (186)	176 (180)	178 (181)	173 (178)
Data for Packaged Fiche	Energy efficiency with OTC control (η _s) (*)	%	187 (196)	184 (191)	172 (177)	195 (200)	185 (188)	179 (182)	193 (200)	183 (188)	178 (182)	180 (183)	175 (180)
	Energy efficiency with thermostats (η _s) (*)	%	188 (197)	185 (192)	173 (178)	196 (201)	186 (189)	180 (183)	194 (201)	184 (189)	179 (183)	181 (184)	176 (181)
Annual energy consumption (Q _{HE})		kW·h	1137 (1084)	1441 (1389)	1857 (1804)	2722 (2664)	3455 (3397)	4149 (4091)	2748 (2664)	3481 (3397)	4175 (4091)	4725 (4641)	5466 (5307)

◆ COLDER climate

		HP	2.0 HP	2.5 HP	3.0 HP	4.0 HP	5.0 HP	6.0 HP	4.0 HP	5.0 HP	6.0 HP	8.0 HP	10.0 HP
		Outdoor unit	RAS-2WHVRP1	RAS-2.5WHVRP1	RAS-3WHVRP1	RAS-4WHVNPE	RAS-5WHVNPE	RAS-6WHVNPE	RAS-4WHNPE	RAS-5WHNPE	RAS-6WHNPE	RAS-8WHNPE	RAS-10WHNPE
		Indoor unit	RWM-2.0R1E	RWM-2.5R1E	RWM-3.0R1E	RWM-4.0N1E	RWM-5.0N1E	RWM-6.0N1E	RWM-4.0N1E	RWM-5.0N1E	RWM-6.0N1E	RWM-8.0N1E	RWM-10.0N1E
			RWD-2.0RW1E-220S(-K)	RWD-2.5RW1E-220S(-K)	RWD-3.0RW1E-220S(-K)	RWD-4.0NW1E-220S(-K)	RWD-5.0NW1E-220S(-K)	RWD-6.0NW1E-220S(-K)	RWD-4.0NW1E-220S(-K)	RWD-5.0NW1E-220S(-K)	RWD-6.0NW1E-220S(-K)	-	-
Design capacity (P _{DESIGN})		kW	4.0	5.0	6.0	11	12	14	11	12	14	16	18
Nominal energy efficiency (η _s)		%	123 (125)	122 (123)	118 (118)	120 (121)	119 (119)	112 (113)	120 (121)	119 (119)	112 (113)	109 (110)	107 (107)
Data for Packaged FICHE	Energy efficiency with OTC control (η _s) (*)	%	125 (127)	124 (125)	120 (120)	122 (123)	121 (121)	114 (115)	122 (123)	121 (121)	114 (115)	111 (113)	109 (109)
	Energy efficiency with thermostats (η _s) (*)	%	126 (128)	125 (126)	121 (121)	123 (124)	122 (122)	115 (116)	123 (124)	122 (122)	115 (116)	112 (114)	110 (110)
Annual energy consumption (Q _{HE})		kW·h	3058 (3031)	4048 (4022)	4910 (4884)	8641 (8612)	9514 (9485)	11620 (11591)	8654 (8612)	9528 (9485)	11633 (11591)	13987 (13945)	15956 (15876)

2.2.2.2 Split system - YUTAKI S80

◆ AVERAGE climate

			HP		4.0 HP		5.0 HP		6.0 HP		4.0 HP		5.0 HP		6.0 HP		
			Outdoor unit		RAS-4WHVNPE		RAS-5WHVNPE		RAS-6WHVNPE		RAS-4WHNPE		RAS-5WHNPE		RAS-6WHNPE		
					Indoor unit		RWH-4.0VNF(W)E		RWH-5.0VNF(W)E		RWH-6.0VNF(W)E		RWH-4.0NF(W)E		RWH-5.0NF(W)E		RWH-6.0NF(W)E
			Water outlet temperature		35°C		55°C		35°C		55°C		35°C		55°C		35°C
Product description	Air to water heat pump	-	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	
	Heat pump combination heater	-	No	No	No	No	No	No	No	No	No	No	No	No	No	No	
	Low temperature heat pump	-	No	No	No	No	No	No	No	No	No	No	No	No	No	No	
	Complementary heater	-	No	No	No	No	No	No	No	No	No	No	No	No	No	No	
Design capacity (P _{DESIGN})		kW	11.0	11.0	14.0	14.0	16.0	16.0	11.0	11.0	14.0	14.0	16.0	16.0			
Nominal energy efficiency (η _s)		%	187	142	174	131	152	126	183	140	171	129	150	125			
Nominal energy class		-	A+++	A++	A++	A++	A++	A++	A+++	A++	A++	A++	A++	A++	A++	A++	
Data for packaged Fiche	Energy efficiency with OTC control (η _s) (*)	%	189	144	176	133	154	128	185	142	173	131	152	127			
	Energy class with OTC control	-	A+++	A++	A+++	A++	A++	A++	A+++	A++	A++	A++	A++	A++	A++	A++	
	Energy efficiency with thermostats (η _s) (*)	%	191	146	178	135	156	130	187	144	176	134	154	129			
	Energy class with thermostats	-	A+++	A++	A+++	A++	A++	A++	A+++	A++	A+++	A++	A++	A++	A++	A++	
Supplementary capacity (P _{SUP})		kW	0.5	0.0	1.9	0.0	1.9	0.0	0.5	0.0	1.5	0.0	1.5	0.0			
Type of energy used		-	Electricity	Electricity	Electricity	Electricity	Electricity	Electricity	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 _h	kW	9.60	9.73	12.00	12.38	13.80	14.15	9.60	9.73	12.00	12.38	13.80	14.15		
		COP _d	-	2.74	2.30	2.55	2.19	2.40	2.05	2.74	2.30	2.55	2.19	2.40	2.05		
	Outdoor temperature (T _j) = +2°C	P _d _h	kW	5.84	5.92	7.30	7.54	8.40	8.62	5.84	5.92	7.30	7.54	8.40	8.62		
		COP _d	-	5.20	3.60	4.70	3.10	3.90	2.95	5.20	3.60	4.70	3.10	3.90	2.95		
	Outdoor temperature (T _j) = +7°C	P _d _h	kW	3.76	3.81	4.70	4.85	5.40	5.54	3.76	3.81	4.70	4.85	5.40	5.54		
		COP _d	-	5.80	4.70	5.70	4.60	5.00	4.60	5.80	4.70	5.70	4.60	5.00	4.60		
	Outdoor temperature (T _j) = +12°C	P _d _h	kW	3.70	3.60	3.50	4.10	3.50	4.10	3.70	3.60	3.50	4.10	3.50	4.10		
		COP _d	-	6.40	6.00	6.00	6.40	6.00	6.40	6.40	6.00	6.00	6.40	6.00	6.40		
	Outdoor temperature (T _j) = Bivalent temperature (T _{biv})	P _d _h	kW	9.60	11.00	12.00	14.00	13.80	16.00	9.60	11.00	12.00	14.00	13.80	16.00		
		COP _d	-	2.74	2.20	2.55	2.12	2.40	1.90	2.74	2.20	2.55	2.12	2.40	1.90		
	Outdoor temperature (T _j) = Limit operation temperature (T _{OL})	P _d _h	kW	10.50	11.00	12.10	14.00	14.10	16.00	10.50	11.00	12.10	14.00	14.10	16.00		
		COP _d	-	2.65	2.20	2.50	2.12	2.30	1.90	2.65	2.20	2.50	2.12	2.30	1.90		
Bivalent temperature (T _{biv})		°C	-7	-10	-7	-10	-7	-10	-7	-10	-7	-10	-7	-10	-7	-10	
Limit operation temperature (TOL)		°C	-10	-10	-10	-10	-10	-10	-10	-10	-10	-10	-10	-10	-10	-10	
Water limit operation temperature (WTOL)		°C	55	55	55	55	55	55	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	0.9	0.9	0.9	0.9	0.9	0.9	
Annual energy consumption (Q _{HE})		kW·h	4732	6261	6330	8648	8304	10255	4828	6360	6426	8747	8401	10335			

◆ WARMER climate

		HP	4.0 HP	5.0 HP	6.0 HP	4.0 HP	5.0 HP	6.0 HP
		Outdoor unit	RAS-4WHVNPE	RAS-5WHVNPE	RAS-6WHVNPE	RAS-4WHNPE	RAS-5WHNPE	RAS-6WHNPE
		Indoor unit	RWH-4.0VNF(W)E	RWH-5.0VNF(W)E	RWH-6.0VNF(W)E	RWH-4.0NF(W)E	RWH-5.0NF(W)E	RWH-6.0NF(W)E
		Tank unit (RWH-(V)NFW E)	DHWS(200/260)S-2.0H2E(-W)	DHWS(200/260)S-2.0H2E(-W)	DHWS(200/260)S-2.0H2E(-W)	DHWS(200/260)S-2.0H2E(-W)	DHWS(200/260)S-2.0H2E(-W)	DHWS(200/260)S-2.0H2E(-W)
Design capacity (P _{DESIGN})		kW	11	14	16	11	14	16
Nominal energy efficiency (η _s)		%	188	177	173	181	172	168
Data for Packaged Fiche	Energy efficiency with OTC control (η _s) (*)	%	190	179	175	183	174	170
	Energy efficiency with thermostats (η _s) (*)	%	192	181	177	185	176	172
Annual energy consumption (Q _{HE})		kW·h	3070	4156	4866	3190	4276	4986

◆ COLDER climate

		HP	4.0 HP	5.0 HP	6.0 HP	4.0 HP	5.0 HP	6.0 HP
		Outdoor unit	RAS-4WHVNPE	RAS-5WHVNPE	RAS-6WHVNPE	RAS-4WHNPE	RAS-5WHNPE	RAS-6WHNPE
		Indoor unit	RWH-4.0VNF(W)E	RWH-5.0VNF(W)E	RWH-6.0VNF(W)E	RWH-4.0NF(W)E	RWH-5.0NF(W)E	RWH-6.0NF(W)E
		Tank unit (RWH-(V)NFW E)	DHWS(200/260)S-2.0H2E(-W)	DHWS(200/260)S-2.0H2E(-W)	DHWS(200/260)S-2.0H2E(-W)	DHWS(200/260)S-2.0H2E(-W)	DHWS(200/260)S-2.0H2E(-W)	DHWS(200/260)S-2.0H2E(-W)
Design capacity (P _{DESIGN})		kW	13	17	18	13	17	18
Nominal energy efficiency (η _s)		%	126	122	119	125	121	119
Data for Packaged Fiche	Energy efficiency with OTC control (η _s) (*)	%	128	124	121	127	123	121
	Energy efficiency with thermostats (η _s) (*)	%	130	126	123	129	125	123
Annual energy consumption (Q _{HE})		kW·h	10292	13558	14860	10352	13619	14920

◆ MCS Compliance points

			HP		4.0 HP	5.0 HP	6.0 HP	4.0 HP	5.0 HP	6.0 HP
			Outdoor unit		RAS-4WHVNPE	RAS-5WHVNPE	RAS-6WHVNPE	RAS-4WHNPE	RAS-5WHNPE	RAS-6WHNPE
			Indoor unit		RWH-4.0VNF(W)E	RWH-5.0VNF(W)E	RWH-6.0VNF(W)E	RWH-4.0NF(W)E	RWH-5.0NF(W)E	RWH-6.0NF(W)E
			Water outlet temperature		65°C	65°C	65°C	65°C	65°C	65°C
Product description	Air to water heat pump		-	Yes	Yes	Yes	Yes	Yes	Yes	Yes
	Heat pump combination heater		-	No	No	No	No	No	No	No
	Low temperature heat pump		-	No	No	No	No	No	No	No
	Complementary heater		-	No	No	No	No	No	No	No
Design capacity (P _{DESIGN})			kW	11	14	15,3	11	14	15,3	
Nominal energy efficiency (η _s)			%	120	118	118	118	116	117	
Data for Packaged Fiche	Energy efficiency with OTC control (η _s) (*)		%	122	120	120	120	120	118	119
	Energy efficiency with thermostats (η _s) (*)		%	124	122	122	122	122	120	121
Supplementary capacity (P _{SUP})			kW	0	0	0	0	0	0	0
Type of energy used			-	Electricity	Electricity	Electricity	Electricity	Electricity	Electricity	Electricity
Declared capacity (P _{dh}) and coefficient of performance (COP _d) at partial load under the following outdoor temperatures	Outdoor temperature (T _j) = -7°C	P _{dh}	kW	9,7	12,38	13,53	9,7	12,38	13,53	
		COP _d	-	2,15	2,12	2,1	2,15	2,12	2,1	
	Outdoor temperature (T _j) = +2°C	P _{dh}	kW	5,9	7,54	8,24	5,9	7,54	8,24	
		COP _d	-	2,85	2,76	2,73	2,85	2,76	2,73	
	Outdoor temperature (T _j) = +7°C	P _{dh}	kW	3,8	4,85	5,6	3,8	4,85	5,6	
		COP _d	-	4	4	4,15	4	4	4,15	
	Outdoor temperature (T _j) = +12°C	P _{dh}	kW	4,1	4,1	4,1	4,1	4,1	4,1	
		COP _d	-	5,9	5,9	5,9	5,9	5,9	5,9	
	Outdoor temperature (T _j) = Bivalent temperature (T _{biv})	P _{dh}	kW	11	14	15,3	11	14	15,3	
		COP _d	-	2,05	1,95	1,7	2,05	1,95	1,7	
	Outdoor temperature (T _j) = Limit operation temperature (T _{ol})	P _{dh}	kW	11	14	15,3	11	14	15,3	
		COP _d	-	2,05	1,95	1,7	2,05	1,95	1,7	
Bivalent temperature (T _{biv})			°C	-10	-10	-10	-10	-10	-10	
Limit operation temperature (TOL)			°C	-10	-10	-10	-10	-10	-10	
Water limit operation temperature (WTOL)			°C	65	65	65	65	65	65	
Degradation coefficient (C _{dh})			-	0,9	0,9	0,9	0,9	0,9	0,9	
Annual energy consumption (Q _{HE})			kW·h	7420	9583	10470	7520	9683	10569	

2.2.2.3 Monobloc system / Hydrosplit system

◆ AVERAGE climate

HP			2.0 HP		3.0 HP		4.0 HP		5.0 HP		6.0 HP		4.0 HP		5.0 HP		6.0 HP		7.0 HP		
Outdoor unit			RASM-2VRE		RASM-3VRE		RASM-4VR(W)1E		RASM-5VR(W)1E		RASM-6VR(W)1E		RASM-4R(W)1E		RASM-5R(W)1E		RASM-6R(W)1E		RASM-7R(W)1E		
Indoor unit			-		-		- / HWM-WE / HWD-WE-220S-(K)		- / HWM-WE / HWD-WE-220S-(K)		- / HWM-WE / HWD-WE-220S-(K)		- / HWM-WE / HWD-WE-220S-(K)		- / HWM-WE / HWD-WE-220S-(K)		- / HWM-WE / HWD-WE-220S-(K)		- / HWM-WE / HWD-WE-220S-(K)		
Water outlet temperature			35°C	55°C	35°C	55°C	35°C	55°C	35°C	55°C	35°C	55°C	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	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	
	Heat pump combination heater		-	No	No	No	No	No (Yes for HWD-WE-220S-(K))	No (Yes for HWD-WE-220S-(K))	No (Yes for HWD-WE-220S-(K))	No (Yes for HWD-WE-220S-(K))	No (Yes for HWD-WE-220S-(K))	No (Yes for HWD-WE-220S-(K))	No (Yes for HWD-WE-220S-(K))	No (Yes for HWD-WE-220S-(K))	No (Yes for HWD-WE-220S-(K))	No (Yes for HWD-WE-220S-(K))	No (Yes for HWD-WE-220S-(K))	No (Yes for HWD-WE-220S-(K))	No (Yes for HWD-WE-220S-(K))	
	Low temperature heat pump		-	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	
	Complementary heater		-	No	No	No	No	Yes (No for RASM-(4-6)VR1E)	Yes (No for RASM-(4-6)VR1E)	Yes (No for RASM-(4-6)VR1E)	Yes (No for RASM-(4-6)VR1E)	Yes (No for RASM-(4-6)VR1E)	Yes (No for RASM-(4-6)VR1E)	Yes (No for RASM-(4-6)VR1E)	Yes (No for RASM-(4-6)VR1E)	Yes (No for RASM-(4-6)VR1E)	Yes (No for RASM-(4-6)VR1E)	Yes (No for RASM-(4-6)VR1E)	Yes (No for RASM-(4-6)VR1E)	Yes (No for RASM-(4-6)VR1E)	
Design capacity (P _{DESIGN})			kW	4.0	4.0	7.0	6.0	11	11	12	12	13	13	11	11	12	12	13	13	18	18
Nominal energy efficiency (η _s)			%	181(186)	133 (136)	177(179)	125 (127)	175 (177)	132 (133)	175 (177)	133 (134)	175 (177)	133 (135)	166 (170)	125 (127)	162 (165)	127 (129)	163 (166)	128 (130)	156 (157)	125 (126)
SCOP			-	4.60 (4.71)	3.40 (3.47)	4.49 (4.56)	3.20 (3.24)	4.45 (4.50)	3.38 (3.41)	4.45 (4.49)	3.40 (3.42)	4.45 (4.49)	3.41 (3.44)	4.24 (4.32)	3.21 (3.26)	4.13 (4.20)	3.26 (3.31)	4.15 (4.22)	3.28 (3.32)	3.97 (4.01)	3.21 (3.24)
Nominal energy class			-	A+++	A++	A+++	A++	A+++	A++	A+++	A++	A+++	A++	A++	A++	A++	A++	A++	A++	A++	A++
Data for Packaged Fiche	Energy efficiency with OTC control (η _s) (*)		%	183(188)	135(138)	179(181)	127 (129)	179 (181)	135 (136)	179 (181)	136 (137)	179 (181)	136 (138)	169 (173)	128 (130)	165 (168)	130 (132)	166 (169)	131 (133)	159 (160)	128 (129)
	Energy class with OTC control		-	A+++	A++	A+++	A++	A+++	A++	A+++	A++	A+++	A++	A++	A++	A++	A++	A++	A++	A++	A++
	Energy efficiency with thermostats (η _s) (*)		%	185(190)	137(140)	181(183)	129 (131)	182 (184)	137 (138)	182 (184)	138 (139)	182 (184)	138 (140)	173 (177)	130 (132)	168 (172)	132 (134)	170 (173)	133 (135)	162 (163)	130 (131)
	Energy class with thermostats		-	A+++	A++	A+++	A++	A+++	A++	A+++	A++	A+++	A++	A++	A++	A++	A++	A++	A++	A++	A++
Supplementary capacity (P _{SUP})			kW	0.0	0.9	0.6	1.5	1.3	1.3	1.4	1.4	1.5	1.5	1.3	1.3	1.4	1.4	1.5	1.5	2.1	2.1
Type of energy used			-	Electricity	Electricity	Electricity	Electricity	Electricity	Electricity	Electricity	Electricity	Electricity	Electricity	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	3.54	3.50	5.90	5.10	9.7	9.7	10.7	10.7	11.5	11.5	9.7	9.7	10.7	10.7	11.5	11.5	16.0	16.0
		COP _d	-	3.20	2.13	2.65	1.84	2.97	2.40	2.95	2.35	2.95	2.35	3.06	2.40	2.94	2.35	2.94	2.35	2.82	2.20
	Outdoor temperature (T _j) = +2°C	P _d	kW	2.35	2.10	3.59	3.10	5.9	5.9	6.5	6.5	7.0	7.0	5.9	5.9	6.5	6.5	7.0	7.0	9.7	9.7
		COP _d	-	4.80	3.35	4.30	3.10	4.39	3.27	4.38	3.30	4.37	3.30	4.30	3.22	4.36	3.30	4.36	3.30	3.88	3.11
	Outdoor temperature (T _j) = +7°C	P _d	kW	3.00	2.43	3.20	2.00	4.5	4.8	4.5	4.8	4.5	4.8	3.8	3.8	6.2	6.3	6.2	6.3	6.2	6.3
		COP _d	-	6.20	5.15	7.00	4.65	5.82	4.32	5.70	4.30	5.70	4.30	5.06	3.60	5.03	4.06	5.03	4.06	5.03	4.10
	Outdoor temperature (T _j) = +12°C	P _d	kW	3.05	2.80	3.50	2.20	5.0	4.7	5.0	4.7	5.0	4.7	4.30	4.2	4.8	4.5	4.8	4.5	4.8	4.5
		COP _d	-	8.30	6.80	9.70	6.55	8.2	6.15	8.2	6.15	8.13	6.15	7.13	6.00	5.95	5.23	5.95	5.23	5.95	5.23
	Outdoor temperature (T _j) = Bivalent temperature (T _{biv})	P _d	kW	3.54	3.50	5.90	5.10	9.7	9.7	10.7	10.7	11.5	11.5	9.7	9.7	10.7	12.0	11.5	11.5	16.0	16.0
		COP _d	-	3.20	2.13	2.65	1.84	2.97	2.40	2.95	2.35	2.95	2.35	3.06	2.40	2.94	2.35	2.94	2.35	2.82	2.20
	Outdoor temperature (T _j) = Limit operation temperature (T _{OL})	P _d	kW	4.00	3.10	6.40	5.00	9.7	9.7	10.7	10.7	11.5	11.5	9.7	9.7	10.7	10.7	11.5	11.5	16.0	16.0
		COP _d	-	2.75	1.90	2.30	1.50	2.50	2.11	2.47	2.03	2.48	2.03	2.65	2.13	2.47	2.03	2.47	2.03	2.47	1.90
Bivalent temperature (T _{biv})			°C	-7	-7	-7	-7	-7	-7	-7	-7	-7	-7	-7	-7	-7	-7	-7	-7	-7	-7
Limit operation temperature (TOL)			°C	-10	-10	-10	-10	-10	-10	-10	-10	-10	-10	-10	-10	-10	-10	-10	-10	-10	-10
Water limit operation temperature (WTOL)			°C	55	55	55	55	55	55	55	55	55	55	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	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9
Annual energy consumption (Q _{HE})			kW·h	1798 (1754)	2401 (2357)	3068 (3024)	3724 (3680)	5089 (5034)	6698 (6643)	5615 (5560)	7357 (7302)	6034 (5979)	7868 (7813)	5347 (5241)	7054 (6948)	6051 (5945)	7654 (7548)	6472 (6366)	8190 (8084)	9424 (9318)	11651 (11544)

◆ WARMER climate

		HP	2.0 HP	3.0 HP	4.0 HP	5.0 HP	6.0 HP	4.0 HP	5.0 HP	6.0 HP	7.0 HP
		Outdoor unit	RASM-2VRE	RASM-3VRE	RASM-4VR(W)1E	RASM-5VR(W)1E	RASM-6VR(W)1E	RASM-4R(W)1E	RASM-5R(W)1E	RASM-6R(W)1E	RASM-7RW1E
		Indoor unit	-	-	- /HWM-WE / HWD-WE-220S(-K)	- /HWM-WE / HWD-WE-220S(-K)	- /HWM-WE / HWD-WE-220S(-K)	- /HWM-WE / HWD-WE-220S(-K)	- /HWM-WE / HWD-WE-220S(-K)	- /HWM-WE / HWD-WE-220S(-K)	- /HWM-WE / HWD-WE-220S(-K)
Design capacity (P _{DESIGN})		kW	4.0	6.0	11	12	13	11	12	13	16
Nominal energy efficiency (η _s)		%	185 (194)	170 (175)	181 (185)	182 (185)	183 (186)	174 (181)	176 (183)	178 (184)	182 (188)
SCOP		-	4.70 (4.93)	4.32 (4.44)	4.59 (4.69)	4.62 (4.71)	4.65 (4.73)	4.42 (4.60)	4.48 (4.64)	4.52 (4.68)	4.64 (4.77)
Data for Packaged Fiche	Energy efficiency with OTC control (η _s) (*)	%	187 (196)	172 (177)	185 (189)	186 (189)	187 (190)	177 (185)	180 (187)	182 (188)	186 (192)
	Energy efficiency with thermostats (η _s) (*)	%	189 (198)	174 (177)	185 (189)	186 (189)	187 (190)	181 (188)	183 (190)	185 (191)	189 (196)
Annual energy consumption (Q _{HE})		kW·h	1136 (1084)	1857 (1804)	3200 (3134)	3472 (3406)	3738 (3672)	3324 (3196)	3580 (3452)	3841 (3713)	4610 (4482)

◆ COLDER climate

		HP	2.0 HP	3.0 HP	4.0 HP	5.0 HP	6.0 HP	4.0 HP	5.0 HP	6.0 HP	7.0 HP
		Outdoor unit	RASM-2VRE	RASM-3VRE	RASM-4VR(W)1E	RASM-5VR(W)1E	RASM-6VR(W)1E	RASM-4R(W)1E	RASM-5R(W)1E	RASM-6R(W)1E	RASM-7RW1E
		Indoor unit	-	-	- /HWM-WE / HWD-WE-220S(-K)	- /HWM-WE / HWD-WE-220S(-K)	- /HWM-WE / HWD-WE-220S(-K)	- /HWM-WE / HWD-WE-220S(-K)	- /HWM-WE / HWD-WE-220S(-K)	- /HWM-WE / HWD-WE-220S(-K)	- /HWM-WE / HWD-WE-220S(-K)
Design capacity (P _{DESIGN})		kW	4.0	6.0	12	13	14	12	13	14	16
Nominal energy efficiency (η _s)		%	123 (125)	118 (118)	116 (116)	115 (116)	115 (116)	109 (110)	109 (111)	110 (112)	111 (112)
SCOP		-	3.16 (3.19)	3.02 (3.03)	2.96 (2.98)	2.95 (2.97)	2.96 (2.98)	2.80 (2.84)	2.81 (2.84)	2.84 (2.87)	2.86 (2.88)
Data for Packaged Fiche	Energy efficiency with OTC control (η _s) (*)	%	125 (127)	120 (120)	118 (118)	117 (118)	117 (120)	111 (112)	111 (113)	112 (114)	113 (114)
	Energy efficiency with thermostats (η _s) (*)	%	127 (129)	122 (122)	121 (121)	120 (121)	118 (121)	113 (114)	113 (115)	114 (116)	115 (116)
Annual energy consumption (Q _{HE})		kW·h	3058 (3031)	4910 (4884)	8287 (8232)	9187 (9132)	9832 (9777)	8770 (8663)	9649 (9542)	10271 (10164)	11518 (11412)

2.2.3 ERP additional data for space heating

2.2.3.1 Split system - YUTAKI S and YUTAKI S Combi

	HP	2.0 HP	2.5 HP	3.0 HP	4.0 HP	5.0 HP	6.0 HP	4.0 HP	5.0 HP	6.0 HP	8.0 HP	10.0 HP
	Outdoor unit	RAS-2WHVRP1	RAS-2.5WHVRP1	RAS-3WHVRP1	RAS-4WHVNPE	RAS-5WHVNPE	RAS-6WHVNPE	RAS-4WHNPE	RAS-5WHNPE	RAS-6WHNPE	RAS-8WHNPE	RAS-10WHNPE
	Indoor unit	RWM-2.0R1E	RWM-2.5R1E	RWM-3.0R1E	RWM-4.0N1E	RWM-5.0N1E	RWM-6.0N1E	RWM-4.0N1E	RWM-5.0N1E	RWM-6.0N1E	RWM-8.0N1E	RWM-10.0N1E
		RWD-2.0RW1E-220S(-K)	RWD-2.5RW1E-220S(-K)	RWD-3.0RW1E-220S(-K)	RWD-4.0NW1E-220S(-K)	RWD-5.0NW1E-220S(-K)	RWD-6.0NW1E-220S(-K)	RWD-4.0NW1E-220S(-K)	RWD-5.0NW1E-220S(-K)	RWD-6.0NW1E-220S(-K)		
Electrical power input in stand-by mode (Psb)	W	11.9	11.9	11.9	13.1	13.1	13.1	19.1	19.1	19.1	36	36
Electrical power input in thermostat-OFF mode (Pto)	W	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Electrical power input in OFF mode (Poff)	W	11.9	11.9	11.9	13.1	13.1	13.1	19.1	19.1	19.1	36	36
Electrical power input in crankcase heater mode (Pck)	W	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sound power level of indoor unit (Lwa)	dB(A)	0.0	0.0	0.0	39	39	39	39	39	39	47	47
Sound power level of outdoor unit (Lwa)	dB(A)	49	54	57	58	59	60	58	59	60	59	60
Capacity control mode	-	Variable (Inverter)	Variable (Inverter)	Variable (Inverter)	Variable (Inverter)	Variable (Inverter)	Variable (Inverter)	Variable (Inverter)	Variable (Inverter)	Variable (Inverter)	Variable (inverter)	Variable (inverter)
Integrated supplementary heater	kW	3.0	3.0	3.0	6.0	6.0	6.0	6.0	6.0	6.0	9.0	9.0
Nominal outdoor air flow	m³/h	2436	2436	2682	4800	5400	6000	4800	5400	6000	7620	8040

2.2.3.2 Split system - YUTAKI S80

Model	HP	4.0 HP	5.0 HP	6.0 HP	4.0 HP	5.0 HP	6.0 HP
	Outdoor unit	RAS-4WHVNPE	RAS-5WHVNPE	RAS-6WHVNPE	RAS-4WHNPE	RAS-5WHNPE	RAS-6WHNPE
	Indoor unit	RWH-4.0VNF(W)E	RWH-5.0VNF(W)E	RWH-6.0VNF(W)E	RWH-4.0NF(W)E	RWH-5.0NF(W)E	RWH-6.0NF(W)E
Electrical power input in stand-by mode (Psb)	W	17.0	17.0	17.0	44.0	44.0	44.0
Electrical power input in thermostat-OFF mode (Pto)	W	0.0	0.0	0.0	0.0	0.0	0.0
Electrical power input in OFF mode (Poff)	W	17.0	17.0	17.0	44.0	44.0	44.0
Electrical power input in crankcase heater mode (Pck)	W	0.0	0.0	0.0	0.0	0.0	0.0
Sound power level of indoor unit (L _{WA})	dB(A)	57	57	58	57	57	58
Sound power level of outdoor unit (L _{WA})	dB(A)	61	63	64	61	63	64
Capacity control mode	-	Variable (Inverter)				Variable (Inverter)	
Integrated supplementary heater	kW	No				No	
Nominal outdoor air flow	m³/h	4800	5400	6000	4800	5400	6000

2.2.3.4 Monobloc system - YUTAKI M

	HP	2.0 HP	3.0 HP	4.0 HP	5.0 HP	6.0 HP	4.0 HP	5.0 HP	6.0 HP	7.0 HP
	Outdoor unit	RASM-2VRE	RASM-3VRE	RASM-4VR1E	RASM-5VR1E	RASM-6VR1E	RASM-4R1E	RASM-5R1E	RASM-6R1E	RASM-7R1E
Electrical power input in stand-by mode (Psb)	W	11.9	11.9	15	15	15	29	29	29	29
Electrical power input in thermostat-OFF mode (Pto)	W	0.0	0.0	0	0	0	0	0	0	0
Electrical power input in OFF mode (Poff)	W	11.9	11.9	15	15	15	29	29	29	29
Electrical power input in crankcase heater mode (Pck)	W	0.0	0.0	0	0	0	0	0	0	0
Sound power level of outdoor unit (Lwa)	dB(A)	49	57	61	63	63	61	63	63	65
Capacity control mode	-	Variable (Inverter)	Variable (Inverter)	Variable (Inverter)	Variable (Inverter)	Variable (Inverter)	Variable (Inverter)	Variable (Inverter)	Variable (Inverter)	Variable (Inverter)
Integrated supplementary heater	kW	-	-	-	-	-	-	-	-	-
Nominal outdoor air flow	m³/h	2436	2682	7920	8280	8280	7920	8280	8280	8640

2.2.3.5 Hydrosplit system - YUTAKI H and YUTAKI H Combi

	HP	4.0 HP	5.0 HP	6.0 HP	4.0 HP	5.0 HP	6.0 HP	7.0 HP
	Outdoor unit	RASM-4VRW1E	RASM-5VRW1E	RASM-6VRW1E	RASM-4RW1E	RASM-5RW1E	RASM-6RW1E	RASM-7RW1E
	Indoor unit	HWM-WE / HWD-WE-220S(-K)						
Electrical power input in stand-by mode (Psb)	W	15	15	15	29	29	29	29
Electrical power input in thermostat-OFF mode (Pto)	W	0	0	0	0	0	0	0
Electrical power input in OFF mode (Poff)	W	15	15	15	29	29	29	29
Electrical power input in crankcase heater mode (Pck)	W	0	0	0	0	0	0	0
Sound power level of indoor unit (Lwa)	dB(A)	49	49	49	49	49	49	49
Sound power level of outdoor unit (Lwa)	dB(A)	61	63	63	61	63	63	65
Capacity control mode	-	Variable (Inverter)	Variable (Inverter)	Variable (Inverter)	Variable (Inverter)	Variable (Inverter)	Variable (Inverter)	Variable (Inverter)
Integrated supplementary heater (inside indoor unit)	kW	6	6	6	6	6	6	6
Nominal outdoor air flow	m³/h	7920	8280	8280	7920	8280	8280	8640

2.2.4 General ERP data for combi heaters

2.2.4.1 Split system - YUTAKI S Combi

	HP	2.0 HP	2.5 HP	3.0 HP	4.0 HP	5.0 HP	6.0 HP
	Outdoor unit	RAS-2WHVRP1	RAS-2.5WHVRP1	RAS-3WHVRP1	RAS-4WH(V)NPE	RAS-5WH(V)NPE	RAS-6WH(V)NPE
	Indoor unit	RWD-2.0RW1E-220S(-K)	RWD-2.5RW1E-220S(-K)	RWD-3.0RW1E-220S(-K)	RWD-4.0NW1E-220S(-K)	RWD-5.0NW1E-220S(-K)	RWD-6.0NW1E-220S(-K)
Declared profile	-	L	L	L	L	L	L
Ability to work during OFF peak hours	-	Yes	Yes	Yes	Yes	Yes	Yes
AVERAGE climate							
Water heating energy efficiency (η_{wh})	%	130	130	130	127	127	127
COPdhw (SCOPdhw)	-	3.20	3.20	3.20	3.10	3.10	3.10
Water heating energy class	-	A+	A+	A+	A+	A+	A+
Daily electricity consumption	kW·h	3.57	3.57	3.57	3.68	3.68	3.68
Annual energy consumption	kW·h	785	785	785	809	809	809
WARMER climate							
Water heating energy efficiency (η_{wh})	%	145	145	145	143	143	143
COPdhw (SCOPdhw)	-	3.45	3.45	3.45	3.49	3.49	3.49
Daily energy consumption	kW·h	3.21	3.21	3.21	3.26	3.26	3.26
Annual energy consumption	kW·h	706	706	706	717	717	717
COLDER climate							
Water heating energy efficiency (η_{wh})	%	112	112	112	111	111	111
COPdhw (SCOPdhw)	-	2.76	2.76	2.76	2.71	2.71	2.71
Daily energy consumption	kW·h	4.16	4.16	4.16	4.22	4.22	4.22
Annual energy consumption	kW·h	914	914	914	926	926	926

2.2.4.2 Split system - YUTAKI S80

	HP	4.0 HP		5.0 HP		6.0 HP	
	Outdoor unit	RAS-4WH(V)NPE		RAS-5WH(V)NPE		RAS-6WH(V)NPE	
	Indoor unit	RWH-4.0VNFWE		RWH-5.0VNFWE		RWH-6.0VNFWE	
	DHW tank	DHWS200S-2.7H2E(-W)	DHWS260S-2.7H2E(-W)	DHWS200S-2.7H2E(-W)	DHWS260S-2.7H2E(-W)	DHWS200S-2.7H2E(-W)	DHWS260S-2.7H2E(-W)
Declared profile	-	L	XL	L	XL	L	XL
Ability to work during OFF peak hours	-	Yes	Yes	Yes	Yes	Yes	Yes
AVERAGE climate							
Water heating energy efficiency (η_{wh})	%	129	133	129	133	129	133
Water heating energy class	-	A+	A+	A+	A+	A+	A+
Daily electricity consumption	kW·h	3.61	5.74	3.61	5.74	3.61	5.74
Annual energy consumption	kW·h	795	1262	795	1262	795	1262
WARMER climate							
Water heating energy efficiency (η_{wh})	%	142	146	142	146	142	146
Daily energy consumption	kW·h	3.29	3.19	3.29	3.19	3.29	3.19
Annual energy consumption	kW·h	723	7.01	723	7.01	723	7.01
COLDER climate							
Water heating energy efficiency (η_{wh})	%	110	113	110	113	110	113
Daily energy consumption	kW·h	4.25	4.12	4.25	4.12	4.25	4.12
Annual energy consumption	kW·h	935	907	935	907	935	907

2.2.4.3 Hydrosplit system - YUTAKI H Combi

	HP	4.0 HP	5.0 HP	6.0 HP	4.0 HP	5.0 HP	6.0 HP	7.0 HP
	Outdoor unit	RASM-4VRW1E	RASM-5VRW1E	RASM-6VRW1E	RASM-4RW1E	RASM-5RW1E	RASM-6RW1E	RASM-7RW1E
	Indoor unit	HWD-WE-220S(-K)	HWD-WE-220S(-K)	HWD-WE-220S(-K)	HWD-WE-220S(-K)	HWD-WE-220S(-K)	HWD-WE-220S(-K)	HWD-WE-220S(-K)
Declared profile	-	L	L	L	L	L	L	L
Ability to work during OFF peak hours	-	YES	YES	YES	YES	YES	YES	YES
AVERAGE climate								
Water heating energy efficiency (η_{wh})	%	110	110	110	95	95	95	95
COPdhw (SCOPdhw)	-	2.68	2.68	2.68	2.31	2.31	2.31	2.31
Water heating energy class	-	A	A	A	A	A	A	A
Daily electricity consumption	kW·h	2.56	2.56	2.56	2.96	2.96	2.96	2.96
Annual energy consumption	kW·h	935	935	935	1082	1082	1082	1082
WARMER climate								
Water heating energy efficiency (η_{wh})	%	133	133	133	118	118	118	118
COPdhw (SCOPdhw)	-	2.98	2.98	2.98	2.87	2.87	2.87	2.87
Daily energy consumption	kW·h	2.10	2.10	2.10	2.37	2.37	2.37	2.37
Annual energy consumption	kW·h	768	768	768	865	865	865	865
COLDER climate								
Water heating energy efficiency (η_{wh})	%	87	87	87	76	76	76	76
COPdhw (SCOPdhw)	-	2.15	2.15	2.15	1.86	1.86	1.86	1.86
Daily energy consumption	kW·h	3.21	3.21	3.21	3.70	3.70	3.70	3.70
Annual energy consumption	kW·h	1171	1171	1171	1349	1349	1349	1349

2.2.5 General ERP data for hot water storage tanks

Domestic hot water tank in combination with YUTAKI S, YUTAKI S80, YUTAKI M or YUTAKI H

Model	DHWT-200S-3.0H2E	DHWT-300S-3.0H2E
Storage volume	I	194
Standing loss	W	47.3
Energy efficiency class	-	B

2.3 Cooling data (EN 14825)

For those models with cooling kit accessory.

2.3.1 Split system - YUTAKI S / YUTAKI S Combi

		Outdoor unit		RAS-2WHVRP1		RAS-2.5WHVRP1		RAS-3WHVRP1	
		Indoor unit		RWM-2.0R1E		RWM-2.5R1E		RWM-3.0R1E	
				RWD-2.0RW1E-220S(-K)		RWD-2.5RW1E-220S(-K)		RWD-3.0RW1E-220S(-K)	
		Water outlet temperature		7°C		18°C		7°C	
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
	Indoor side heat exchanger chiller	-	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
	Driver of compressor	-	Electric motor	Electric motor	Electric motor	Electric motor	Electric motor	Electric motor	Electric motor
	Capacity Control		Variable	Variable	Variable	Variable	Variable	Variable	Variable
	Water control		Fixed	Fixed	Fixed	Fixed	Fixed	Fixed	Fixed
Rated Cooling Capacity (PRATED,C)		kW	4.00	5.50	5.30	6.30	6.50	7.00	
Seasonal space cooling energy efficiency (ηS,C)		%	220	319	216	337	208	330	
Seasonal energy efficiency ratio cooling mode (SEER)		-	5.57	8.04	5.48	8.50	5.27	8.31	
Seasonal active energy ratio cooling mode (SEERON)		-	5.79	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°C	Pdc	kW	4.00	5.50	5.30	6.30	6.50	7.00
		EERd	-	4.00	5.40	3.60	5.30	3.35	4.80
	Outdoor temperature (Tj) = 30°C	Pdc	kW	2.95	4.05	3.91	4.64	4.79	5.16
		EERd	-	5.00	7.20	4.50	7.00	4.50	6.40
	Outdoor temperature (Tj) = 25°C	Pdc	kW	2.05	2.61	2.51	2.98	2.90	3.32
		EERd	-	6.45	9.60	6.30	9.90	6.00	10.0
	Outdoor temperature (Tj) = 20°C	Pdc	kW	2.88	2.51	2.88	2.65	3.40	3.60
		EERd	-	8.00	10.3	8.20	12.61	7.50	13.5
	Degradation coefficient (Cdc)		-	0.90	0.90	0.90	0.90	0.90	0.90
	Annual energy consumption (QCE)		kW·h	431	410	581	445	740	505

Additional cooling data

		Outdoor unit		RAS-2WHVRP1		RAS-2.5WHVRP1		RAS-3WHVRP1	
		Indoor unit		RWM-2.0R1E		RWM-2.5R1E		RWM-3.0R1E	
				RWD-2.0RW1E-220S(-K)		RWD-2.5RW1E-220S(-K)		RWD-3.0RW1E-220S(-K)	
Electrical power input in stand-by mode cooling mode (Psb)		W	11.9	11.9	11.9	11.9	11.9	11.9	
Electrical power input in thermostat-OFF cooling mode (Pto)		W	0	0	0	0	0	0	
Electrical power input in OFF mode (Poff)		W	11.9	11.9	11.9	11.9	11.9	11.9	
Electrical power input in crankcase heater in cooling mode (Pck)		W	0	0	0	0	0	0	
Sound power level of indoor unit (Lwa)		dB(A)	37	37	37	37	37	37	
Sound power level of outdoor unit (Lwa)		dB(A)	61	65	65	65	67	67	
Capacity control mode		-	Variable (Inverter)	Variable (Inverter)	Variable (Inverter)	Variable (Inverter)	Variable (Inverter)	Variable (Inverter)	
Nominal outdoor air flow		m³/h	2436	2436	2436	2436	2682	2682	

		Outdoor unit		RAS-4WHVNPE		RAS-5WHVNPE		RAS-6WHVNPE	
		Indoor unit		RWM-4.0N1E		RWM-5.0N1E		RWM-6.0N1E	
				RWD-4.0NW1E-220S(-K)		RWD-5.0NW1E-220S(-K)		RWD-6.0NW1E-220S(-K)	
		Water outlet temperature		7°C	18°C	7°C	18°C	7°C	18°C
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
	Indoor side heat exchanger chiller	-	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
	Driver of compressor	-	Electric motor	Electric motor	Electric motor	Electric motor	Electric motor	Electric motor	Electric motor
	Capacity Control		Variable	Variable	Variable	Variable	Variable	Variable	Variable
	Water control		Fixed	Fixed	Fixed	Fixed	Fixed	Fixed	Fixed
Rated Cooling Capacity (PRATED,C)		kW		7.20	10.4	9.50	12.9	10.5	13.5
Seasonal space cooling energy efficiency (ηS,C)		%		202	252	211	323	206	312
Seasonal energy efficiency ratio cooling mode (SEER)		-		5.13	6.36	5.34	8.14	5.23	7.87
Seasonal active energy ratio cooling mode (SEERON)		-		5.44	6.69	5.59	8.57	5.45	8.25
Declared cooling capacity and efficiency ratio for part load at given outdoor temperatures Tj	Outdoor temperature (Tj) = 35°C	Pdc	kW	7.20	10.4	9.50	12.9	10.5	13.5
		EERd	-	3.84	4.50	3.40	4.48	3.23	4.23
	Outdoor temperature (Tj) = 30°C	Pdc	kW	5.30	7.66	7.00	9.51	7.80	9.95
		EERd	-	4.60	6.30	4.75	7.11	4.56	6.86
	Outdoor temperature (Tj) = 25°C	Pdc	kW	3.50	4.93	4.50	7.20	5.00	7.20
		EERd	-	5.80	7.20	5.88	9.98	5.77	9.54
	Outdoor temperature (Tj) = 20°C	Pdc	kW	3.60	5.10	3.20	7.80	3.20	7.80
		EERd	-	7.50	8.20	7.84	12.97	7.69	12.47
	Degradation coefficient (Cdc)		-	0.90	0.90	0.90	0.90	0.90	0.90
	Annual energy consumption (QCE)		kW·h	491	572	623	554	702	601

Additional cooling data

		Outdoor unit		RAS-4WHVNPE		RAS-5WHVNPE		RAS-6WHVNPE	
		Indoor unit		RWM-4.0N1E		RWM-5.0N1E		RWM-6.0N1E	
				RWD-4.0NW1E-220S(-K)		RWD-5.0NW1E-220S(-K)		RWD-6.0NW1E-220S(-K)	
Electrical power input in stand-by mode cooling mode (Psb)		W		13.1		13.1		13.1	
Electrical power input in thermostat-OFF cooling mode (Pto)		W		0.0		0.0		0.0	
Electrical power input in OFF mode (Poff)		W		13.1		13.1		13.1	
Electrical power input in crankcase heater in cooling mode (Pck)		W		0.0		0.0		0.0	
Sound power level of indoor unit (Lwa)		dB(A)		39		39		39	
Sound power level of outdoor unit (Lwa)		dB(A)		64		65		67	
Capacity control mode		-		Variable (Inverter)		Variable (Inverter)		Variable (Inverter)	
Nominal outdoor air flow		m³/h		4800		5400		6000	

		Outdoor unit		RAS-4WHNPE		RAS-5WHNPE		RAS-6WHNPE	
		Indoor unit		RWM-4.0N1E		RWM-5.0N1E		RWM-6.0N1E	
				RWD-4.0NW1E-220S(-K)		RWD-5.0NW1E-220S(-K)		RWD-6.0NW1E-220S(-K)	
				7°C	18°C	7°C	18°C	7°C	18°C
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
	Indoor side heat exchanger chiller	-	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
	Driver of compressor	-	Electric motor	Electric motor	Electric motor	Electric motor	Electric motor	Electric motor	Electric motor
	Capacity Control		Variable	Variable	Variable	Variable	Variable	Variable	Variable
	Water control		Fixed	Fixed	Fixed	Fixed	Fixed	Fixed	Fixed
Rated Cooling Capacity (PRATED,C)		kW	7.20	10.4	9.50	12.9	10.5	13.5	
Seasonal space cooling energy efficiency (ηS,C)		%	197	246	206	315	203	305	
Seasonal energy efficiency ratio cooling mode (SEER)		-	5.00	6.22	5.23	7.96	5.14	7.70	
Seasonal active energy ratio cooling mode (SEERON)		-	5.44	6.69	5.59	8.57	5.45	8.25	
Declared cooling capacity and efficiency ratio for part load at given outdoor temperatures Tj	Outdoor temperature (Tj) = 35°C	Pdc	kW	7.20	10.4	9.5	12.9	10.5	13.5
		EERd	-	3.84	4.50	3.40	4.48	3.23	4.23
	Outdoor temperature (Tj) = 30°C	Pdc	kW	5.30	7.66	7.00	9.51	7.80	9.95
		EERd	-	4.60	6.30	4.75	7.11	4.56	6.86
	Outdoor temperature (Tj) = 25°C	Pdc	kW	3.50	4.93	4.50	7.20	5.00	7.20
		EERd	-	5.80	7.20	5.88	9.98	5.77	9.54
	Outdoor temperature (Tj) = 20°C	Pdc	kW	3.60	5.10	3.20	7.80	3.20	7.80
		EERd	-	7.50	8.20	7.84	12.97	7.69	12.47
	Degradation coefficient (Cdc)		-	0.90	0.90	0.90	0.90	0.90	0.90
	Annual energy consumption (QCE)		kW·h	504	585	636	567	715	613

Additional cooling data

		Outdoor unit		RAS-4WHNPE		RAS-5WHNPE		RAS-6WHNPE	
		Indoor unit		RWM-4.0N1E		RWM-5.0N1E		RWM-6.0N1E	
				RWD-4.0NW1E-220S(-K)		RWD-5.0NW1E-220S(-K)		RWD-6.0NW1E-220S(-K)	
Electrical power input in stand-by mode cooling mode (Psb)		W		19.1		19.1		19.1	
Electrical power input in thermostat-OFF cooling mode (Pto)		W		0.0		0.0		0.0	
Electrical power input in OFF mode (Poff)		W		19.1		19.1		19.1	
Electrical power input in crankcase heater in cooling mode (Pck)		W		0.0		0.0		0.0	
Sound power level of indoor unit (Lwa)		dB(A)		39		39		39	
Sound power level of outdoor unit (Lwa)		dB(A)		64		65		67	
Capacity control mode		-		Variable (Inverter)		Variable (Inverter)		Variable (Inverter)	
Nominal outdoor air flow		m³/h		4800		5400		6000	

Outdoor unit			RAS-8WHNPE		RAS-10WHNPE	
Indoor unit			RWM-8.0N1E		RWM-10.0N1E	
Water outlet temperature			7°C	18°C	7°C	18°C
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°C	Pdc	kW	14.0	17.5	20.0
		EERd	-	3.12	2.81	3.61
	Outdoor temperature (Tj) = 30°C	Pdc	kW	10.32	12.9	14.74
		EERd	-	3.92	3.53	5.50
	Outdoor temperature (Tj) = 25°C	Pdc	kW	6.50	8.20	8.20
		EERd	-	5.30	4.87	6.50
	Outdoor temperature (Tj) = 20°C	Pdc	kW	8.00	8.00	8.50
		EERd	-	5.80	5.50	6.60
	Degradation coefficient (Cdc)		-	0.90	0.90	0.90
	Annual energy consumption (QCE)		kW·h	1142	1510	1286

Additional cooling data

Outdoor unit			RAS-8WHNPE		RAS-10WHNPE	
Indoor unit			RWM-8.0N1E		RWM-10.0N1E	
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	

2.3.2 Monobloc system - YUTAKI M

Outdoor unit				RASM-2VRE		RASM-3VRE	
Water outlet temperature				7°C	18°C	7°C	18°C
Product description	Outdoor side heat exchanger of chiller			-	Air to Water	Air to Water	Air to Water
	Indoor side heat exchanger chiller			-	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	4.00	5.50	6.50	7.00	
Seasonal space cooling energy efficiency (ηS,C)		%	220	319	208	331	
Seasonal energy ratio cooling mode (SEER)		-	5.57	8.04	5.27	8.35	
Seasonal active energy ratio cooling mode (SEERON)		-	5.79	8.38	5.39	8.64	
Declared cooling capacity and efficiency ratio for part load at given outdoor temperatures Tj	Outdoor temperature (Tj) = 35°C	Pdc	kW	4.00	5.50	6.50	7.00
		EERd	-	4.00	5.40	3.35	5.00
	Outdoor temperature (Tj) = 30°C	Pdc	kW	2.95	4.05	4.79	5.16
		EERd	-	5.00	7.20	4.50	6.40
	Outdoor temperature (Tj) = 25°C	Pdc	kW	2.05	2.61	2.90	3.32
		EERd	-	6.45	9.60	6.00	10.0
	Outdoor temperature (Tj) = 20°C	Pdc	kW	2.88	2.51	3.40	3.60
		EERd	-	8.00	10.3	7.50	13.5
Degradation coefficient (Cdc)		-	0.90	0.90	0.90	0.90	
Annual energy consumption (QCE)		kW·h	431	410	740	503	

Additional cooling data

Outdoor unit				RASM-2VRE		RASM-3VRE	
Electrical power input in stand-by mode cooling mode (Psb)				W	11.9	11.9	
Electrical power input in thermostat-OFF cooling mode (Pto)				W	0	0	
Electrical power input in OFF mode (Poff)				W	11.9	11.9	
Electrical power input in crankcase heater in cooling mode (Pck)				W	0	0	
Sound power level of outdoor unit (Lwa)				dB(A)	61	67	
Capacity control mode				-	Variable (Inverter)	Variable (Inverter)	
Nominal outdoor air flow				m3/h	2436	2682	

Outdoor unit			RASM-4VR1E		RASM-5VR1E		RASM-6VR1E		
Water outlet temperature			7°C	18°C	7°C	18°C	7°C	18°C	
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	
	Indoor side heat exchanger chiller	-	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	
	Driver of compressor	-	Electric motor	Electric motor	Electric motor	Electric motor	Electric motor	Electric motor	
	Capacity Control	-	Variable	Variable	Variable	Variable	Variable	Variable	
	Water control	-	Fixed	Fixed	Fixed	Fixed	Fixed	Fixed	
Rated Cooling Capacity (PRATED,C)		kW	11	11	12	13	13	14	
Seasonal space cooling energy efficiency (ηS,C)		%	180%	313%	181%	314%	181%	313%	
Seasonal energy efficiency ratio cooling mode (SEER)		-	4.58	7.91	4.60	7.93	4.58	7.91	
Seasonal active energy ratio cooling mode (SEERON)		-	4.76	8.47	4.77	8.40	4.74	8.34	
Declared cooling capacity and efficiency ratio for part load at given outdoor temperatures Tj	Outdoor temperature (Tj) = 35°C	Pdc	kW	11.0	11.0	12.0	13.0	13.0	14.0
		EERd	-	3.37	4.82	3.30	4.71	3.22	4.65
	Outdoor temperature (Tj) = 30°C	Pdc	kW	8.1	8.1	8.8	9.6	9.6	10.3
		EERd	-	4.22	6.82	4.16	6.43	4.07	6.24
	Outdoor temperature (Tj) = 25°C	Pdc	kW	5.9	6.0	5.7	6.2	6.2	6.6
		EERd	-	5.18	9.22	5.18	9.22	5.18	9.22
	Outdoor temperature (Tj) = 20°C	Pdc	kW	3.6	4.9	3.6	4.9	3.6	4.9
		EERd	-	5.70	13.33	5.7	13.33	5.7	13.33
Degradation coefficient (Cdc)		-	0.9	0.9	0.9	0.9	0.9	0.9	
Annual energy consumption (QCE)		kW-h	841	487	912	574	991	620	

Additional cooling data

	HP	4.0 HP	5.0 HP	6.0 HP
	Outdoor unit	RASM-4VR1E	RASM-5VR1E	RASM-6VR1E
Electrical power input in stand-by mode (Psb)	W	15	15	15
Electrical power input in thermostat-OFF mode (Pto)	W	0	0	0
Electrical power input in OFF mode (Poff)	W	15	15	15
Electrical power input in crankcase heater mode (Pck)	W	0	0	0
Sound power level of outdoor unit (Lwa)	dB(A)	64	65	65
Capacity control mode	-	Variable (Inverter)	Variable (Inverter)	Variable (Inverter)
Integrated supplementary heater	kW	-	-	-
Nominal outdoor air flow	m³/h	7920	8280	8280

				Outdoor unit		RASM-4R1E		RASM-5R1E		RASM-6R1E		RASM-7R1E	
				Water outlet temperature		7°C	18°C	7°C	18°C	7°C	18°C	7°C	18°C
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
	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	11	11	12	13	13	14	14	15	
Seasonal space cooling energy efficiency (ηS,C)				%	174%	312%	159%	283%	160%	276%	160%	268%	
Seasonal energy efficiency ratio cooling mode (SEER)				-	4.42	7.88	4.05	7.14	4.08	6.97	4.08	6.78	
Seasonal active energy ratio cooling mode (SEERON)				-	4.76	9.03	4.3	7.91	4.32	7.64	4.3	7.37	
Declared cooling capacity and efficiency ratio for part load at given outdoor temperatures Tj	Outdoor temperature (Tj) = 35°C			Pdc	kW	11.0	11.0	12.0	13.0	13.0	14.0	14.0	15.0
				EERd	-	3.32	5.04	3.30	4.71	3.22	4.65	3.16	4.60
	Outdoor temperature (Tj) = 30°C			Pdc	kW	8.1	8.1	8.8	9.6	9.6	10.3	10.3	11.1
				EERd	-	4.11	6.96	4.16	6.43	4.07	6.24	3.97	6.03
	Outdoor temperature (Tj) = 25°C			Pdc	kW	5.2	5.3	5.7	6.2	6.2	6.6	6.6	7.1
				EERd	-	5.17	9.91	4.61	9.06	4.61	8.45	4.61	7.87
	Outdoor temperature (Tj) = 20°C			Pdc	kW	3.2	5.6	3.1	4.9	3.1	4.9	3.2	4.9
				EERd	-	5.71	15.01	4.46	10.39	4.63	10.39	4.63	10.39
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	871	489	1038	637	1115	703	1201	774	

Additional cooling data

	HP	4.0 HP	5.0 HP	6.0 HP	7.0 HP
	Outdoor unit	RASM-4R1E	RASM-5R1E	RASM-6R1E	RASM-7R1E
Electrical power input in stand-by mode (Psb)	W	29	29	29	29
Electrical power input in thermostat-OFF mode (Pto)	W	0	0	0	0
Electrical power input in OFF mode (Poff)	W	29	29	29	29
Electrical power input in crankcase heater mode (Pck)	W	0	0	0	0
Sound power level of outdoor unit (Lwa)	dB(A)	65	65	65	66
Capacity control mode	-	Variable (Inverter)	Variable (Inverter)	Variable (Inverter)	Variable (Inverter)
Integrated supplementary heater	kW	-	-	-	-
Nominal outdoor air flow	m³/h	7920	8280	8280	8640

2.3.3 Hydrosplit system - YUTAKI H / YUTAKI H Combi

			Outdoor unit		RASM-4VRW1E		RASM-5VRW1E		RASM-6VRW1E	
			Indoor unit		HWM-WE /HWD-WE-220S-(K)		HWM-WE /HWD-WE-220S-(K)		HWM-WE /HWD-WE-220S-(K)	
			Water outlet temperature		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
	Indoor side heat exchanger chiller		-	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
	Capacity Control		-	Variable	Variable	Variable	Variable	Variable	Variable	Variable
	Water control		-	Fixed	Fixed	Fixed	Fixed	Fixed	Fixed	Fixed
Rated Cooling Capacity (PRATED,C)			kW	11	11	12	13	13	14	
Seasonal space cooling energy efficiency (ηS,C)			%	180%	313%	181%	314%	181%	313%	
Seasonal energy efficiency ratio cooling mode (SEER)			-	4.58	7.91	4.60	7.93	4.58	7.91	
Seasonal active energy ratio cooling mode (SEERON)			-	4.76	8.47	4.77	8.40	4.74	8.34	
Declared cooling capacity and efficiency ratio for part load at given outdoor temperatures Tj	Outdoor temperature (Tj) = 35℃	Pdc	kW	11.0	11.0	12.0	13.0	13.0	14.0	
		EERd	-	3.37	4.82	3.30	4.71	3.22	4.65	
	Outdoor temperature (Tj) = 30℃	Pdc	kW	8.1	8.1	8.8	9.6	9.6	10.3	
		EERd	-	4.22	6.82	4.16	6.43	4.07	6.24	
	Outdoor temperature (Tj) = 25℃	Pdc	kW	5.9	6.0	5.7	6.2	6.2	6.6	
		EERd	-	5.18	9.22	5.18	9.22	5.18	9.22	
	Outdoor temperature (Tj) = 20℃	Pdc	kW	3.6	4.9	3.6	4.9	3.6	4.9	
		EERd	-	5.70	13.33	5.7	13.33	5.7	13.33	
Degradation coefficient (Cdc)			-	0.9	0.9	0.9	0.9	0.9	0.9	
Annual energy consumption (QCE)			kW·h	841	487	912	574	991	620	

Additional cooling data

	HP	4.0 HP	5.0 HP	6.0 HP
	Outdoor unit	RASM-4VRW1E	RASM-5VRW1E	RASM-6VRW1E
	Indoor unit	HWM-WE / HWD-WE-220S(-K)		
Electrical power input in stand-by mode (Psb)	W	15	15	15
Electrical power input in thermostat-OFF mode (Pto)	W	0	0	0
Electrical power input in OFF mode (Poff)	W	15	15	15
Electrical power input in crankcase heater mode (Pck)	W	0	0	0
Sound power level of indoor unit (Lwa)	dB(A)	49	49	49
Sound power level of outdoor unit (Lwa)	dB(A)	64	65	65
Capacity control mode	-	Variable (Inverter)	Variable (Inverter)	Variable (Inverter)
Integrated supplementary heater (inside indoor unit)	kW	-	-	-
Nominal outdoor air flow	m3/h	7920	8280	8280

			Outdoor unit		RASM-4RW1E		RASM-5RW1E		RASM-6RW1E		RASM-7RW1E	
			Indoor unit		HWM-WE /HWD-WE-220S-(K)		HWM-WE /HWD-WE-220S-(K)		HWM-WE /HWD-WE-220S-(K)		HWM-WE /HWD-WE-220S-(K)	
			Water outlet temperature		7°C	18°C	7°C	18°C	7°C	18°C	7°C	18°C
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
	Indoor side heat exchanger chiller		-	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
	Driver of compressor		-	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
	Water control			Fixed	Fixed	Fixed	Fixed	Fixed	Fixed	Fixed	Fixed	Fixed
Rated Cooling Capacity (PRATED,C)			kW	11	11	12	13	13	14	14	15	
Seasonal space cooling energy efficiency (ηS,C)			%	174%	312%	159%	283%	160%	276%	160%	268%	
Seasonal energy efficiency ratio cooling mode (SEER)			-	4.42	7.88	4.05	7.14	4.08	6.97	4.08	6.78	
Seasonal active energy ratio cooling mode (SEERON)			-	4.76	9.03	4.3	7.91	4.32	7.64	4.3	7.37	
Declared cooling capacity and efficiency ratio for part load at given outdoor temperatures Tj	Outdoor temperature (Tj) = 35°C	Pdc	kW	11.0	11.0	12.0	13.0	13.0	14.0	14.0	15.0	
		EERd	-	3.32	5.04	3.30	4.71	3.22	4.65	3.16	4.60	
	Outdoor temperature (Tj) = 30°C	Pdc	kW	8.1	8.1	8.8	9.6	9.6	10.3	10.3	11.1	
		EERd	-	4.11	6.96	4.16	6.43	4.07	6.24	3.97	6.03	
	Outdoor temperature (Tj) = 25°C	Pdc	kW	5.2	5.3	5.7	6.2	6.2	6.6	6.6	7.1	
		EERd	-	5.17	9.91	4.61	9.06	4.61	8.45	4.61	7.87	
	Outdoor temperature (Tj) = 20°C	Pdc	kW	3.2	5.6	3.1	4.9	3.1	4.9	3.2	4.9	
		EERd	-	5.71	15.01	4.46	10.39	4.63	10.39	4.63	10.39	
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	871	489	1038	637	1115	703	1201	774	

Additional cooling data

	HP	4.0 HP	5.0 HP	6.0 HP	7.0 HP
	Outdoor unit	RASM-4RW1E	RASM-5RW1E	RASM-6RW1E	RASM-7RW1E
	Indoor unit	HWM-WE / HWD-WE-220S-(K)			
Electrical power input in stand-by mode (Psb)	W	29	29	29	29
Electrical power input in thermostat-OFF mode (Pto)	W	0	0	0	0
Electrical power input in OFF mode (Poff)	W	29	29	29	29
Electrical power input in crankcase heater mode (Pck)	W	0	0	0	0
Sound power level of indoor unit (Lwa)	dB(A)	49	49	49	49
Sound power level of outdoor unit (Lwa)	dB(A)	64	65	65	66
Capacity control mode	-	Variable (Inverter)	Variable (Inverter)	Variable (Inverter)	Variable (Inverter)
Integrated supplementary heater (inside indoor unit)	kW	-	-	-	-
Nominal outdoor air flow	m³/h	7920	8280	8280	8640

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
 - ✓ Water inlet/outlet temperature
 - Heating mode: 47/55°C (mark: *1); 30/35°C (mark: *2)
 - Cooling mode: 12/7 (mark *3)
 - ✓ 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 EN12102. Used environment conditions are the same that specified in EN14511 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% .
- The nominal water flow rate is calculated under the following conditions:
 - ✓ Outdoor ambient temperature (DB/WB): 7/6°C.
 - ✓ Water inlet/outlet temperature: 47/55°C (mark: *1); 30/35°C (mark: *2).
- *Regarding data market with mark: *3, it corresponds to the height of the unit with the minimum mounting foot height. This value can be adjusted up to +30 mm.*
- *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-2WHVRP1	RAS-2.5WHVRP1	RAS-3WHVRP1	RAS-4WHVNPE	RAS-5WHVNPE	RAS-6WHVNPE	RAS-4WHNPE	RAS-5WHNPE	RAS-6WHNPE	RAS-8WHNPE	RAS-10WHNPE
Power supply			-	~ 230V 50Hz	~ 230V 50Hz	~ 230V 50Hz	~ 230V 50Hz	~ 230V 50Hz	3N~ 400V 50Hz	3N~ 400V 50Hz	3N~ 400V 50Hz	3N~ 400V 50Hz	3N~ 400V 50Hz
Heating noise level (sound power) - Full load	(*1)	dB(A)	61	63	69	64	65	67	64	65	67	73	74
	(*2)		61	63	67	63	64	65	63	64	65	71	72
Heating noise level (sound power) - Part load	(*1)	dB(A)	49	54	57	58	59	60	58	59	60	59	60
	(*2)		49	54	57	58	59	60	58	59	60	59	60
Cooling noise level (sound power) - Full load	(*3)	dB(A)	61	65	67	64	65	67	64	65	67	73	74
Heating noise level (sound pressure) - Full load	(*1)	dB(A)	46	47	54	49	50	50	49	50	50	59	60
	(*2)		46	47	54	49	50	50	49	50	50	59	60
Heating noise level (sound pressure) - Part load	(*1)	dB(A)	-	-	-	-	-	-	-	-	-	-	-
	(*2)		-	-	-	-	-	-	-	-	-	-	-
Cooling noise level (sound pressure) - Full load	(*3)	dB(A)	44	45	52	47	48	48	47	48	48	57	58
Air flow	m³/min		42.1	42.1	49.7	80	90	100	80	90	100	80	90
Cabinet colour (Munsell code)	-		Natural Gray (1.0Y 8.5/0.5)	Natural Gray (1.0Y 8.5/0.5)	Natural Gray (1.0Y 8.5/0.5)	Natural Gray (1.0Y 8.5/0.5)	Natural Gray (1.0Y 8.5/0.5)	Natural Gray (1.0Y 8.5/0.5)	Natural Gray (1.0Y 8.5/0.5)	Natural Gray (1.0Y 8.5/0.5)	Natural Gray (1.0Y 8.5/0.5)	Natural Gray (1.0Y 8.5/0.5)	Natural Gray (1.0Y 8.5/0.5)
Dimensions (H x W x D)	mm		629 x 799 (+99) x 300	629 x 799 (+99) x 300	629 x 799 (+99) x 300	1380 x 950 x 370	1380 x 950 x 370	1380 x 950 x 370	1380 x 950 x 370	1380 x 950 x 370	1380 x 950 x 370	1380 x 950 x 370	1380 x 950 x 370
Net weight	kg		45	45	44	103	103	103	103	103	103	137	139
Gross weight	kg		49	49	48	116	116	116	116	116	116	152	154
Piping diameter (liquid / gas)(*)	mm (in.)		ø6.35 (1/4) / ø12.7 (1/2)	ø6.35 (1/4) / ø12.7 (1/2)	ø6.35 (1/4) / ø15.88 (5/8)	ø9.52 (3/8) / ø15.88 (5/8)	ø9.52 (3/8) / ø15.88 (5/8)	ø9.52 (3/8) / ø15.88 (5/8)	ø9.52 (3/8) / ø15.88 (5/8)	ø9.52 (3/8) / ø15.88 (5/8)	ø9.52 (3/8) / ø15.88 (5/8)	ø9.52 (3/8) / ø25.4 (1)	ø12.70 (1/2) / ø25.4 (1)
Minimum piping length	m		3	3	3	5	5	5	5	5	5	5	5
Maximum chargeless piping length	m		10	10	10	15	15	15	15	15	15	15	15
Additional refrigerant charge needed	g /m		15	15	30	60	60	60	60	60	60	65	65
Maximum piping length	m		(**)	(**)	(**)	75	75	75	75	75	75	70	70
Height difference between OU and IU (higher OU / lower OU)	m		30 / 20	30 / 20	30 / 20	30 / 20	30 / 20	30 / 20	30 / 20	30 / 20	30 / 20	30 / 20	30 / 20
Working range outdoor ambient temperature	Heating	°C (DB)	-20 ~ 25	-20 ~ 25	-20 ~ 25	-20~25	-20~25	-20~25	-20~25	-20~25	-20~25	-20~25	-20~25
	Cooling	°C (DB)	10 ~ 46	10 ~ 46	10 ~ 46	10~46	10~46	10~46	10~46	10~46	10~46	10~46	10~46
	DHW	°C (DB)	-20 ~ 35	-20 ~ 35	-20 ~ 35	-20~35	-20~35	-20~35	-20~35	-20~35	-20~35	-20~35	-20~35
Refrigerant	-		R32	R32	R32	R410A	R410A	R410A	R410A	R410A	R410A	R410A	R410A
Refrigerant charge before shipment	kg		1.2	1.3	1.3	3.3	3.4	3.4	3.3	3.4	3.4	5.0	5.3
Charge-less piping length	m		10	10	10	15	15	15	15	15	15	15	15
Compressor type	-		Scroll DC Inverter driven	Scroll DC Inverter driven	Rotary DC Inverter driven	Scroll DC Inverter driven	Scroll DC Inverter driven	Scroll DC Inverter driven	Scroll DC Inverter driven	Scroll DC Inverter driven	Scroll DC Inverter driven	Scroll DC Inverter driven	Scroll DC Inverter driven

(*) See "Refrigerant and water piping" chapter

(**)See tables of chapter "8.5.2 Refrigerant piping length between indoor unit and outdoor unit"

2.4.3 Split system - Indoor unit

2.4.3.1 YUTAKI S

Indoor unit		RWM-2.0R1E	RWM-2.5R1E	RWM-3.0R1E	RWM-4.0N1E	RWM-5.0N1E	RWM-6.0N1E	RWM-8.0N1E	RWM-10.0N1E
Power supply		-	~ 230V 50Hz / 3N~ 400V 50Hz	~ 230V 50Hz / 3N~ 400V 50Hz	~ 230V 50Hz / 3N~ 400V 50Hz	~ 230V 50Hz / 3N~ 400V 50Hz	~ 230V 50Hz / 3N~ 400V 50Hz	3N~ 400V 50Hz	3N~ 400V 50Hz
Noise level (sound power)		dB(A)	37	37	37	39	39	47	47
Minimum water flow rate		m³/h	0.5	0.6	0.6	1.0	1.1	2.0	2.2
Maximum water flow rate		m³/h	1.9	2.0	2.1	2.9	3.0	4.5	4.6
Nominal Water flow rate	WIT: 30 °C / WOT: 35 °C ΔT: 5 °C	m3/h	0.8	1.0	1.4	1.9	2.4	3.4	4.1
Cabinet	Material	-	Precoated galvanised steel	Precoated galvanised steel	Precoated galvanised steel	Precoated galvanised steel	Precoated galvanised steel	Precoated galvanised steel	Precoated galvanised steel
	Colour	-	Pure white (RAL 9010)	Pure white (RAL 9010)	Pure white (RAL 9010)	Pure white (RAL 9010)	Pure white (RAL 9010)	Pure white (RAL 9010)	Pure white (RAL 9010)
Unit dimensions	Height (with connections)	mm	712 (782)	712 (782)	712 (782)	890 (960)	890 (960)	890 (960)	890 (960)
	Width	mm	450	450	450	520	520	670	670
	Depth	mm	285	285	285	370	370	370	370
Packaging dimensions	Height	mm	478	478	478	556	556	556	556
	Width	mm	905	905	905	1120	1120	1120	1120
	Depth	mm	539	539	539	610	610	760	760
Packaging volume		m³	0.23	0.23	0.23	0.38	0.38	0.47	0.47
Packaging materials		-	Wood - Carton - Plastic	Wood - Carton - Plastic	Wood - Carton - Plastic	Wood - Carton - Plastic	Wood - Carton - Plastic	Wood - Carton - Plastic	Wood - Carton - Plastic
Net weight		kg	35	36	37	46	48	60	62
Gross weight		kg	44	45	46	61	63	76	78
Refrigerant pipes connection	Connection type	-	Flare nut connection	Flare nut connection	Flare nut connection	Flare nut connection	Flare nut connection	Liquid pipe: Flare nut connection; Gas pipe: Brazed connection	
	Liquid pipe diameter	mm (in.)	Ø6.35 (1/4")	Ø9.52 (3/8")	Ø9.52 (3/8")	Ø9.52 (3/8")	Ø9.52 (3/8")	Ø9.52 (3/8")	Ø12.7 (3/8")
	Gas pipe diameter	mm (in.)	Ø15.88 (5/8")	Ø15.88 (5/8")	Ø15.88 (5/8")	Ø15.88 (5/8")	Ø15.88 (5/8")	Ø15.88 (5/8")	Ø25.4 (1")
Space heating pipes connection	Connection type	-	Screwed connection	Screwed connection	Screwed connection	Screwed connection	Screwed connection	Screwed connection	Screwed connection
	Shutdown valves	mm (in.)	G 1" (male) - G 1" (male)	G 1" (male) - G 1" (male)	G 1" (male) - G 1" (male)	G 1-1/4" (male) - G 1-1/4" (male)	G 1-1/4" (male) - G 1-1/4" (male)	G 1-1/4" (male) - G 1-1/4" (male)	G 1-1/4" (male) - G 1-1/4" (male)
	Inlet pipe diameter	mm (in.)	G 1" (female)	G 1" (female)	G 1" (female)	G 1-1/4" (female)	G 1-1/4" (female)	G 1-1/4" (female)	G 1-1/4" (female)
	Outlet pipe diameter	mm (in.)	G 1" (female)	G 1" (female)	G 1" (female)	G 1-1/4" (female)	G 1-1/4" (female)	G 1-1/4" (female)	G 1-1/4" (female)
Working range (Heating)	Outdoor ambient temperature	°C (DB)	-20~25	-20~25	-20~25	-25~25	-25~25	-25~25	-25~25
	Indoor ambient temperature	°C (DB)	5~30	5~30	5~30	5~30	5~30	5~30	5~30
	Outlet water temperature	°C	20~60	20~60	20~60	20~60	20~60	20~60	20~60
Working range (Cooling)	Outdoor ambient temperature	°C (DB)	10~46	10~46	10~46	10~46	10~46	10~46	10~46
	Indoor ambient temperature	°C (DB)	5~30	5~30	5~30	5~30	5~30	5~30	5~30
	Outlet water temperature	°C	5~22	5~22	5~22	5~22	5~22	5~22	5~22

2.4.3.2 YUTAKI S Combi

Indoor unit		RWD-2.0RW1E-220S(-K)	RWD-2.5RW1E- 220S(-K)	RWD-3.0RW1E- 220S(-K)	RWD-4.0NW1E-220S(-K)	RWD-5.0NW1E-220S(-K)	RWD-6.0NW1E-220S(-K)
Power supply	-	~ 230V 50Hz / 3N~ 400V 50Hz	~ 230V 50Hz / 3N~ 400V 50Hz	~ 230V 50Hz / 3N~ 400V 50Hz	~ 230V 50Hz / 3N~ 400V 50Hz	~ 230V 50Hz / 3N~ 400V 50Hz	~ 230V 50Hz / 3N~ 400V 50Hz
Noise level (sound power)	dB(A)	37	37	37	39	39	39
Minimum water flow rate	m³/h	0.5	0.6	0.6	1.0	1.1	1.2
Maximum water flow rate	m³/h	1.8	1.9	1.9	2.7	2.8	2.8
Nominal Water flow rate	WIT: 30 °C / WOT: 35 °C ΔT: 5 °C	m3/h	0.8	1.0	1.4	1.9	2.4
Cabinet	Material	-	Precoated galvanised steel	Precoated galvanised steel	Precoated galvanised steel	Precoated galvanised steel	Precoated galvanised steel
	Colour	-	Pure white (RAL 9010)	Pure white (RAL 9010)	Pure white (RAL 9010)	Pure white (RAL 9010)	Pure white (RAL 9010)
Unit dimensions	Height (with connections)	mm	1788 (1889)	1788 (1889)	1788 (1889)	1788 (1889)	1788 (1889)
	Width	mm	595	595	595	595	595
	Depth	mm	598	598	598	598	598
Packaging dimensions	Height	mm	2045	2045	2045	2045	2045
	Width	mm	670	670	670	670	670
	Depth	mm	656	656	656	656	656
Packaging volume	m³	0.90	0.90	0.90	0.90	0.90	0.90
Packaging materials	-	Wood - Carton - Plastic	Wood - Carton - Plastic	Wood - Carton - Plastic	Wood - Carton - Plastic	Wood - Carton - Plastic	Wood - Carton - Plastic
Net weight	kg	109	110	111	115	117	117
Gross weight	kg	122	123	124	128	130	130
Refrigerant pipes connection	Connection type	-	Flare nut connection	Flare nut connection	Flare nut connection	Flare nut connection	Flare nut connection
	Liquid pipe diameter	mm (in.)	Ø6.35 (1/4")	Ø9.52 (3/8")	Ø9.52 (3/8")	Ø9.52 (3/8")	Ø9.52 (3/8")
	Gas pipe diameter	mm (in.)	Ø15.88 (5/8")	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	Screwed connection	Screwed connection
	Shut-off valves	mm (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)	G 1" (male) - G 1" (male)
	Inlet pipe diameter	mm (in.)	G 1" (female)	G 1" (female)	G 1" (female)	G 1" (female)	G 1" (female)
	Outlet pipe diameter	mm (in.)	G 1" (female)	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	Screwed connection
	Inlet pipe diameter	mm (in.)	G 3/4" (male)	G 3/4" (male)	G 3/4" (male)	G 3/4" (male)	G 3/4" (male)
	Outlet pipe diameter	mm (in.)	G 3/4" (male)	G 3/4" (male)	G 3/4" (male)	G 3/4" (male)	G 3/4" (male)
Working range (Heating)	Outdoor ambient temperature	°C (WB)	-20~25	-20~25	-20~25	-25~25	-25~25
	Indoor ambient temperature	°C (WB)	5~30	5~30	5~30	5~30	5~30
	Outlet water temperature	°C	20~60	20~60	20~60	20~60	20~60
Working range (Cooling)	Outdoor ambient temperature	°C (DB)	10~46	10~46	10~46	10~46	10~46
	Indoor ambient temperature	°C (DB)	5~30	5~30	5~30	5~30	5~30
	Outlet water temperature	°C	5~22	5~22	5~22	5~22	5~22
Working range (DHW)	Outdoor ambient temperature	°C (DB)	-20~35	-20~35	-20~35	-25~35	-25~35
	Indoor ambient temperature	°C (DB)	5~30	5~30	5~30	5~30	5~30
	Tank water temperature	°C	30~75	30~75	30~75	30~75	30~75

2.4.3.3 YUTAKI S80

Version for indoor unit alone - RWH-(4.0-6.0)(V)NFE

Indoor unit		RWH-4.0(V)NFE	RWH-5.0(V)NFE	RWH-6.0(V)NFE
Power supply		- RWH-(4.0-6.0)VNFE: ~ 230V 50Hz RWH-(4.0-6.0)NFE: 3N~ 400V 50Hz	RWH-(4.0-6.0)VNFE: ~ 230V 50Hz RWH-(4.0-6.0)NFE: 3N~ 400V 50Hz	RWH-(4.0-6.0)VNFE: ~ 230V 50Hz RWH-(4.0-6.0)NFE: 3N~ 400V 50Hz
Minimum water flow rate		m³/h1.0	1.1	1.2
Maximum water flow rate		m³/h2.9	3.0	3.0
Nominal water flow	WIT: 47 °C / WOT: 55 °C ΔT: 8 °C	m3/h1.26	1.64	1.83
	WIT: 55 °C / WOT: 65 °C ΔT: 10 °C	m3/h1.00	1.20	1.38
Noise level (sound power)		dB(A)57	57	58
Cabinet	Material	-	Precoated galvanised steel	Precoated galvanised steel
	Colour	-	Pure white (RAL 9010)	Pure white (RAL 9010)
Unit dimensions	Height (with connections) (*)	mm751 (802) (*3)	751 (802) (*3)	751 (802) (*3)
	Width	mm600	600	600
	Depth	mm623	623	623
Packaging dimensions	Height	mm982	982	982
	Width	mm675	675	675
	Depth	mm671	671	671
Packaging volume		m³0.44	0.44	0.44
Packaging materials		-	Wood - Carton - Plastic - Polypropylene bands	Wood - Carton - Plastic - Polypropylene bands
Net weight (~ / 3N~)		kg125 / 127	129 / 136	129 / 136
Gross weight (~ / 3N~)		kg136 / 138	140 / 147	140 / 147
Refrigerant pipes connection	Connection type	-	Flare nut connection	Flare nut connection
	Liquid pipe diameter	mm (in.)	Ø9.52 (3/8")	Ø9.52 (3/8")
	Gas pipe diameter	mm (in.)	Ø15.88 (5/8")	Ø15.88 (5/8")
Space heating pipes connection	Connection type	-	Screwed connection	Screwed connection
	Shut-off valves	mm (in.)	G 1-1/4" (male) - G 1-1/4" (male)	G 1-1/4" (male) - G 1-1/4" (male)
	Inlet pipe diameter	mm (in.)	G 1-1/4" (female)	G 1-1/4" (female)
	Outlet pipe diameter	mm (in.)	G 1-1/4" (female)	G 1-1/4" (female)
Working range (Heating)	Outdoor ambient temperature	°C (DB)	-25~25	-25~25
	Outlet water temperature	°C	20~80	20~80
Working range (DHW)	Outdoor ambient temperature	°C (DB)	-25~35	-25~35
	Tank water temperature	°C	30~75	30~75
Refrigerant		-	R-134a	R-134a
Refrigerant charge		kg1.9	1.9	1.9
Compressor type		-	Scroll DC Inverter driven	Scroll DC Inverter driven

Version for combination with DHW tank - RWH-(4.0-6.0)(V)NFWE

Indoor unit		RWH-4.0(V)NFWE	RWH-5.0(V)NFWE	RWH-6.0(V)NFWE
Power supply		- RWH-(4.0-6.0)VNFWE: ~ 230V 50Hz RWH-(4.0-6.0)NFWE: 3N~ 400V 50Hz	RWH-(4.0-6.0)VNFWE: ~ 230V 50Hz RWH-(4.0-6.0)NFWE: 3N~ 400V 50Hz	RWH-(4.0-6.0)VNFWE: ~ 230V 50Hz RWH-(4.0-6.0)NFWE: 3N~ 400V 50Hz
Minimum water flow rate		m³/h 1.0	1.1	1.2
Maximum water flow rate		m³/h 2.9	3.0	3.0
Nominal water flow	WIT: 47 °C / WOT: 55 °C ΔT: 8 °C	m3/h 1.26	1.64	1.83
	WIT: 55 °C / WOT: 65 °C ΔT: 10 °C	m3/h 1.00	1.20	1.38
Noise level (sound power)		dB(A) 57	57	58
Cabinet	Material	- Precoated galvanised steel	Precoated galvanised steel	Precoated galvanised steel
	Colour	- Pure white (RAL 9010)	Pure white (RAL 9010)	Pure white (RAL 9010)
	Height	mm 751 (*3)	751 (*3)	751 (*3)
Unit dimensions	Width	mm 600	600	600
	Depth (with connections)	mm 623 (680)	623 (680)	623 (680)
Packaging dimensions	Height	mm 926	926	926
	Width	mm 728	728	728
	Depth	mm 671	671	671
Packaging volume		m³ 0.45	0.45	0.45
Packaging materials		- Wood - Carton - Plastic - Polypropylene bands	Wood - Carton - Plastic - Polypropylene bands	Wood - Carton - Plastic - Polypropylene bands
Net weight (~ / 3N~)		kg 135 / 137	139 / 146	139 / 146
Gross weight (~ / 3N~)		kg 146 / 148	150 / 157	150 / 157
Refrigerant pipes connection	Connection type	- Flare nut connection	Flare nut connection	Flare nut connection
	Liquid pipe diameter	mm (inches) ø9.52 (3/8")	ø9.52 (3/8")	ø9.52 (3/8")
	Gas pipe diameter	mm (inches) 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	mm (inches) G 1-1/4" (male) - G 1-1/4" (male)	G 1-1/4" (male) - G 1-1/4" (male)	G 1-1/4" (male) - G 1-1/4" (male)
	Inlet pipe diameter	mm (inches) G 1-1/4" (female)	G 1-1/4" (female)	G 1-1/4" (female)
	Outlet pipe diameter	mm (inches) G 1-1/4" (female)	G 1-1/4" (female)	G 1-1/4" (female)
Heating coil pipes connection (*)	Connection type	- Flexible pipe connection	Flexible pipe connection	Flexible pipe connection
	Inlet connection diameter (3-way valve)	mm (inches) Flexible pipe (G 1" male)	Flexible pipe (G 1" male)	Flexible pipe (G 1" male)
	Outlet connection diameter (T-branch)	mm (inches) Flexible pipe (G 1" male)	Flexible pipe (G 1" male)	Flexible pipe (G 1" male)
Working range (Heating)	Outdoor ambient temperature	°C (DB) -25~25	-25~25	-25~25
	Outlet water temperature	°C 20~80	20~80	20~80
Working range (DHW)	Outdoor ambient temperature	°C (DB) -25~35	-25~35	-25~35
	Tank water temperature	°C 30~75	30~75	30~75
Refrigerant		- R-134a	R-134a	R-134a
Refrigerant charge		kg 1.9	1.9	1.9
Compressor type		- Scroll DC Inverter driven	Scroll DC Inverter driven	Scroll DC Inverter driven

(*): These models are ready for combination with YUTAKI S80 DHW tank accessory. In this case, the two flexible water pipes factory-supplied with the DHW tank must be connected to the 3-way valve and T-branch connections of the indoor unit.

2.4.4 Monobloc system - YUTAKI M

		Outdoor unit	RASM-2VRE	RASM-3VRE	RASM-4VR1E	RASM-5VR1E	RASM-6VR1E	RASM-4R1E	RASM-5R1E	RASM-6R1E	RASM-7R1E
Power supply		-	~ 230V 50Hz	~ 230V 50Hz	~ 230V 50Hz	~ 230V 50Hz	~ 230V 50Hz	3N~ 400V 50Hz	3N~ 400V 50Hz	3N~ 400V 50Hz	3N~ 400V 50Hz
Noise level (sound power) - Full load	(*1)	dB(A)	61	69	64	65	65	64	65	65	66
	(*2)	dB(A)	61	67	64	65	65	64	65	65	66
Noise level (sound power) - Part load	(*1)	dB(A)	49	57	61	63	63	61	63	63	65
	(*2)	dB(A)	49	57	61	63	63	61	63	63	65
Cooling noise level (sound power) - Full load		(*3)	dB(A)	61	67	64	65	64	65	65	66
Heating noise level (sound pressure) - Full load	(*1)	dB(A)	47	54	53	54	56	53	54	56	57
	(*2)	dB(A)	47	54	53	54	56	53	54	56	57
Heating noise level (sound pressure) - Part load	(*1)	dB(A)	-	-	48	50	50	48	50	50	57
	(*2)	dB(A)	-	-	48	50	50	48	50	50	52
Cooling noise level (sound pressure) - Full load		(*3)	dB(A)	45	52	53	55	53	55	56	56
Air flow		m³/min	42.1	49.7	132	138	138	132	138	138	144
Minimum water flow rate		m³/h	0.5	0.6	1.0	1.1	1.2	1.0	1.1	1.2	1.2
Maximum water flow rate		m³/h	1.9	2.1	2.9	3.0	3.0	2.9	3.0	3.0	3.0
Nominal water flow WIT: 30 °C / WOT: 35 °C ΔT: 5 °C		m³/h	0.80	1.30	1.89	2.06	2.24	1.89	2.06	2.24	2.75
Cabinet	Material	-	Galvanised steel	Galvanised steel	Precoated galvanised steel	Precoated galvanised steel	Precoated galvanised steel	Precoated galvanised steel	Precoated galvanised steel	Precoated galvanised steel	Precoated galvanised steel
	Colour	-	Natural Gray (1.0Y 8.5/0.5)	Natural Gray (1.0Y 8.5/0.5)	Natural Gray (1.0Y 8.5/0.5)	Natural Gray (1.0Y 8.5/0.5)	Natural Gray (1.0Y 8.5/0.5)	Natural Gray (1.0Y 8.5/0.5)	Natural Gray (1.0Y 8.5/0.5)	Natural Gray (1.0Y 8.5/0.5)	Natural Gray (1.0Y 8.5/0.5)
Unit dimensions	Height	mm	704	704	1380	1380	1380	1380	1380	1380	1380
	Width	mm	1248(+30)	1248(+30)	1252	1252	1252	1252	1252	1252	1252
	Depth	mm	300	300	370	370	370	370	370	370	370
Packaging dimensions	Height	mm	836	836	1515	1515	1515	1515	1515	1515	1515
	Width	mm	1332	1332	1312	1312	1312	1312	1312	1312	1312
	Depth	mm	420	420	460	460	460	460	460	460	460
Packaging volume		m³	0.5	0.5	0,91	0,91	0,91	0,91	0,91	0,91	0,91
Packaging materials		-	Paper - Wood - Plastic	Paper - Wood - Plastic	Wood - Carton - Plastic	Wood - Carton - Plastic	Wood - Carton - Plastic	Wood - Carton - Plastic	Wood - Carton - Plastic	Wood - Carton - Plastic	Wood - Carton - Plastic
Net weight		kg	76	78	130	138	138	130	138	138	138
Gross weight		Kg	90	92	145	153	153	145	153	153	153
Space heating pipes connection	Connection type	-	Screwed connection	Screwed connection	Screwed connection	Screwed connection	Screwed connection	Screwed connection	Screwed connection	Screwed connection	Screwed connection
	Shut-off valves (Field-supplied)	inches	2 x G 1" (male)	2 x G 1" (male)	2 x G 1-1/4" (male)	2 x G 1-1/4" (male)	2 x G 1-1/4" (male)	2 x G 1-1/4" (male)	2 x G 1-1/4" (male)	2 x G 1-1/4" (male)	2 x G 1-1/4" (male)
	Inlet pipe diameter	inches	G 1" (female)	G 1" (female)	G 1-1/4" (female)	G 1-1/4" (female)	G 1-1/4" (female)	G 1-1/4" (female)	G 1-1/4" (female)	G 1-1/4" (female)	G 1-1/4" (female)
	Outlet pipe diameter	inches	G 1" (female)	G 1" (female)	G 1-1/4" (female)	G 1-1/4" (female)	G 1-1/4" (female)	G 1-1/4" (female)	G 1-1/4" (female)	G 1-1/4" (female)	G 1-1/4" (female)
Working range (Heating)	Outdoor ambient temperature	°C (WB)	-20~25	-20~25	-20~25	-20~25	-20~25	-20~25	-20~25	-20~25	-20~25
	Outlet water temperature	°C	20~60	20~60	20~60	20~60	20~60	20~60	20~60	20~60	20~60
Working range (Cooling)	Outdoor ambient temperature	°C (DB)	10~46	10~46	10~46	10~46	10~46	10~46	10~46	10~46	10~46
	Outlet water temperature	°C	5~22	5~22	5~22	5~22	5~22	5~22	5~22	5~22	5~22
Working range (DHW)	Outdoor ambient temperature	°C (DB)	-20~35	-20~35	-20~35	-20~35	-20~35	-20~35	-20~35	-20~35	-20~35
	Tank water temperature	°C	30~75	30~75	30~75	30~75	30~75	30~75	30~75	30~75	30~75
Refrigerant		-	R32	R32	R32	R32	R32	R32	R32	R32	R32
Refrigerant charge		kg	1.2	1.3	2.6	3.0	3.0	2.6	3.0	3.0	3.0
Compressor type		-	Scroll DC Inverter driven	Rotary DC Inverter driven	Rotary DC Inverter driven	Rotary DC Inverter driven	Rotary DC Inverter driven	Rotary DC Inverter driven	Rotary DC Inverter driven	Rotary DC Inverter driven	Rotary DC Inverter driven

2.4.5 Hydrosplit system - Outdoor unit

Outdoor unit		RASM-4VRW1E	RASM-5VRW1E	RASM-6VRW1E	RASM-4RW1E	RASM-5RW1E	RASM-6RW1E	RASM-7RW1E
Power supply		-	~ 230V 50Hz	~ 230V 50Hz	~ 230V 50Hz	3N~ 400V 50Hz	3N~ 400V 50Hz	3N~ 400V 50Hz
Noise level (sound power) - Full load	(*1)	dB(A)	64	65	65	64	65	66
	(*2)		64	65	65	64	65	66
Noise level (sound power) - Part load	(*1)	dB(A)	61	63	63	61	63	65
	(*2)		61	63	63	61	63	65
Cabinet	Material	-	Precoated galvanised steel	Precoated galvanised steel	Precoated galvanised steel	Precoated galvanised steel	Precoated galvanised steel	Precoated galvanised steel
	Colour	-	Natural grey (1.0Y 8.5/0.5)	Natural grey (1.0Y 8.5/0.5)	Natural grey (1.0Y 8.5/0.5)	Natural grey (1.0Y 8.5/0.5)	Natural grey (1.0Y 8.5/0.5)	Natural grey (1.0Y 8.5/0.5)
Unit dimensions	Height (with connections)	mm	1380	1380	1380	1380	1380	1380
	Width	mm	1252	1252	1252	1252	1252	1252
	Depth	mm	370	370	370	370	370	370
Packaging dimensions	Height	mm	1515	1515	1515	1515	1515	1515
	Width	mm	1312	1312	1312	1312	1312	1312
	Depth	mm	460	460	460	460	460	460
Packaging volume		m³	0,91	0,91	0,91	0,91	0,91	0,91
Packaging materials		-	Wood - Carton - Plastic	Wood - Carton - Plastic	Wood - Carton - Plastic	Wood - Carton - Plastic	Wood - Carton - Plastic	Wood - Carton - Plastic
Net weight		kg	127	135	135	127	135	135
Gross weight		kg	142	150	150	142	150	150
Inlet/Outlet water pipes connection	Connection type	-	Screwed connection	Screwed connection	Screwed connection	Screwed connection	Screwed connection	Screwed connection
	Shutdown valves	mm (in.)	2 x G 1-1/4" (male)	2 x G 1-1/4" (male)	2 x G 1-1/4" (male)	2 x G 1-1/4" (male)	2 x G 1-1/4" (male)	2 x G 1-1/4" (male)
	Inlet pipe diameter	mm (in.)	G 1-1/4" (female)	G 1-1/4" (female)	G 1-1/4" (female)	G 1-1/4" (female)	G 1-1/4" (female)	G 1-1/4" (female)
	Outlet pipe diameter	mm (in.)	G 1-1/4" (female)	G 1-1/4" (female)	G 1-1/4" (female)	G 1-1/4" (female)	G 1-1/4" (female)	G 1-1/4" (female)
Working range (Heating)	Outdoor ambient temperature	°C (WB)	-20~25	-20~25	-20~25	-20~25	-20~25	-20~25
	Outlet water temperature	°C	20~60	20~60	20~60	20~60	20~60	20~60
Working range (Cooling)	Outdoor ambient temperature	°C (DB)	10~46	10~46	10~46	10~46	10~46	10~46
	Outlet water temperature	°C	5~22	5~22	5~22	5~22	5~22	5~22
Working range (DHW)	Outdoor ambient temperature	°C (DB)	-20~35	-20~35	-20~35	-20~35	-20~35	-20~35
	Tank water temperature	°C	30~75	30~75	30~75	30~75	30~75	30~75
Refrigerant type		-	R32	R32	R32	R32	R32	R32
Refrigerant charge amount before shipment		Kg	2.6	3.0	3.0	2.6	3.0	3.0
Compressor type		-	Rotary DC Inverter driven	Rotary DC Inverter driven	Rotary DC Inverter driven	Rotary DC Inverter driven	Rotary DC Inverter driven	Rotary DC Inverter driven

2.4.6 Hydrosplit system -Indoor unit

2.4.6.1 YUTAKI H

indoor unit			HWM-WE			
Power supply		-	~ 230V 50Hz / 3N~ 400V 50Hz			
Noise level (sound power)		dB(A)	49			
Minimum water flow rate		m ³ /h	1.2			
Maximum water flow rate		m ³ /h	3.0			
Nominal Water flow rate	WIT: 30 °C / WOT: 35 °C ΔT: 5 °C	m ³ /h	4HP	5HP	6HP	7HP
			1.9	2.1	2.3	2.8
Cabinet	Material	-	Precoated galvanised steel			
	Colour	-	Pure white (RAL 9010)			
Unit dimensions	Height (with connections)	mm	890 (960)			
	Width	mm	520			
	Depth	mm	370			
Packaging dimensions	Height	mm	556			
	Width	mm	1120			
	Depth	mm	610			
Packaging volume		m ³	0.38			
Packaging materials		-	Wood - Carton - Plastic			
Net weight		kg	48			
Gross weight		kg	63			
Water pipes connection	Connection type	-	Screwed connection			
	Shutdown valves	mm (in.)	2 x G 1-1/4" (male)			
	Inlet pipe diameter	mm (in.)	G 1-1/4" (female)			
	Outlet pipe diameter	mm (in.)	G 1-1/4" (female)			
Working range (Heating)	Outdoor ambient temperature	°C (DB)	-25~25			
	Indoor ambient temperature	°C (DB)	5~30			
	Outlet water temperature	°C	20~60			
Working range (Cooling)	Outdoor ambient temperature	°C (DB)	10~46			
	Indoor ambient temperature	°C (DB)	5~30			
	Outlet water temperature	°C	5~22			

2.4.6.2 YUTAKI H Combi Standard and UK model

indoor unit			HWD-WE-220S (-K)			
Power supply		-	~ 230V 50Hz / 3N~ 400V 50Hz			
Noise level (sound power)		dB(A)	49			
Minimum water flow rate		m³/h	1.2			
Maximum water flow rate		m³/h	3.0			
Nominal Water flow rate	WIT: 30 °C / WOT: 35 °C ΔT: 5 °C	m³/h	4HP	5HP	6HP	7HP
			1.9	2.1	2.3	2.8
Cabinet	Material	-	Precoated galvanised steel			
	Colour	-	Pure white (RAL 9010)			
Unit dimensions	Height (with connections)	mm	1788 (1889)			
	Width	mm	595			
	Depth	mm	598			
Packaging dimensions	Height	mm	2045			
	Width	mm	670			
	Depth	mm	656			
Packaging volume		m³	0.90			
Packaging materials		-	Wood - Carton - Plastic			
Net weight		kg	113			
Gross weight		kg	124			
Outdoor pipes connection	Connection type	-	Screwed connection			
	Shut-off valves	mm (in.)	G 1" (male) - G 1" (male)			
	Inlet pipe diameter	mm (in.)	G 1" (female)			
	Outlet pipe diameter	mm (in.)	G 1" (female)			
Space heating / cooling pipes connection	Connection type	-	Screwed connection			
	Shut-off valves	mm (in.)	G 1" (male) - G 1" (male)			
	Inlet pipe diameter	mm (in.)	G 1" (female)			
	Outlet pipe diameter	mm (in.)	G 1" (female)			
DHW pipes connection	Connection type	-	Screwed connection			
	Inlet pipe diameter	mm (in.)	G 3/4" (male)			
	Outlet pipe diameter	mm (in.)	G 3/4" (male)			
Working range (Heating)	Outdoor ambient temperature	°C (WB)	-25~25			
	Indoor ambient temperature	°C (DB)	5~30			
	Outlet water temperature	°C	20~60			
Working range (Cooling)	Outdoor ambient temperature	°C (DB)	10~46			
	Indoor ambient temperature	°C (DB)	5~30			
	Outlet water temperature	°C	5~22			
Working range (DHW)	Outdoor ambient temperature	°C (WB)	-25~35			
	Indoor ambient temperature	°C (DB)	5~30			
	Tank water temperature	°C	30~75			

2.4.7 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	m ²	1.4	1.8	
	Booster heater	Quantity			1	1
		Heater rating	kW	3	3	
Piping connections	Type			Immersion heater type	Immersion heater type	
	Water inlet domestic connection	inches			¾ (female)	¾ (female)
	Water outlet domestic connection	inches			¾ (female)	¾ (female)
	Recirculation	inches			¾ (female)	¾ (female)
	In coil connection	inches			¾ (female)	¾ (female)
	Out coil connection	inches			¾ (female)	¾ (female)
Thermometer				Yes		Yes
Mechanical thermostat (security)				Yes		Yes
Protection				-		-

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

2.4.8 Complementary system - YUTAKI Cascade Controller

YUTAKI Cascade Controller - ATW-YCC-(01-02)	
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
YUTAKI Cascade Controller - ATW-YCC-03	
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

2.5 Component data

2.5.1 Split system - Outdoor unit

Outdoor unit		RAS-2WHVRP1	RAS-2.5WHVRP1	RAS-3WHVRP1	RAS-4WH(V)NPE	RAS-5WH(V)NPE	RAS-6WH(V)NPE	RAS-8WHNPE	RAS-10WHNPE
Air heat exchanger	Type	Multi-pass cross-finned tube	Multi-pass cross-finned tube	Multi-pass cross-finned tube	Multi-pass cross-finned tube	Multi-pass cross-finned tube	Multi-pass cross-finned tube	Multi-pass cross-finned tube	Multi-pass cross-finned tube
	Pipe material	Copper	Copper	Copper	Copper	Copper	Copper	Copper	Copper
	Outer diametermm	8	8	8	7	7	7	7	7
	Rows	2	2	2	2	2	2	3	3
	Number of tubes in the heat exchanger	44	44	44	132	132	132	198	198
	Fin material	Aluminium	Aluminium	Aluminium	Aluminium	Aluminium	Aluminium	Aluminium	Aluminium
	Fin pitch	1.45	1.45	1.45	1.4	1.4	1.4	1.4	1.4
	Maximum operating pressureMPa	4.15	4.15	4.15	4.15	4.15	4.15	4.15	4.15
	Total front aream²	0.47	0.47	0.47	1.35	1.35	1.35	1.35	1.35
	Number of heat exchanger per unit	1	1	1	1	1	1	1	1
Fan	Fan type	Direct drive propeller fan	Direct drive propeller fan	Direct drive propeller fan	Direct drive propeller fan	Direct drive propeller fan	Direct drive propeller fan	Direct drive propeller fan	Direct drive propeller fan
	Fans per unit	1	1	1	2	2	2	2	2
	Outer diametermm	449	449	449	544	544	544	544	544
	Revolutionsrpm	790	790	970	459 / 376	516 / 422	573 / 469	586 / 717	644 / 787
	Nominal air flowm³/min	45.9	45.9	57	80	90	100	127	134
Motor	Shell	Drip-proof type enclosure	Drip-proof type enclosure	Drip-proof type enclosure	Drip-proof type enclosure	Drip-proof type enclosure	Drip-proof type enclosure	Drip-proof type enclosure	Drip-proof type enclosure
	Starting	Direct current control	Direct current control	Direct current control	Direct current control	Direct current control	Direct current control	Direct current control	Direct current control
	PowerW	40	40	40	100 + 100	100 + 100	100 + 100	138 + 138	138 + 138
	Quantity	1	1	1	2	2	2	2	2
	Insulation class	E	E	E	E	E	E	E	E
Compressor	Model	EX118HF1	EX118HF1	GTD163UK QA8LTH	E402HHD-36A2 (~) / E402HHD-36D2 (3N~)	E402HHD-36A2 (~) / E402HHD-36D2 (3N~)	E402HHD-36A2 (~) / E402HHD-36D2 (3N~)	DA50PHD-D1SE2	DA65PHD-D1SE2
	Oil Type	ACS68R	ACS68R	ACS68R	FVC68D	FVC68D	FVC68D	FVC68D	FVC68D
	Quantity (litres)	0.75	0.75	0.75	0.90	0.90	0.90	1.90	1.90

2.5.2 Split system - Indoor unit

2.5.2.1 YUTAKI S

Indoor unit			RWM-2.0R1E	RWM-2.5R1E	RWM-3.0R1E	RWM-4.0N1E	RWM-5.0N1E	RWM-6.0N1E	RWM-8.0N1E	RWM-10.0N1E
Water heat exchanger	Type	-	Brazed plate	Brazed plate	Brazed plate	Brazed plate	Brazed plate	Brazed plate	Brazed plate	Brazed plate
	Material	-	Stainless steel	Stainless steel	Stainless steel	Stainless steel	Stainless steel	Stainless steel	Stainless steel	Stainless steel
	Transfer fluids	-	R32 - H ₂ O	R32 - H ₂ O	R32 - H ₂ O	R410A - H ₂ O	R410A - H ₂ O	R410A - H ₂ O	R410A - H ₂ O	R410A - H ₂ O
	Quantity	-	1	1	1	1	1	1	1	1
	Internal refrigerant volume	l	0.54	0.73	0.81	1.55	2.09	2.09	3.19	3.91
	Internal water volume	l	0.57	0.76	0.84	1.64	2.18	2.18	3.28	4.00
	Insulation material	-	NBR + PVC	NBR + PVC	NBR + PVC	NBR + PVC	NBR + PVC	NBR + PVC	NBR + PVC	NBR + PVC
Water pump	Model	-	UPM3 K 15-75 130 AZA 6 HIT	UPM3 K 15-75 130 AZA 6 HIT	UPM3 K 15-75 130 AZA 6 HIT	UPM3L K 15-75 130 AZA 6 HIT	UPM3L K 15-75 130 AZA 6 HIT	UPM3L K 15-75 130 AZA 6 HIT	UPML GEO 25-105 180 3H PWM	UPML GEO 25-105 180 3H PWM
	Type	-	Inverter	Inverter	Inverter	Inverter	Inverter	Inverter	Inverter	Inverter
	Control	-	PWM	PWM	PWM	PWM	PWM	PWM	PWM	PWM
	Power supply	-	~ 230V 50Hz	~ 230V 50Hz	~ 230V 50Hz	~ 230V 50Hz	~ 230V 50Hz	~ 230V 50Hz	~ 230V 50Hz	~ 230V 50Hz
	Maximum lift pressure	mwp	7.5	7.5	7.5	7.5	7.5	7.5	10,5	10,5
	Maximum water flow	m ³ /h	4.0	4.0	4.0	3.8	3.8	3.8	5.5	5.5
	Maximum power input	W	60	60	60	75	75	75	140	140
	Piping	Water inlet	(in.)	G 1"	G 1"	G 1"	G 1"	G 1"	G 1-1/2"	G 1-1/2"
		Water outlet	(in.)	G 1"	G 1"	G 1"	G 1"	G 1"	G 1-1/2"	G 1-1/2"
		Inlet/outlet distance	mm	130	130	130	130	130	180	180
Water electric heater	Material	-	Stainless steel (Immersion heating element)	Stainless steel (Immersion heating element)	Stainless steel (Immersion heating element)	Stainless steel (Immersion heating element)	Stainless steel (Immersion heating element)	Stainless steel (Immersion heating element)	Stainless steel (Immersion heating element)	Stainless steel (Immersion heating element)
	Power supply	-	~ 230V 50Hz 3N~ 400V 50Hz	~ 230V 50Hz 3N~ 400V 50Hz	~ 230V 50Hz 3N~ 400V 50Hz	~ 230V 50Hz 3N~ 400V 50Hz	~ 230V 50Hz 3N~ 400V 50Hz	~ 230V 50Hz 3N~ 400V 50Hz	~ 230V 50Hz 3N~ 400V 50Hz	~ 230V 50Hz 3N~ 400V 50Hz
	Maximum electric heater power	kW	3.0	3.0	3.0	6.0	6.0	6.0	9.0	9.0
	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	2.0 / 4.0 / 6.0	2.0 / 4.0 / 6.0	2.0 / 4.0 / 6.0	3.0 / 6.0 / 9.0	3.0 / 6.0 / 9.0
	Capillary thermostat	-	Yes (Cut-out: 90 °C)	Yes (Cut-out: 90 °C)	Yes (Cut-out: 90 °C)	Yes (Cut-out: 90 °C)	Yes (Cut-out: 90 °C)	Yes (Cut-out: 90 °C)	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%	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%	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)	Steel (with stainless/galvanized steel connections)	Steel (with stainless/galvanized steel connections)	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	6.0	6.0	6.0	10.0	10.0
	Working pressure	bar	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
	Pre-loading pressure (Air side)	bar	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Water strainer	Type	-	Isolated water strainer (Filter ball)	Isolated water strainer (Filter ball)	Isolated water strainer (Filter ball)	Isolated water strainer (Filter ball)	Isolated water strainer (Filter ball)	Isolated water strainer (Filter ball)	Isolated water strainer (Filter ball)	Isolated water strainer (Filter ball)
	Material	-	Brass	Brass	Brass	Brass	Brass	Brass	Brass	Brass
	Piping connection	(in.)	Inlet: 1" DN32; Outlet: 1" DN32	Inlet: 1" DN32; Outlet: 1" DN32	Inlet: 1" DN32; Outlet: 1" DN32	Inlet: 1" DN32; Outlet: 1" DN32	Inlet: 1" DN32; Outlet: 1" DN32	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	0.7	0.7	0.7	0.7	0.7
	Self-cleaning filter	-	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Safety valve	-	-	Yes (3 bar)	Yes (3 bar)	Yes (3 bar)	Yes (3 bar)	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)	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)
Shut-off valve	-	-	Yes (2 factory-supplied valves)	Yes (2 factory-supplied valves)	Yes (2 factory-supplied valves)	Yes (2 factory-supplied valves)	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)	Yes (x2)	Yes (x2)	Yes (x2)	Yes (x2)
Manometer	-	-	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Unit controller	-	-	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes

2.5.2.2 YUTAKI S Combi

Indoor unit		RWD-2.0RW1E-220S(-K)	RWD-2.5RW1E-220S(-K)	RWD-3.0RW1E-220S(-K)	RWD-4.0NW1E-220S(-K)	RWD-5.0NW1E-220S(-K)	RWD-6.0NW1E-220S(-K)
Domestic hot water tank	Casing material	Stainless steel	Stainless steel	Stainless steel	Stainless steel	Stainless steel	Stainless steel
	Nominal water volume	l	220	220	220	220	220
	Net water volume	l	215	215	215	215	215
	Tank	Material	Duplex UNS 32205 (1.4462)	Duplex UNS 32205 (1.4462)	Duplex UNS 32205 (1.4462)	Duplex UNS 32205 (1.4462)	Duplex UNS 32205 (1.4462)
		Max. water temperature	°C	75	75	75	75
		Max. water pressure	bar	10	10	10	10
		Max. heating coil water temperature	°C	75	75	75	75
		Max. heating coil water pressure	bar	3	3	3	3
		Material	-	Neopor	Neopor	Neopor	Neopor
	Tank insulation	Thickness	mm	50	50	50	50
		Heat loss (1)	kWh/24h	1.7	1.7	1.7	1.7
		Standing heat loss	W	71	71	71	71
		Quantity	-	1	1	1	1
	Heat exchanger	Coil surface area	m²	1.60	1.60	1.60	1.60
		Internal coil volume	l	7.2	7.2	7.2	7.2
		Quantity	-	1	1	1	1
	Tank's heater	Type	-	Immersion heater type	Immersion heater type	Immersion heater type	Immersion heater type
		Heater rating	kW	2.7	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)	Yes (adjustable 28~80°C ; cut-out: 95°C)
Water heat exchanger	Type	-	Brazed plate	Brazed plate	Brazed plate	Brazed plate	Brazed plate
	Material	-	Stainless steel	Stainless steel	Stainless steel	Stainless steel	Stainless steel
	Transfer fluids	-	R32 - H ₂ O	R32 - H ₂ O	R32 - H ₂ O	R410A - H ₂ O	R410A - H ₂ O
	Quantity	-	1	1	1	1	1
	Internal refrigerant volume	l	0.54	0.73	0.81	1.55	2.09
	Internal volume	l	0.57	0.76	0.84	1.64	2.18
	Insulation material	-	NBR + PVC	NBR + PVC	NBR + PVC	NBR + PVC	NBR + PVC
	Model	-	UPM3 K 15-75 130 AZA 6 HIT	UPM3 K 15-75 130 AZA 6 HIT	UPM3 K 15-75 130 AZA 6 HIT	UPM3 K 15-75 130 AZA 6 HIT	UPM3 K 15-75 130 AZA 6 HIT
Water pump	Type	-	Inverter	Inverter	Inverter	Inverter	Inverter
	Control	-	PWM	PWM	PWM	PWM	PWM
	Power supply	-	~ 230V 50Hz	~ 230V 50Hz	~ 230V 50Hz	~ 230V 50Hz	~ 230V 50Hz
	Maximum lift pressure	mwp	7.5	7.5	7.5	7.5	7.5
	Maximum water flow	m³/h	4.0	4.0	4.0	3.8	3.8
	Maximum power input	W	60	60	60	75	75
	Piping	Water inlet	(in.)	G 1"	G 1"	G 1"	G 1"
		Water outlet	(in.)	G 1"	G 1"	G 1"	G 1"
		Inlet/outlet distance	mm	130	130	130	130
Water electric heater	Material	-	Stainless steel (Immersion heating element)	Stainless steel (Immersion heating element)	Stainless steel (Immersion heating element)	Stainless steel (Immersion heating element)	Stainless steel (Immersion heating element)
	Power supply	-	~ 230V 50Hz / 3N~ 400V 50Hz	~ 230V 50Hz / 3N~ 400V 50Hz	~ 230V 50Hz / 3N~ 400V 50Hz	~ 230V 50Hz / 3N~ 400V 50Hz	~ 230V 50Hz / 3N~ 400V 50Hz
	Maximum electric heater power	kW	3.0	3.0	3.0	6.0	6.0
	Capillary 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%	Manual reset, Non-adjustable (one per unit) 75°C±5%	Manual reset, Non-adjustable (one per unit) 75°C±5%
	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	2.0/4.0/6.0	2.0/4.0/6.0
	Thermostat security	-	Yes (Cut-out: 90 °C)	Yes (Cut-out: 90 °C)	Yes (Cut-out: 90 °C)	Yes (Cut-out: 90 °C)	Yes (Cut-out: 90 °C)

Indoor unit		RWD-2.0RW1E-220S(-K)	RWD-2.5RW1E-220S(-K)	RWD-3.0RW1E-220S(-K)	RWD-4.0NW1E-220S(-K)	RWD-5.0NW1E-220S(-K)	RWD-6.0NW1E-220S(-K)
Expansion vessel	Material	-	Steel (with stainless/galvanized steel connections)	Steel (with stainless/galvanized steel connections)	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	6.0	6.0
	Working pressure	bar	3.0	3.0	3.0	3.0	3.0
	Pre-loading pressure (Air side)	bar	1.0	1.0	1.0	1.0	1.0
Water strainer	Type	-	Isolated water strainer (Filter ball)	Isolated water strainer (Filter ball)	Isolated water strainer (Filter ball)	Isolated water strainer (Filter ball)	Isolated water strainer (Filter ball)
	Material	-	Brass	Brass	Brass	Brass	Brass
	Piping connection	(in.)	Inlet: Quick connections; Outlet: 1" DN32	Inlet: Quick connections; Outlet: 1" DN32	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	0.7	0.7
	Self-cleaning (with back flush) filter	-	Yes	Yes	Yes	Yes	Yes
DHWT Pressure and temperature relief valve (2)		bar	7	7	7	7	7
		°C	96	96	96	96	96
Safety valve		-	Yes (3 bar)	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)	Yes (from 0,5 bar up to 3 bar)
Unit drain port		-	Yes	Yes	Yes	Yes	Yes
DHW drain valve		-	Yes	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)	Yes (2 factory-supplied valves)
Air purger		-	Yes (x2)	Yes (x2)	Yes (x2)	Yes (x2)	Yes (x2)
Manometer		-	Yes	Yes	Yes	Yes	Yes
Unit controller		-	Yes	Yes	Yes	Yes	Yes

(1) Based on a dT of 45K.

(2) Only for UK version.

2.5.2.3 YUTAKI S80

Indoor unit			RWH-4.0(V)NF(W)E			RWH-5.0(V)NF(W)E			RWH-6.0(V)NF(W)E			
Compressor	Model	~ 230V 50Hz	-	H405DHD-64A1			H405DHD-64A1			H405DHD-64A1		
		3N~ 400V 50Hz	-	H405DHD-64D1			H405DHD-64D1			H405DHD-64D1		
	Type		-	Scroll DC Inverter driven			Scroll DC Inverter driven			Scroll DC Inverter driven		
	Pressure resistance	Discharge	MPa	2.94			2.94			2.94		
		Suction	MPa	0.15			0.15			0.15		
	Motor type	Starting method	-	Inverter-driven (I.D.)			Inverter-driven (I.D.)			Inverter-driven (I.D.)		
		Poles	-	4			4			4		
		Insulation class	-	E			E			E		
	Oil type		-	FVC68D			FVC68D			FVC68D		
Oil quantity		l	1.2			1.2			1.2			
Water heat exchanger	Type		-	Brazen plate			Brazen plate			Brazen plate		
	Material		-	Stainless steel			Stainless steel			Stainless steel		
	Transfer fluids		-	R410A H.O	R134a H.O	R410A R134a	R410A H.O	R134a H.O	R410A R134a	R410A H.O	R134a H.O	R410A R134a
	Quantity		-	1	1	1	1	1	1	1	1	1
	Internal refrigerant volume		l	1.55	1.55	2.09	2.09	2.09	2.09	2.09	2.09	2.09
	Internal water volume		l	1.64	1.64	2.18	2.18	2.18	2.18	2.18	2.18	2.18
	Insulation material		-	NBR + PVC			NBR + PVC			NBR + PVC		
Water pump	Model		-	Yonos PARA RS15/7.5			Yonos PARA RS15/7.5			Yonos PARA RS15/7.5		
	Type		-	Inverter			Inverter			Inverter		
	Control		-	PWM			PWM			PWM		
	Power supply		-	~ 230V 50Hz			~ 230V 50Hz			~ 230V 50Hz		
	Maximum lift pressure		kPa	7.6			7.6			7.6		
	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			
Expansion vessel	Material		-	Steel (with stainless/galvanized steel connections)			Steel (with stainless/galvanized steel connections)			Steel (with stainless/galvanized steel connections)		
	Internal water volume		l	12.0			12.0			12.0		
	Working pressure		MPa	0.3			0.3			0.3		
	Pre-loading pressure (Air side)		MPa	0.1			0.1			0.1		
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.)	1", DN32			1", DN32			1", DN32		
	Mesh (hole size)		mm	0.7			0.7			0.7		
	Self-cleaning (with back flush) filter		-	Yes			Yes			Yes		
Safety valve			-	Yes (3 bar)			Yes (3 bar)			Yes (3 bar)		
Unit drain valve			-	Yes			Yes			Yes		
Shut-off valve			-	Yes (2 factory-supplied valves)			Yes (2 factory-supplied valves)			Yes (2 factory-supplied valves)		
Air purger			-	Yes			Yes			Yes		
Manometer			-	Yes			Yes			Yes		
Unit controller			-	No, available as Accessory			No, available as Accessory			No, available as Accessory		

2.5.3 Monobloc system - YUTAKI M

Outdoor unit		RASM-2VRE		RASM-3VRE		RASM-4(V)R1E		RASM-5(V)R1E		RASM-6(V)R1E		RASM-7R1E	
Model	~ 230V 50Hz	-	EX118HF1	GTD163UKQA	WHP11500GEDPC9EQ	WHP11500GEDPC9EQ	WHP11500GEDPC9EQ	WHP11500GEDPC9EQ	WHP11500GEDPC9EQ	WHP11500GEDPC9EQ	WHP11500GEDPC9EQ	WHP11500GEDPC9EQ	WHP11500GEDPC9EQ
	3N~ 400V 50Hz	-	-	-	WHP15600GEDPC9EQ	WHP15600GEDPC9EQ	WHP15600GEDPC9EQ	WHP15600GEDPC9EQ	WHP15600GEDPC9EQ	WHP15600GEDPC9EQ	WHP15600GEDPC9EQ	WHP15600GEDPC9EQ	WHP15600GEDPC9EQ
Compressor	Type	-	Scroll DC Inverter driven	Rotary DC Inverter driven	Rotary DC Inverter driven	Rotary DC Inverter driven	Rotary DC Inverter driven	Rotary DC Inverter driven	Rotary DC Inverter driven	Rotary DC Inverter driven	Rotary DC Inverter driven	Rotary DC Inverter driven	Rotary DC Inverter driven
	Pressure resistance	Discharge	MPa	4.15	4.15	4.15	4.15	4.15	4.15	4.15	4.15	4.15	4.15
		Suction	MPa	2.21	2.21	2.21	2.21	2.21	2.21	2.21	2.21	2.21	2.21
	Motor type	Starting method	-	Direct current control	Direct current control	Direct current control	Direct current control	Direct current control	Direct current control	Direct current control	Direct current control	Direct current control	Direct current control
		Poles	-	4	4	4	4	4	4	4	4	4	4
		Insulation class	-	E	E	E	E	E	E	E	E	E	E
Air heat exchanger	Oil type	-	ACS68R	ACS68R	HAF68D1	HAF68D1	HAF68D1	HAF68D1	HAF68D1	HAF68D1	HAF68D1	HAF68D1	HAF68D1
	Oil quantity	l	0.75	0.75	1.65	1.65	1.65	1.65	1.65	1.65	1.65	1.65	1.65
	Type	-	Multi-pass cross-finned tube	Multi-pass cross-finned tube	Multi-pass cross-finned tube	Multi-pass cross-finned tube	Multi-pass cross-finned tube	Multi-pass cross-finned tube	Multi-pass cross-finned tube	Multi-pass cross-finned tube	Multi-pass cross-finned tube	Multi-pass cross-finned tube	Multi-pass cross-finned tube
	Pipe material	-	Copper	Copper	Copper	Copper	Copper	Copper	Copper	Copper	Copper	Copper	Copper
	Outer diameter	mm	7	7	7	7	7	7	7	7	7	7	7
	Rows	-	2	2	2	2	2.5	2.5	2.5	2.5	2.5	2.5	2.5
	Number of tubes in the heat exchanger	-	44	40	66	99	99	99	99	99	99	99	99
	Fin material	-	Aluminium	Aluminium	Aluminium	Aluminium	Aluminium	Aluminium	Aluminium	Aluminium	Aluminium	Aluminium	Aluminium
	Fin pitch	mm	1.45	1.45	1.45	1.45	1.45	1.45	1.45	1.45	1.45	1.45	1.45
	Maximum operating pressure	MPa	4.15	4.15	4.15	4.15	4.15	4.15	4.15	4.15	4.15	4.15	4.15
	Total front area	m²	0.47	1.35	2.82	2.82	2.82	2.82	2.82	2.82	2.82	2.82	2.82
	Number of heat exchanger per unit	-	1	1	1	1	1	1	1	1	1	1	1
Fan	Fan type	-	Direct drive propeller fan	Direct drive propeller fan	Direct drive propeller fan	Direct drive propeller fan	Direct drive propeller fan	Direct drive propeller fan	Direct drive propeller fan	Direct drive propeller fan	Direct drive propeller fan	Direct drive propeller fan	Direct drive propeller fan
	Fans per unit	-	1	1	2	2	2	2	2	2	2	2	2
	Outer diameter	mm	449	449	544	544	544	544	544	544	544	544	544
	Revolutions	rpm	790	970	852	852	852	852	852	852	852	852	852
	Nominal air flow	m³/min	45.9	57	132	138	138	138	138	138	138	144	144
Motor	Type	-	Drip-proof type enclosure	Drip-proof type enclosure	Drip-proof type enclosure	Drip-proof type enclosure	Drip-proof type enclosure	Drip-proof type enclosure	Drip-proof type enclosure	Drip-proof type enclosure	Drip-proof type enclosure	Drip-proof type enclosure	Drip-proof type enclosure
	Starting method	-	Direct current control	Direct current control	Direct current control	Direct current control	Direct current control	Direct current control	Direct current control	Direct current control	Direct current control	Direct current control	Direct current control
	Power	W	40	40	200+200	200+200	200+200	200+200	200+200	200+200	200+200	200+200	200+200
	Quantity	-	1	1	2	2	2	2	2	2	2	2	2
	Insulation class	-	E	E	E	E	E	E	E	E	E	E	E
Water heat exchanger	Type	-	Brazed plate	Brazed plate	Brazed plate	Brazed plate	Brazed plate	Brazed plate	Brazed plate	Brazed plate	Brazed plate	Brazed plate	Brazed plate
	Material	-	Stainless steel	Stainless steel	Stainless steel	Stainless steel	Stainless steel	Stainless steel	Stainless steel	Stainless steel	Stainless steel	Stainless steel	Stainless steel
	Transfer fluids	-	R32 - H ₂ O	R32 - H ₂ O	R32 - H ₂ O	R32 - H ₂ O	R32 - H ₂ O	R32 - H ₂ O	R32 - H ₂ O	R32 - H ₂ O	R32 - H ₂ O	R32 - H ₂ O	R32 - H ₂ O
	Quantity	-	1	1	1	1	1	1	1	1	1	1	1
	Internal refrigerant volume	l	0.54	0.81	1.55	2.09	2.09	2.09	2.09	2.09	2.09	2.09	2.09
	Internal water volume	l	0.57	0.84	1.64	2.18	2.18	2.18	2.18	2.18	2.18	2.18	2.18
	Insulation material	-	NBR + PVC	NBR + PVC	NBR + PVC	NBR + PVC	NBR + PVC	NBR + PVC	NBR + PVC	NBR + PVC	NBR + PVC	NBR + PVC	NBR + PVC
Water pump	Model	-	PARA RS15/7.0	PARA RS15/7.5	UPM3L K 15-75 130 AZA 9 HIT	UPM3L K 15-75 130 AZA 9 HIT	UPM3L K 15-75 130 AZA 9 HIT	UPM3L K 15-75 130 AZA 9 HIT	UPM3L K 15-75 130 AZA 9 HIT	UPM3L K 15-75 130 AZA 9 HIT	UPM3L K 15-75 130 AZA 9 HIT	UPM3L K 15-75 130 AZA 9 HIT	UPM3L K 15-75 130 AZA 9 HIT
	Type	-	Inverter	Inverter	Inverter	Inverter	Inverter	Inverter	Inverter	Inverter	Inverter	Inverter	Inverter
	Control	-	PWM	PWM	PWM	PWM	PWM	PWM	PWM	PWM	PWM	PWM	PWM
	Power supply	-	~ 230V 50Hz	~ 230V 50Hz	~ 230V 50Hz	~ 230V 50Hz	~ 230V 50Hz	~ 230V 50Hz	~ 230V 50Hz	~ 230V 50Hz	~ 230V 50Hz	~ 230V 50Hz	~ 230V 50Hz
	Maximum lift pressure	kPa	7.6	7.6	7.5	7.5	7.5	7.5	7.5	7.5	7.5	7.5	7.5
	Maximum water flow	m³/h	3.5	3.5	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
	Maximum power input	W	50	50	75	75	75	75	75	75	75	75	75
	Piping	Water inlet	(in.)	G 1"	G 1"	G 1"	G 1"	G 1"	G 1"	G 1"	G 1"	G 1"	G 1"
		Water outlet	(in.)	G 1"	G 1"	G 1"	G 1"	G 1"	G 1"	G 1"	G 1"	G 1"	G 1"
		Inlet/outlet distance	mm	130	130	130	130	130	130	130	130	130	130

Outdoor unit		RASM-2VRE	RASM-3VRE	RASM-4(V)R1E	RASM-5(V)R1E	RASM-6(V)R1E	RASM-7R1E
Expansion vessel	Material	-	Stainless steel (Immersion heating element)	Stainless steel (Immersion heating element)	Steel (with stainless/galvanized steel connections)	Steel (with stainless/galvanized steel connections)	Steel (with stainless/galvanized steel connections)
	Internal water volume	l	6.0	6.0	6.0	6.0	6.0
	Working pressure	bar	3.0	3.0	3.0	3.0	3.0
	Pre-loading pressure (Air side)	bar	1.0	1.0	1.0	1.0	1.0
Water strainer	Type	-	Isolated water strainer (Filter ball)	Isolated water strainer (Filter ball)	Filter Ball	Filter Ball	Filter Ball
	Material	-	Brass	Brass	Brass	Brass	Brass
	Piping connection	(in.)	1", DN25	1", DN25	Inlet & Outlet: 1" DN32	Inlet & Outlet: 1" DN32	Inlet & Outlet: 1" DN32
	Mesh (hole size)	mm	0.7	0.7	0,7	0,7	0,7
	Self-cleaning (with back flush) filter	-	Yes	Yes	No	No	No
Safety valve		-	Yes (3 bar)	Yes (3 bar)	Yes (3bar)	Yes (3bar)	Yes (3bar)
Pressure sensor		-	No	No	No	No	No
Shut-off valve		-	No (2 valves, field-supplied)	No (2 valves, field-supplied)	No (2 valves, field-supplied)	No (2 valves, field-supplied)	No (2 valves, field-supplied)
Air purger		-	Yes	Yes	Yes	Yes	Yes
Analogic Manometer		-	Yes	Yes	No	No	No
Unit controller		-	Yes, sold-separately as accessory	Yes, sold-separately as accessory	Yes, sold-separately as accessory	Yes, sold-separately as accessory	Yes, sold-separately as accessory

2.5.4 Hydrosplit system - Outdoor unit

Outdoor unit			RASM-4(V)RW1E	RASM-5(V)RW1E	RASM-6(V)RW1E	RASM-7RW1E
Compressor	Model	~ 230V 50Hz	-	WHP11500GEDPC9EQ	WHP11500GEDPC9EQ	WHP11500GEDPC9EQ
		3N~ 400V 50Hz	-	WHP15600GEDPC9EQ	WHP15600GEDPC9EQ	WHP15600GEDPC9EQ
	Type		-	Rotary DC Inverter driven	Rotary DC Inverter driven	Rotary DC Inverter driven
	Pressure resistance	Discharge	MPa	4.15	4.15	4.15
		Suction	MPa	2.21	2.21	2.21
	Motor type	Starting method	-	Direct current control	Direct current control	Direct current control
		Poles	-	4	4	4
		Insulation class	-	E	E	E
	Oil type		-	HAF68D1	HAF68D1	HAF68D1
	Oil quantity		l	1.65	1.65	1.65
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	2.5	2.5
	Number of tubes in the heat exchanger		-	66	99	99
	Fin material		-	Aluminium	Aluminium	Aluminium
	Fin pitch	mm		1.45	1.45	1.45
	Maximum operating pressure	MPa		4.15	4.15	4.15
	Total front area	m²		2.82	2.82	2.82
	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		-	2	2	2
	Outer diameter	mm		544	544	544
	Revolutions	rpm		852	852	852
	Nominal air flow	m³/min		132	138	144
Motor	Type		-	Drip-proof type enclosure	Drip-proof type enclosure	Drip-proof type enclosure
	Starting method		-	Direct current control	Direct current control	Direct current control
	Power	W		200+200	200+200	200+200
	Quantity		-	2	2	2
	Insulation class		-	E	E	E
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		1.55	2.09	2.09
	Internal water volume	l		1.64	2.18	2.18
	Insulation material		-	NBR + PVC	NBR + PVC	NBR + PVC
Air purger			-	Yes	Yes	Yes
Safety valve			-	No (Factory-supplied with Hydrosplit unit)	No (Factory-supplied with Hydrosplit unit)	No (Factory-supplied with Hydrosplit unit)
Pressure sensor			-	No (Factory-supplied with Hydrosplit unit)	No (Factory-supplied with Hydrosplit unit)	No (Factory-supplied with Hydrosplit unit)
Shut-off valve			-	No	No	No
Analogic Manometer			-	No (Factory-supplied with Hydrosplit indoor unit)	No (Factory-supplied with Hydrosplit indoor unit)	No (Factory-supplied with Hydrosplit indoor unit)
Unit controller			-	No (Factory-supplied with Hydrosplit indoor unit)	No (Factory-supplied with Hydrosplit indoor unit)	No (Factory-supplied with Hydrosplit indoor unit)

2.5.5 Hydrosplit system - Indoor unit

2.5.5.1 YUTAKI H

Indoor unit		HWM-WE
Water pump	Model	UPMXL GEO 25-125
	Type	Inverter
	Control	PWM
	Power supply	~ 230V 50Hz
	Maximum lift pressure	mwp 12.5
	Maximum water flow	m3/h 4.0
	Maximum power input	W 180
	Piping	
	Water inlet	(in.) G 1-1/2"
	Water outlet	(in.) G 1-1/2"
	"Inlet/outlet distance"	mm 180
Water electric heater	Material	- Stainless steel (Immersion heating element)
	Power supply	- ~ 230V 50Hz - 3N~ 400V 50Hz
	Maximum electric heater power	kW 6.0
	Regulated electric heater power (step 1/ step 2/ step 3)	kW 2.0 / 4.0 / 6.0
	Capillary thermostat	- Yes (Cut-out: 90 °C)
	Surface thermostat	- Manual reset, Non-adjustable (one per unit) 75°C±5%
Expansion vessel	Material	- Steel (with stainless/galvanized steel connections)
	Internal water volume	l 6.0
	Working pressure	bar 3.0
	Pre-loading pressure (Air side)	bar 1.0
Water strainer	Type	- Isolated water strainer (Filter ball)
	Material	- Brass
	Piping connection	(in.) Inlet: 1" DN32; Outlet: 1" DN32
	Mesh (hole size)	mm 0.7
	Self-cleaning filter	- Yes
Safety valve		- Yes (3 bar)
Water pressure sensor		- Yes (from 0,5 bar up to 3 bar)
Shut-off valve		- Yes (2 factory-supplied valves)
Air purger		- Yes
Manometer		- Yes
Unit controller		- Yes

2.5.5.2 YUTAKI H Combi (Standard model and UK market)

Indoor unit		HWD-WE-220S (-K)
Domestic hot water tank	Casing material	Stainless steel
	Nominal water volume	l
	Net water volume	l
	Material	Duplex UNS 32205 (1.4462)
	Max. water temperature	°C
	Max. water pressure	bar
	Max. heating coil water temperature	°C
	Max. heating coil water pressure	bar
	Material	Neopor
	Thickness	mm
	Heat loss (1)	kWh/24h
	Quantity	-
	Coil surface area	m ²
	Internal coil volume	l
	Quantity	-
	Type	Immersion heater type
	Heater rating	kW
Mechanical thermostat (adjustable and security)		-
Water pump	Model	UPMXL GEO 25-125
	Type	Inverter
	Control	PWM
	Power supply	~ 230V 50Hz
	Maximum lift pressure	mwp
	Maximum water flow	m ³ /h
	Maximum power input	W
	Water inlet	(in.)
	Water outlet	(in.)
	Inlet/outlet distance	mm
Water electric heater	Material	Stainless steel (Immersion heating element)
	Power supply	~ 230V 50Hz / 3N~ 400V 50Hz
	Maximum electric heater power	kW
	Capillary thermostat	-
	Regulated electric heater power (step 1/ step 2/ step 3)	kW
	Thermostat security	-
Expansion vessel	Material	Steel (with stainless/galvanized steel connections)
	Internal water volume	l
	Working pressure	bar
	Pre-loading pressure (Air side)	bar

Indoor unit		HWD-WE-220S (-K)
Water strainer	Type	- Isolated water strainer (Filter ball)
	Material	- Brass
	Piping connection	(in.) Inlet: Quick connections; Outlet: 1" DN32
	Mesh (hole size)	mm 0.7
	Self-cleaning (with back flush) filter	Yes
DHWT Pressure and temperature relief valve (2)		bar 7
		°C 96
Safety valve		- Yes (3 bar)
Water pressure sensor		- Yes (from 0,5 bar up to 3 bar)
Unit drain port		- Yes
DHW drain valve		- Yes
Shut-off valve		- Yes (4 factory-supplied valves)
Air purger		- Yes (x2)
Manometer		- Yes
Unit controller		- Yes

(1) Based on a dT of 45K.

(2) Only for UK Market

2.6 Electrical data

2.6.1 Considerations

- 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.
- Key words:
 - ✓ U: Voltage.
 - ✓ IPT: Total input power.
 - ✓ RNC: Running current.
 - ✓ MC: Maximum current.

2.6.2 Split system - Outdoor unit

RAS-(2-3)WHVRP1 / RAS-(4-10)WH(V)NPE in combination with YUTAKI S, YUTAKI S Combi

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-2WHVRP1	~ 230V 50Hz	253	207	-	4.5	1.00	5.0	1.09	10.4	2.27
RAS-2.5WHVRP1					5.0	1.12	5.5	1.19	12.9	2.82
RAS-3WHVRP1					7.6	1.67	8.1	1.79	15.8	3.49
RAS-4WHVNPE					9.2	2.11	9.3	2.12	30	6.93
RAS-5WHVNPE					12.6	2.87	12.7	2.90	30	6.93
RAS-6WHVNPE					16.0	3.65	15.0	3.43	30	6.93
RAS-4WHNPE	3N~ 400V 50Hz	440	360	-	3.4	2.11	3.4	2.12	14	8.70
RAS-5WHNPE					4.6	2.87	4.6	2.90	14	8.70
RAS-6WHNPE					5.8	3.65	5.5	3.43	16	9.95
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

2.6.3 Split system - Indoor unit

2.6.3.1 YUTAKI S

Model	Power supply	Applicable voltage		Operation mode	RNC (A)	IPT (kW)	MC (A)	Max. IPT (kW)
		U max. (V)	U min. (V)					
RWM-2.0R1E	~ 230V 50Hz	253	207	Without electric heater	0.5	0.06	0.63	0.06
				With electric heater	13.7	3.06	13.7	3.06
				With DHW tank heater	13.7	3.06	13.7	3.06
				With electric and DHW tank heaters	26.7	6.06	26.7	6.06
	3N~ 400V 50Hz	440	360	Without electric heater	0.5	0.06	0.63	0.06
				With electric heater	4.8	3.06	5.0	3.06
				With DHW tank heater	4.5	3.06	13.7	3.06
				With electric and DHW tank heaters	8.9	6.06	18.0	6.06
RWM-(2.5-3.0)R1E	~ 230V 50Hz	253	207	Without electric heater	0.6	0.06	0.63	0.06
				With electric heater	13.7	3.06	13.7	3.06
				With DHW tank heater	13.7	3.06	13.7	3.06
				With electric and DHW tank heaters	26.7	6.06	26.7	6.06
	3N~ 400V 50Hz	440	360	Without electric heater	0.6	0.06	0.63	0.06
				With electric heater	4.8	3.06	5.0	3.06
				With DHW tank heater	4.5	3.06	13.7	3.06
				With electric and DHW tank heaters	8.9	6.06	18.0	6.06
RWM-(4.0-6.0)N1E	~ 230V 50Hz	253	207	Without electric heater	0.6	0.08	0.65	0.08
				With electric heater	26.7	6.08	26.7	6.08
				With DHW tank heater	13.7	3.08	13.7	3.08
				With electric and DHW tank heaters	39.8	9.08	39.8	9.08
	3N~ 400V 50Hz	440	360	Without electric heater	0.6	0.08	0.7	0.08
				With electric heater	9.1	6.08	9.3	6.08
				With DHW tank heater	4.5	3.08	13.7	3.08
				With electric and DHW tank heaters	13.3	9.08	22.4	9.08
RWM-(8.0-10.0)N1E	3N~ 400V 50Hz	440	360	Without electric heater	0.3	0.08	0.66	0.14
				With electric heater	13.1	9.08	13.7	9.14
				With DHW tank heater	4.5	3.08	13.7	3.14
				With electric and DHW tank heaters	17.5	12.08	26.7	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".

2.6.3.2 YUTAKI S Combi

Model	Power supply	Applicable voltage		Operation mode	RNC (A)	IPT (kW)	MC (A)	Max. IPT (kW)
		U max. (V)	U min. (V)					
RWD-2.0RW1E-220S(-K)	~ 230V 50Hz	253	207	Without electric heater	0.5	0.06	0.63	0.06
				With electric heater	13.7	3.06	13.7	3.06
				With DHW tank heater	12.6	2.81	12.6	2.81
				With electric and DHW tank heaters	25.6	5.81	25.6	5.81
	3N~ 400V 50Hz	440	360	Without electric heater	0.5	0.06	0.63	0.06
				With electric heater	8.7	3.06	9.3	3.06
				With DHW tank heater	12.5	2.81	12.6	2.81
				With electric and DHW tank heaters	12.5	5.81	12.6	5.81
RWD-(2.5-3.0)RW1E-220S(-K)	~ 230V 50Hz	253	207	Without electric heater	0.6	0.06	0.63	0.06
				With electric heater	13.7	3.06	13.7	3.06
				With DHW tank heater	12.6	2.81	12.6	2.81
				With electric and DHW tank heaters	25.6	5.81	25.6	5.81
	3N~ 400V 50Hz	440	360	Without electric heater	0.6	0.06	0.63	0.06
				With electric heater	8.7	3.06	9.3	3.06
				With DHW tank heater	12.5	2.81	12.6	2.81
				With electric and DHW tank heaters	12.5	5.81	12.6	5.81
RWD-(4.0-6.0)NW1E-220S(-K)	~ 230V 50Hz	253	207	Without electric heater	0.6	0.08	0.65	0.08
				With electric heater	26.7	6.08	26.7	6.08
				With DHW tank heater	12.6	2.83	12.6	2.83
				With electric and DHW tank heaters	38.7	8.83	38.7	8.83
	3N~ 400V 50Hz	440	360	Without electric heater	0.6	0.08	0.65	0.08
				With electric heater	17.4	6.08	18.0	6.08
				With DHW tank heater	12.6	2.83	12.6	2.83
				With electric and DHW tank heaters	17.4	8.83	18.0	8.83

2.6.3.3 YUTAKI S80

Version for indoor unit alone

Model	Power supply	Applicable voltage		Operation mode	RNC (A)	IPT (kW)	MC (A)	Max. IPT (kW)
		U max. (V)	U min. (V)					
RWH-4.0VNFE	~ 230V 50Hz	253	207	Without simultaneous operation of electric heater in DHW tank	12.1	2.73	24	5.33
				With simultaneous operation of electric heater in DHW tank	25.4	5.73	38	8.33
RWH-5.0VNFE				Without simultaneous operation of electric heater in DHW tank	12.3	2.78	28	6.23
				With simultaneous operation of electric heater in DHW tank	25.6	5.78	42	9.23
RWH-6.0VNFE				Without simultaneous operation of electric heater in DHW tank	14.3	3.23	31	6.91
				With simultaneous operation of electric heater in DHW tank	27.6	6.23	45	9.91
RWH-4.0NFE	3N~ 400V 50Hz	440	360	Without simultaneous operation of electric heater in DHW tank	5.6	2.73	10	4.68
				With simultaneous operation of electric heater in DHW tank	11.8	5.73	24	7.68
RWH-5.0NFE				Without simultaneous operation of electric heater in DHW tank	5.7	2.78	10	4.68
				With simultaneous operation of electric heater in DHW tank	11.9	5.78	24	7.68
RWH-6.0NFE				Without simultaneous operation of electric heater in DHW tank	6.7	3.23	10	4.68
				With simultaneous operation of electric heater in DHW tank	12.8	6.23	24	7.68

The data corresponding to DHW tank heater is calculated in combination with the YUTAKI S80 domestic hot water tank accessory "DHWT-(200/300)S-3.0H2E".

Version for combination with DHW tank

Model	Power supply	Applicable voltage		Operation mode	RNC (A)	IPT (kW)	MC (A)	Max. IPT (kW)
		U max. (V)	U min. (V)					
RWH-4.0VNFWE	~ 230V 50Hz	253	207	Without simultaneous operation of electric heater in DHW tank	12.1	2.73	24	5.33
				With simultaneous operation of electric heater in DHW tank	24.3	5.48	36	7.94
RWH-5.0VNFWE				Without simultaneous operation of electric heater in DHW tank	12.3	2.78	28	6.23
				With simultaneous operation of electric heater in DHW tank	24.5	5.53	40	8.84
RWH-6.0VNFWE				Without simultaneous operation of electric heater in DHW tank	14.3	3.23	31	6.91
				With simultaneous operation of electric heater in DHW tank	26.5	5.98	43	9.52
RWH-4.0NFWE	3N~ 400V 50Hz	440	360	Without simultaneous operation of electric heater in DHW tank	5.6	2.73	10	4.68
				With simultaneous operation of electric heater in DHW tank	11.3	5.48	22	7.30
RWH-5.0NFWE				Without simultaneous operation of electric heater in DHW tank	5.7	2.78	10	4.68
				With simultaneous operation of electric heater in DHW tank	11.4	5.53	22	7.30
RWH-6.0NFWE				Without simultaneous operation of electric heater in DHW tank	6.7	3.23	10	4.68
				With simultaneous operation of electric heater in DHW tank	12.3	5.98	22	7.30

The data corresponding to DHW tank heater is calculated in combination with the YUTAKI S80 domestic hot water tank accessory "DHWS(200/260)S-2.7H2E(-W)".

Domestic hot water tank

Model	Power supply	Applicable voltage		RNC (A)	IPT (kW)	MC (A)	Max. IPT (kW)
		U max. (V)	U min. (V)				
DHWS200S-2.7H2E(-W)	~ 230V 50Hz	253	207	12.0	2.75	13.2	2.75
DHWS260S-2.7H2E(-W)				12.0	2.75	13.2	2.75

2.6.4 Monobloc system - YUTAKI M

Model	Power supply	Applicable voltage		Operation mode	Cooling		Heating		MC (A)	Max. IPT (kW)
		U max. (V)	U min. (V)		RNC (A)	IPT (kW)	RNC (A)	IPT (kW)		
RASM-2VRE	~ 230V 50Hz	253	207	Without DHW tank heater	4.8	1.00	5.5	1.14	10.6	2.32
				With DHW tank heater	4.8	1.00	18.8	3.89	23.1	5.07
RASM-3VRE				Without DHW tank heater	9.4	1.94	8.9	1.84	16.0	3.54
				With DHW tank heater	9.4	1.94	22.2	4.59	28.5	6.29

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

Model	Power supply	Applicable voltage		Operation mode	Compressor and fan motors				MC (A)	Max. IPT (kW)
		U max. (V)	U min. (V)		Cooling		Heating			
					RNC (A)	IPT (KW)	RNC (A)	IPT (KW)		
RASM-4VR1E	~ 230V 50Hz	253	207	-	14.3	3.26	10.4	2.36	28.8	5.98
				(with DHWT)	10.2	2.18	20.6	4.40	41.3	8.81
RASM-5VR1E				-	16.0	3.65	11.7	2.67	28.8	5.98
				(with DHWT)	10.2	2.18	20.6	4.40	41.3	8.81
RASM-6VR1E	3~ 400V 50Hz	440	360	-	17.7	4.04	12.7	2.89	28.8	5.98
				(with DHWT)	10.2	2.18	20.6	4.40	41.3	8.81
RASM-4R1E				-	5.2	3.26	3.8	2.36	16.3	9.17
				(with DHWT)	5.2	2.19	11.9	4.95	28.8	12.01
RASM-5R1E				-	5.8	3.65	4.3	2.67	16.3	9.17
				(with DHWT)	5.2	2.18	11.9	4.95	28.8	12.01
RASM-6R1E				-	6.5	4.04	4.6	2.89	16.3	9.17
				(with DHWT)	5.2	2.18	11.9	4.95	28.8	12.01
RASM-7R1E				-	7.2	4.46	5.8	3.62	16.3	9.17
				(with DHWT)	5.2	2.18	11.9	4.95	28.8	12.01

2.6.5 Hydrosplit 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)	RNC (A)	IPT (KW)	RNC (A)	IPT (KW)		
RASM-4VRW1E	~ 230V 50Hz	253	207	14.3	3.26	10.3	2.34	28.5	5.90
RASM-5VRW1E				16.0	3.65	11.7	2.67	28.5	5.90
RASM-6VRW1E				17.7	4.04	12.7	2.89	28.5	5.90
RASM-4RW1E	3~ 400V 50Hz	440	360	5.2	3.26	3.8	2.34	16.0	9.10
RASM-5RW1E				5.8	3.65	4.3	2.67	16.0	9.10
RASM-6RW1E				6.5	4.04	4.6	2.89	16.0	9.10
RASM-7RW1E				7.2	4.46	5.8	3.62	16.0	9.10

2.6.6 Hydrosplit system - Indoor unit

2.6.6.1 YUTAKI H

Model	Power supply	Applicable voltage		Operation mode	Compressor and fan motors				MC (A)	Max. IPT (kW)
		U max. (V)	U min. (V)		Cooling		Heating			
					RNC (A)	IPT (KW)	RNC (A)	IPT (KW)		
HWM-WE	~ 230V 50Hz	253	207	Without electric heater	1.4	0.18	1.4	0.18	1.47	0.18
				With electric heater	1.4	0.18	27.6	6.18	27.6	6.18
				With DHW tank heater	1.4	0.18	14.5	3.18	14.5	3.18
				With DHW tank and electric heaters	1.4	0.18	40.6	9.18	40.6	9.18
	3~ 400V 50Hz	440	360	Without electric heater	1.4	0.18	1.4	0.18	1.47	0.18
				With electric heater	1.4	0.18	9.6	6.18	10.1	6.18
				With DHW tank heater	1.4	0.18	4.8	3.18	14.5	3.18
				With DHW tank and electric heaters	1.4	0.18	13.7	9.18	23.2	9.18

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

2.6.6.2 YUTAKI H Combi

Model	Power supply	Applicable voltage		Operation mode	Compressor and fan motors				MC (A)	Max. IPT (kW)
		U max. (V)	U min. (V)		Cooling		Heating			
					RNC (A)	IPT (kW)	RNC (A)	IPT (kW)		
HWD-WE-220S(-K)	~ 230V 50Hz	253	207	Without electric heater	1.4	0.18	1.4	0.18	1.47	0.18
				With electric heater	1.4	0.18	27.6	6.18	27.6	6.18
				With DHW tank heater	1.4	0.18	13.4	2.93	13.4	2.93
				With DHW tank and electric heaters	1.4	0.18	39.5	8.93	39.5	8.93
	3~ 400V 50Hz	440	360	Without electric heater	1.4	0.18	1.4	0.18	1.47	0.18
				With electric heater	1.4	0.18	17.4	6.18	18.9	6.18
				With DHW tank heater	1.4	0.18	13.4	2.93	13.4	2.93
				With DHW tank and electric heaters	1.4	0.18	17.4	8.93	18.9	8.93

2.6.7 Complementary system - YUTAKI Cascade Controller

Model	Main unit power			Applicable voltage		MC [A]
	U [V]	PH	F [Hz]	U max [V]	U min [V]	
ATW-YCC-(01/02) (with DHW E.Heater)	230	~	50	253	207	16
ATW-YCC-(01/02) (only EBOX)	230	~	50	253	207	5

Model	Main unit power			Applicable voltage		MC [A]
	U [V]	PH	F [Hz]	U max [V]	U min [V]	
ATW-YCC-03 (with DHW E.Heater)	230	~	50	253	207	16
ATW-YCC-03 (only EBOX)	230	~	50	253	207	5

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3.1 Maximum heating capacity table (kW) (Integrated - Standard Humidity)

3.1.1 Split system - YUTAKI S / YUTAKI S 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-2WHVRP1 + RWM-2.0R1E / RWD-2.0RW1E-220S(-K)	60	-	-	-	-	-	-	3.20	2.29	3.64	2.25	4.00	2.22	5.00	2.17	5.50	1.77	5.66	1.71	5.93	1.61
	55	-	-	-	-	4.00	2.42	4.20	2.27	4.48	2.25	4.70	2.24	6.00	2.22	6.30	1.80	6.46	1.68	6.73	1.48
	50	-	-	-	-	4.36	2.32	4.60	2.22	4.85	2.13	5.05	2.05	6.15	2.01	6.65	1.71	6.85	1.61	7.17	1.43
	45	4.00	2.35	4.25	2.30	4.72	2.22	5.00	2.17	5.22	2.00	5.40	1.86	6.30	1.80	7.00	1.63	7.23	1.54	7.62	1.38
	40	4.15	2.34	4.54	2.24	4.93	2.14	5.17	2.08	5.32	1.86	5.45	1.70	6.40	1.59	7.25	1.48	7.48	1.42	7.87	1.31
	35	4.30	2.32	4.50	2.14	5.02	2.04	5.33	1.98	5.42	1.73	5.49	1.53	6.50	1.38	7.50	1.34	7.73	1.30	8.12	1.24
	30	4.50	2.23	4.80	2.09	5.31	1.93	5.62	1.83	5.69	1.65	5.75	1.50	6.70	1.34	7.75	1.30	7.98	1.27	8.37	1.20
	25	4.70	2.14	5.10	2.04	5.60	1.82	5.90	1.68	5.95	1.56	6.00	1.46	6.90	1.30	8.00	1.27	8.23	1.23	8.62	1.16
	20	4.90	2.04	5.40	1.99	5.89	1.71	6.18	1.54	6.22	1.48	6.25	1.43	7.10	1.26	8.25	1.24	8.48	1.19	8.87	1.12
RAS-2.5WHVRP1 + RWM-2.5R1E / RWD-2.5RW1E-220S(-K)	60	-	-	-	-	-	-	4.00	3.33	4.72	3.27	5.30	3.21	6.20	2.58	6.50	2.24	6.66	2.25	6.93	2.27
	55	-	-	-	-	4.70	3.13	5.00	2.94	5.44	2.81	5.80	2.70	7.00	2.64	7.50	2.42	7.73	2.34	8.12	2.21
	50	-	-	-	-	5.10	2.97	5.40	2.85	5.90	2.74	6.30	2.66	7.48	2.60	8.00	2.27	8.31	2.22	8.83	2.14
	45	4.60	2.86	5.00	2.86	5.50	2.80	5.80	2.76	6.36	2.68	6.80	2.62	7.97	2.57	8.50	2.12	8.62	2.01	8.81	1.82
	40	4.80	2.77	5.27	2.77	5.73	2.71	6.01	2.67	6.51	2.54	6.90	2.44	8.28	2.28	8.85	1.95	9.00	1.84	9.25	1.66
	35	5.00	2.77	5.40	2.77	5.92	2.65	6.23	2.58	6.66	2.40	7.00	2.26	8.60	2.00	9.20	1.77	9.39	1.67	9.70	1.50
	30	5.25	2.72	5.70	2.72	6.12	2.53	6.36	2.41	6.82	2.25	7.18	2.12	8.85	1.93	9.50	1.67	9.63	1.59	9.84	1.44
	25	5.50	2.67	6.00	2.67	6.31	2.40	6.50	2.24	6.97	2.10	7.35	1.99	9.10	1.86	9.80	1.58	9.87	1.50	9.98	1.38
	20	5.75	2.57	6.30	2.57	6.51	2.32	6.63	2.17	7.13	2.00	7.52	1.87	9.35	1.79	10.10	1.49	10.11	1.42	10.13	1.31
RAS-3WHVRP1 + RWM-3.0R1E / RWD-3.0RW1E-220S(-K)	60	-	-	-	-	-	-	5.10	3.64	5.77	3.46	6.31	3.32	7.50	3.21	8.00	2.76	8.12	2.73	8.31	2.70
	55	-	-	-	-	5.30	3.53	5.50	3.44	6.42	3.42	7.15	3.40	9.00	3.30	9.80	3.11	9.85	3.07	9.92	3.01
	50	-	-	-	-	5.80	3.39	6.08	3.31	6.83	3.24	7.43	3.18	9.15	3.08	9.90	2.91	10.03	2.88	10.24	2.83
	45	5.25	3.39	5.70	3.35	6.30	3.24	6.67	3.18	7.24	3.06	7.70	2.96	9.30	2.86	10.00	2.70	10.21	2.68	10.55	2.66
	40	5.63	3.36	6.19	3.27	6.75	3.17	7.08	3.12	7.64	2.96	8.09	2.83	10.15	2.77	10.75	2.60	10.88	2.59	11.09	2.56
	35	6.00	3.33	6.25	3.29	7.03	3.14	7.50	3.06	8.04	2.85	8.47	2.69	10.99	2.68	11.50	2.50	11.55	2.49	11.62	2.46
	30	6.25	3.29	6.52	3.23	7.23	3.08	7.65	3.00	8.36	2.77	8.94	2.58	11.15	2.57	11.65	2.32	11.70	2.30	11.77	2.26
	25	6.50	3.25	6.80	3.16	7.42	3.02	7.80	2.94	8.69	2.68	9.40	2.48	11.30	2.46	11.80	2.15	11.85	2.11	11.92	2.06
	20	6.75	3.21	7.08	3.10	7.62	2.97	7.94	2.88	9.09	2.62	10.00	2.40	11.50	2.40	12.00	2.00	12.16	1.97	12.43	1.92

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-4WH(V)NPE + RWM-4.0N1E / RWD-4.0NW1E-220S(-K)	60	-	-	-	-	6.50	4.33	6.80	4.12	6.91	3.60	7.00	3.18	8.50	3.40	10.20	3.64	11.22	3.79	13.00	4.06
	55	-	-	-	-	7.20	4.30	9.70	5.56	9.90	4.86	10.50	4.47	13.50	4.75	14.36	4.69	14.77	4.62	15.46	4.50
	50	-	-	7.50	4.17	7.79	3.95	9.87	4.50	10.00	4.16	10.90	4.19	13.88	4.33	14.83	4.21	15.39	4.14	16.34	4.05
	45	7.20	4.03	8.28	4.05	9.35	4.07	10.00	4.08	10.60	3.95	11.50	3.97	14.10	3.85	15.30	3.73	16.02	3.66	17.00	3.54
	40	8.10	4.16	8.95	4.12	9.80	4.07	10.31	4.05	11.00	3.93	11.80	3.92	14.65	3.56	15.65	3.40	16.25	3.31	17.25	3.15
	35	9.00	4.29	9.62	4.18	10.25	4.08	10.62	4.01	11.83	4.08	12.80	4.13	15.20	3.27	16.00	3.08	16.48	2.96	17.50	2.81
	30	10.00	4.34	10.77	4.22	11.53	4.10	11.99	4.03	12.72	3.90	13.30	3.80	15.90	3.31	16.60	2.81	17.02	2.51	17.72	2.60
	25	11.64	4.44	12.16	4.31	12.68	4.18	13.00	4.10	13.72	3.98	13.58	3.61	16.10	2.82	17.00	2.74	17.54	2.69	18.44	2.55
	20	13.28	4.55	13.56	4.40	13.84	4.26	14.00	4.18	14.72	4.06	13.78	3.46	16.30	2.34	17.40	2.67	18.06	2.87	19.16	2.50
RAS-5WH(V)NPE + RWM-5.0N1E / RWD-5.0NW1E-220S(-K)	60	-	-	-	-	7.47	5.45	8.19	5.97	8.16	5.27	8.14	4.72	11.20	5.62	11.40	5.33	12.00	5.43	14.00	6.08
	55	-	-	-	-	9.22	6.36	11.20	6.22	12.21	6.24	12.96	6.22	15.20	6.30	16.00	5.71	16.50	5.37	16.70	5.20
	50	-	-	9.30	6.00	9.99	5.81	11.42	5.87	12.45	5.64	13.27	5.45	15.46	5.41	16.50	4.93	16.80	4.55	17.10	4.16
	45	8.10	4.54	9.43	4.90	10.76	5.27	11.60	5.50	12.68	5.04	13.59	4.69	15.70	4.53	17.00	4.15	17.50	3.86	18.00	3.70
	40	8.90	4.61	10.02	4.81	11.15	5.00	11.82	5.12	12.89	4.75	13.75	4.45	16.13	4.10	17.15	3.77	17.70	3.56	18.50	3.62
	35	9.70	4.69	10.62	4.71	11.53	4.74	12.00	4.72	13.10	4.46	13.90	4.21	16.70	3.70	17.30	3.39	17.80	3.24	18.80	3.55
	30	10.70	4.74	11.28	4.55	11.85	4.35	12.20	4.24	13.26	4.18	14.10	4.14	17.20	3.58	17.90	3.03	17.96	2.63	19.10	3.38
	25	11.16	4.42	12.25	4.42	13.34	4.42	14.00	4.42	14.70	4.32	15.27	4.24	17.90	3.51	18.50	3.08	18.80	2.82	19.50	3.13
	20	11.61	4.10	13.22	4.30	14.83	4.49	15.80	4.60	16.15	4.46	16.43	4.34	18.10	3.33	18.80	3.08	19.00	2.90	20.00	2.71
RAS-6WH(V)NPE + RWM-6.0N1E / RWD-6.0NW1E-220S(-K)	60	-	-	-	-	7.80	5.57	8.30	5.72	9.02	5.35	9.60	5.05	12.00	5.71	12.10	5.50	13.00	5.75	15.00	6.37
	55	-	-	-	-	10.38	7.39	12.00	7.18	12.96	7.09	13.96	7.16	17.00	7.13	17.20	6.14	17.30	5.98	17.40	5.70
	50	-	-	10.1	6.97	10.77	6.39	11.83	6.32	12.98	6.19	13.90	6.09	17.10	6.19	17.30	5.92	17.50	5.77	18.00	5.56
	45	9.00	4.86	10.32	5.34	11.63	5.81	12.50	6.13	13.56	5.68	14.48	5.36	17.30	5.33	17.50	4.49	18.00	4.14	18.60	3.51
	40	9.55	5.12	10.75	5.33	11.95	5.54	12.67	5.66	13.81	5.31	14.73	5.02	17.55	4.69	18.10	4.12	18.30	3.76	19.00	3.24
	35	10.10	5.37	11.18	5.32	12.27	5.26	13.00	5.27	14.06	4.93	15.00	4.69	17.80	4.05	18.20	3.64	18.60	3.54	19.60	3.43
	30	10.71	4.56	12.57	4.84	13.99	4.93	14.83	4.99	15.12	4.72	15.35	4.51	18.10	3.77	18.60	3.15	19.10	3.14	20.00	3.13
	25	11.30	4.48	12.83	4.63	14.02	4.64	14.73	4.65	15.18	4.47	15.54	4.33	18.50	3.78	19.90	3.37	20.50	3.27	21.00	3.05
	20	12.13	4.48	13.09	4.42	14.05	4.36	14.63	4.32	15.24	4.22	15.72	4.15	18.90	3.78	20.90	3.54	21.10	3.31	22.00	3.04

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-8.0N1E	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	-	-	12.0	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	-	-	15.5	12.9	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

3.1.2 Split system - YUTAKI S80

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-4WH(V)NPE + RWH-4.0VNF(W)E	80	10.60	6.42	11.10	6.50	10.80	6.28	11.90	6.61	11.84	6.12	11.79	5.73	13.50	5.87	14.50	5.69	15.10	5.58	16.10	5.39
	75	10.73	6.26	11.26	6.35	11.23	6.29	12.10	6.49	12.14	6.10	12.17	5.78	13.83	5.89	14.67	5.68	15.17	5.55	16.01	5.35
	70	10.91	6.05	11.47	6.16	11.81	6.30	12.37	6.33	12.54	6.06	12.68	5.85	14.27	5.91	14.89	5.67	15.26	5.52	15.88	5.28
	65	11.00	5.95	11.58	6.06	12.10	6.30	12.50	6.25	12.74	6.05	12.94	5.89	14.49	5.92	15.00	5.66	15.31	5.51	15.82	5.25
	60	11.15	5.92	11.67	6.00	12.16	6.15	12.50	6.14	12.90	6.07	13.22	6.01	14.49	5.46	15.00	5.25	15.31	5.13	15.81	4.38
	55	11.30	5.89	11.76	5.94	12.22	6.00	12.50	6.04	13.06	6.09	13.64	6.55	14.49	5.00	15.00	4.84	15.30	4.74	15.81	3.50
	50	11.90	6.07	12.22	6.02	12.39	5.93	12.50	5.84	12.98	5.61	13.66	5.80	14.50	4.84	15.20	4.84	15.62	4.84	16.32	4.84
	45	12.50	6.25	12.50	6.03	12.50	5.81	12.50	5.68	13.02	5.38	13.78	5.49	14.50	4.53	15.30	4.64	15.78	4.70	16.58	4.80
	40	11.14	5.59	11.11	5.24	11.09	4.89	11.08	4.67	12.08	4.69	12.51	4.41	14.85	3.90	15.65	3.86	16.13	3.83	16.93	3.79
	35	9.00	4.29	9.62	4.18	10.25	4.08	10.62	4.01	11.83	4.08	12.80	4.13	15.20	3.27	16.00	3.08	16.48	2.96	17.50	2.81
	30	10.00	4.34	10.77	4.22	11.53	4.10	11.99	4.03	12.72	3.90	13.30	3.80	15.90	3.31	16.60	2.81	17.02	2.51	17.72	2.60
	25	11.64	4.44	12.16	4.31	12.68	4.18	13.00	4.10	13.72	3.98	13.58	3.61	16.10	2.82	17.00	2.74	17.54	2.69	18.44	2.55
	20	13.28	4.55	13.56	4.40	13.84	4.26	14.00	4.18	14.72	4.06	13.78	3.46	16.30	2.34	17.40	2.67	18.06	2.87	19.16	2.50
RAS-5WH(V)NPE + RWH-5.0VNF(W)E	80	11.65	7.28	12.13	7.32	12.70	7.47	12.90	7.37	13.12	7.17	13.30	7.00	15.00	6.82	16.50	6.60	17.40	6.47	18.90	6.25
	75	12.43	7.60	12.82	7.52	13.20	7.58	13.43	7.39	13.62	7.24	13.77	7.12	15.63	6.85	16.83	6.64	17.56	6.52	18.76	6.31
	70	13.48	8.02	13.73	7.79	13.87	7.73	14.14	7.42	14.28	7.34	14.39	7.27	16.46	6.89	17.28	6.70	17.77	6.59	18.58	6.39
	65	14.00	8.24	14.19	7.93	14.20	7.80	14.50	7.44	14.61	7.39	14.70	7.35	16.88	6.92	17.50	6.73	17.87	6.62	18.49	6.44
	60	14.10	7.96	14.25	7.65	14.32	7.44	14.50	7.17	14.89	7.26	15.20	7.33	16.95	6.61	17.50	6.38	17.83	6.25	18.38	6.02
	55	14.20	7.68	14.32	7.38	14.43	7.08	14.50	6.90	15.17	7.13	15.70	7.30	17.02	6.30	17.50	6.03	17.79	5.87	18.27	5.61
	50	14.35	7.56	14.42	7.37	14.44	7.17	14.50	6.99	14.88	6.81	15.19	6.66	16.98	5.98	17.50	5.89	17.81	5.84	18.33	5.75
	45	14.50	7.44	14.50	7.23	14.50	7.03	14.50	6.90	14.88	6.59	15.18	6.33	17.00	5.67	17.50	5.65	17.80	5.63	18.30	5.61
	40	12.10	6.06	12.56	5.97	13.02	5.88	13.29	5.83	13.99	5.52	14.55	5.28	16.76	4.66	17.40	4.52	17.79	4.43	18.43	4.29
	35	9.70	4.69	10.62	4.71	11.53	4.74	12.00	4.72	13.10	4.46	13.90	4.21	16.70	3.70	17.30	3.39	17.80	3.24	18.80	3.55
	30	10.70	4.74	11.28	4.55	11.85	4.35	12.20	4.24	13.26	4.18	14.10	4.14	17.20	3.58	17.90	3.03	17.96	2.63	19.10	3.38
	25	11.16	4.42	12.25	4.42	13.34	4.42	14.00	4.42	14.70	4.32	15.27	4.24	17.90	3.51	18.50	3.08	18.80	2.82	19.50	3.13
	20	11.61	4.10	13.22	4.30	14.83	4.49	15.80	4.60	16.15	4.46	16.43	4.34	18.10	3.33	18.80	3.08	19.00	2.90	20.00	2.71
RAS-6WH(V)NPE + RWH-6.0VNF(W)E	80	12.70	8.47	13.01	8.36	14.70	9.19	13.50	8.18	13.78	7.84	14.00	7.57	16.00	7.62	17.50	7.29	18.40	7.10	19.90	6.77
	75	13.40	8.73	13.76	8.52	14.90	9.12	14.33	8.19	14.70	8.02	15.00	7.88	16.64	7.63	17.77	7.30	18.44	7.11	19.57	6.78
	70	14.33	9.08	14.76	8.74	15.17	9.04	15.44	8.20	15.94	8.25	16.33	8.29	17.50	7.64	18.12	7.31	18.50	7.12	19.13	6.80
	65	14.80	9.25	15.26	8.85	15.30	9.00	16.00	8.21	16.56	8.37	17.00	8.50	17.92	7.64	18.30	7.32	18.53	7.13	18.90	6.81
	60	14.95	8.82	15.37	8.59	15.58	8.64	16.05	8.23	16.38	8.28	16.65	8.33	17.92	6.91	18.65	7.11	19.09	7.24	19.81	7.45
	55	15.10	8.39	15.48	8.34	15.87	8.29	16.10	8.26	16.21	8.20	16.30	8.15	17.92	6.17	19.00	6.91	19.65	7.35	20.72	8.09
	50	15.55	8.64	15.78	8.59	16.01	8.40	16.15	8.14	16.37	7.82	16.54	7.56	17.97	6.67	18.88	6.59	19.43	6.55	20.34	6.48
	45	16.00	8.89	16.08	8.59	16.15	8.28	16.20	8.10	16.36	7.58	16.49	7.17	18.00	6.55	19.00	6.33	19.60	6.21	20.60	5.99
	40	13.05	7.13	13.63	6.95	14.21	6.77	14.56	6.67	15.22	6.26	15.75	5.93	17.88	5.29	18.60	4.99	19.03	4.80	19.76	4.50
	35	10.10	5.37	11.18	5.32	12.27	5.26	13.00	5.27	14.06	4.93	15.00	4.69	17.80	4.05	18.20	3.64	18.60	3.54	19.60	3.43
	30	10.71	4.56	12.57	4.84	13.99	4.93	14.83	4.99	15.12	4.72	15.35	4.51	18.10	3.77	18.60	3.15	19.10	3.14	20.00	3.13
	25	11.30	4.48	12.83	4.63	14.02	4.64	14.73	4.65	15.18	4.47	15.54	4.33	18.50	3.78	19.90	3.37	20.50	3.27	21.00	3.05
	20	12.13	4.48	13.09	4.42	14.05	4.36	14.63	4.32	15.24	4.22	15.72	4.15	18.90	3.78	20.90	3.54	21.10	3.31	22.00	3.04

3.1.3 Monobloc system / Hydrosplit system

System	Water outlet temp (°C)	Ambient temperature (°C WB)																							
		-20		-15		-10		-7		-2		2		7		12		15		20		25			
		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)	CAP (kW)	IPT (kW)		
RASM-2VRE	60	-	-	-	-	-	-	3.20	2.29	3.64	2.25	4.00	2.22	5.00	2.17	5.50	1.77	5.66	1.71	5.93	1.61	6.20	1.51		
	55	-	-	-	-	4.00	2.42	4.20	2.27	4.48	2.25	4.70	2.24	6.00	2.22	6.30	1.80	6.46	1.68	6.73	1.48	7.00	1.27		
	50	-	-	-	-	4.36	2.32	4.60	2.22	4.85	2.13	5.05	2.05	6.15	2.01	6.65	1.71	6.85	1.61	7.17	1.43	7.50	1.25		
	45	4.00	2.35	4.25	2.30	4.72	2.22	5.00	2.17	5.22	2.00	5.40	1.86	6.30	1.80	7.00	1.63	7.23	1.54	7.62	1.38	8.00	1.23		
	40	4.15	2.34	4.54	2.24	4.93	2.14	5.17	2.08	5.32	1.86	5.45	1.70	6.40	1.59	7.25	1.48	7.48	1.42	7.87	1.31	8.25	1.21		
	35	4.30	2.32	4.50	2.14	5.02	2.04	5.33	1.98	5.42	1.73	5.49	1.53	6.50	1.38	7.50	1.34	7.73	1.30	8.12	1.24	8.50	1.18		
	30	4.50	2.23	4.80	2.09	5.31	1.93	5.62	1.83	5.69	1.65	5.75	1.50	6.70	1.34	7.75	1.30	7.98	1.27	8.37	1.20	8.75	1.14		
	25	4.70	2.14	5.10	2.04	5.60	1.82	5.90	1.68	5.95	1.56	6.00	1.46	6.90	1.30	8.00	1.27	8.23	1.23	8.62	1.16	9.00	1.09		
	20	4.90	2.04	5.40	1.99	5.89	1.71	6.18	1.54	6.22	1.48	6.25	1.43	7.10	1.26	8.25	1.24	8.48	1.19	8.87	1.12	9.25	1.05		
RASM-3VRE	60	-	-	-	-	-	-	5.10	3.64	5.77	3.46	6.31	3.32	7.50	3.21	8.00	2.76	8.12	2.73	8.31	2.70	8.50	2.66		
	55	-	-	-	-	5.30	3.53	5.50	3.44	6.42	3.42	7.15	3.40	9.00	3.30	9.80	3.11	9.85	3.07	9.92	3.01	10.00	2.94		
	50	-	-	-	-	5.80	3.39	6.08	3.31	6.83	3.24	7.43	3.18	9.15	3.08	9.90	2.91	10.03	2.88	10.24	2.83	10.45	2.78		
	45	5.25	3.39	5.70	3.35	6.30	3.24	6.67	3.18	7.24	3.06	7.70	2.96	9.30	2.86	10.00	2.70	10.21	2.68	10.55	2.66	10.90	2.63		
	40	5.63	3.36	6.19	3.27	6.75	3.17	7.08	3.12	7.64	2.96	8.09	2.83	10.15	2.77	10.75	2.60	10.88	2.59	11.09	2.56	11.30	2.53		
	35	6.00	3.33	6.25	3.29	7.03	3.14	7.50	3.06	8.04	2.85	8.47	2.69	10.99	2.68	11.50	2.50	11.55	2.49	11.62	2.46	11.70	2.44		
	30	6.25	3.29	6.52	3.23	7.23	3.08	7.65	3.00	8.36	2.77	8.94	2.58	11.15	2.57	11.65	2.32	11.70	2.30	11.77	2.26	11.85	2.22		
	25	6.50	3.25	6.80	3.16	7.42	3.02	7.80	2.94	8.69	2.68	9.40	2.48	11.30	2.46	11.80	2.15	11.85	2.11	11.92	2.06	12.00	2.00		
	20	6.75	3.21	7.08	3.10	7.62	2.97	7.94	2.88	9.09	2.62	10.00	2.40	11.50	2.40	12.00	2.00	12.16	1.97	12.43	1.92	12.70	1.87		

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)
RASM-4VR(W)1E	60	-	-	-	-	8.58	4.13	10.66	5.08	10.98	4.93	11.77	5.02	13.15	4.19	12.17	3.47	14.30	3.95	14.36	3.57
	55	7.16	4.11	8.24	4.25	10.07	4.69	11.00	4.88	11.71	4.67	12.00	4.41	14.00	5.16	12.09	3.20	14.12	3.25	13.06	2.51
	50	7.51	3.94	8.53	4.03	10.23	4.52	11.00	4.71	11.34	4.50	11.79	4.39	14.00	4.41	12.39	2.90	14.15	2.93	13.01	2.39
	45	7.86	3.77	8.81	3.80	10.39	4.36	11.00	4.55	10.98	4.34	11.41	4.31	14.00	3.68	12.69	2.60	14.18	2.60	12.96	2.27
	40	8.15	3.58	10.13	3.61	10.92	4.05	11.00	4.16	10.95	4.24	11.28	4.39	14.00	3.46	12.52	2.55	14.01	2.66	12.43	2.22
	35	8.43	3.39	10.50	3.14	11.00	3.59	11.00	3.77	10.91	4.15	11.15	4.47	14.00	3.12	12.35	2.50	13.84	2.73	14.08	2.63
	30	8.50	3.12	9.37	3.17	10.17	3.16	10.65	3.16	10.63	2.89	10.61	2.62	12.98	2.04	11.65	1.41	13.21	1.35	13.45	0.98
	25	-	-	-	-	10.36	2.81	11.00	2.69	10.88	2.22	11.30	2.01	13.47	1.70	12.22	1.24	13.64	1.19	13.64	1.19
	20	-	-	-	-	11.00	2.86	11.00	2.43	11.00	1.89	11.64	1.70	13.72	1.53	12.50	1.15	13.86	1.12	13.86	1.12
RASM-5VR(W)1E	60	-	-	-	-	10.79	4.88	11.29	5.39	12.43	5.78	12.69	5.67	15.04	4.84	14.72	4.36	15.10	4.27	16.40	4.33
	55	8.93	5.22	9.40	4.88	11.28	5.25	12.00	5.28	13.13	5.18	12.69	4.67	15.00	4.84	14.58	3.84	14.99	3.44	16.01	3.07
	50	8.93	4.77	9.40	4.48	11.28	5.31	12.22	5.72	12.58	5.30	12.69	5.09	15.04	4.84	14.98	3.48	15.03	3.08	15.65	2.74
	45	8.93	4.34	9.40	4.08	11.28	5.37	12.22	6.05	12.03	5.42	12.47	5.45	15.04	4.14	15.38	3.12	15.07	2.71	15.28	2.41
	40	9.48	4.20	11.28	4.09	12.22	4.92	12.50	5.35	12.18	5.08	13.16	5.85	15.00	3.76	14.79	3.02	14.80	2.80	15.10	2.62
	35	9.81	3.97	11.28	3.46	12.22	4.08	12.50	4.40	12.32	4.74	13.16	5.40	15.00	3.37	14.21	2.91	14.53	2.88	14.93	2.82
	30	10.08	3.70	10.88	3.68	11.78	3.66	12.31	3.64	12.64	3.59	12.89	3.43	14.61	2.25	14.24	1.76	14.22	1.49	14.41	1.12
	25	-	-	-	-	12.22	3.18	12.30	3.00	11.75	2.43	13.02	2.39	14.51	1.80	15.13	1.26	14.86	1.16	14.86	1.16
	20	-	-	-	-	12.22	3.18	12.19	2.69	11.31	1.85	11.76	1.61	14.46	1.57	15.57	1.08	15.17	1.06	15.17	1.06
RASM-6VR(W)1E	60	-	-	-	-	11.48	5.19	12.01	5.73	13.22	6.15	13.50	6.03	16.00	5.14	15.66	4.64	16.06	4.54	17.45	4.61
	55	9.50	5.55	10.00	5.19	12.00	5.58	13.00	5.70	13.97	5.51	13.50	4.97	16.00	5.93	15.51	4.09	15.95	3.66	17.03	3.26
	50	9.50	5.08	10.00	4.77	12.00	5.65	13.00	6.08	13.39	5.64	13.50	5.41	16.00	5.15	15.94	3.70	15.99	3.27	16.65	2.91
	45	9.50	4.61	10.00	4.34	12.00	5.71	13.00	6.44	12.80	5.77	13.26	5.80	16.00	4.41	16.36	3.32	16.03	2.89	16.26	2.57
	40	10.08	4.47	12.00	4.35	13.00	5.23	14.00	5.93	12.95	5.41	14.00	6.22	16.00	4.00	15.73	3.21	15.74	2.98	16.07	2.79
	35	10.44	4.22	12.00	3.68	13.00	4.34	13.97	4.89	13.11	5.04	14.00	5.74	16.00	3.59	15.11	3.09	15.46	3.07	15.88	3.00
	30	10.72	3.94	11.58	3.91	12.53	3.89	13.50	4.00	13.44	3.82	13.71	3.65	15.54	2.39	15.15	1.87	15.13	1.59	15.33	1.19
	25	-	-	-	-	13.00	3.39	13.50	3.40	12.50	2.59	13.85	2.54	15.44	1.91	16.09	1.34	15.80	1.23	15.80	1.23
	20	-	-	-	-	13.00	3.38	12.97	2.86	12.03	1.97	12.51	1.71	15.39	1.67	16.56	1.15	16.14	1.12	16.14	1.12

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)
RASM-4R(W)1E	60	-	-	-	-	10.50	6.17	11.00	6.21	11.75	6.29	12.00	6.29	14.00	4.74	15.26	5.21	15.44	5.39	15.23	5.76
	55	8.50	4.93	9.00	5.62	10.50	5.16	11.00	5.97	11.64	5.26	11.84	5.62	14.00	4.88	15.00	4.45	14.71	4.13	14.76	3.92
	50	7.89	4.28	9.00	4.79	10.50	4.83	11.00	5.27	11.45	4.65	11.97	4.79	14.00	4.15	14.07	3.67	13.89	3.43	14.14	3.26
	45	6.98	3.50	8.72	3.95	10.33	4.34	11.00	4.57	11.26	4.04	12.00	3.93	14.00	3.58	14.47	3.32	14.53	3.13	15.14	2.98
	40	7.14	3.37	8.88	3.84	11.00	4.27	11.00	4.55	11.91	3.97	12.00	3.75	14.00	3.35	14.45	2.90	14.43	2.60	14.97	2.27
	35	7.31	3.24	9.05	3.73	11.00	3.96	11.00	4.54	11.74	3.65	12.00	3.57	14.00	3.14	14.43	2.49	14.32	2.08	14.79	1.56
	30	7.33	3.19	9.04	3.60	10.96	3.69	11.00	3.74	11.27	3.09	12.00	3.11	14.00	2.59	14.41	2.29	13.81	2.05	13.50	1.82
	25	-	-	-	-	11.00	3.89	11.00	4.00	11.29	3.22	11.57	2.95	14.00	2.71	14.88	2.22	14.71	2.00	15.20	1.86
	20	-	-	-	-	11.00	3.98	11.00	4.13	10.93	3.19	10.84	2.74	14.00	2.78	15.12	2.19	13.74	1.80	14.50	1.70
RASM-5R(W)1E	60	-	-	-	-	11.40	6.59	12.35	6.79	13.36	6.90	12.83	6.43	15.00	5.10	16.14	5.34	15.90	5.37	16.40	5.75
	55	9.03	4.98	9.50	5.63	11.40	5.64	12.00	5.68	13.72	6.12	12.83	5.81	15.00	5.47	15.19	4.54	16.44	4.62	16.44	4.29
	50	9.03	4.70	9.50	4.94	11.40	5.25	12.35	5.35	13.30	5.27	12.83	4.93	15.00	4.65	15.46	4.09	16.81	4.21	17.29	3.97
	45	8.59	4.33	9.50	4.32	11.36	4.73	12.35	4.94	12.88	4.42	12.83	4.05	15.00	3.80	15.72	3.64	17.19	3.79	16.36	3.25
	40	8.79	4.16	10.95	4.75	11.88	4.66	12.49	4.63	13.44	4.35	13.30	4.01	15.00	3.60	15.83	3.23	17.25	3.23	16.19	2.53
	35	9.00	3.98	11.11	4.59	12.35	4.57	12.50	4.40	14.00	4.28	13.30	3.87	15.00	3.39	15.94	2.82	17.31	2.67	16.02	1.82
	30	9.43	3.73	11.37	4.20	12.17	4.12	12.30	3.92	13.46	3.66	13.30	3.40	15.00	2.76	15.87	2.46	16.92	2.38	16.68	2.07
	25	-	-	-	-	12.35	4.28	12.30	4.01	13.05	3.78	13.19	3.46	15.00	3.03	16.32	2.44	15.96	2.12	16.24	1.92
	20	-	-	-	-	12.35	4.22	12.20	4.05	12.85	3.84	12.67	3.39	15.00	3.16	16.54	2.43	16.33	2.09	16.99	1.93
RASM-6R(W)1E	60	-	-	-	-	12.00	6.93	13.00	7.14	14.06	7.26	13.50	6.76	16.00	5.37	16.99	5.62	16.73	5.65	17.26	6.05
	55	9.50	5.24	10.00	5.93	12.00	5.94	13.00	5.98	14.44	6.44	13.50	6.12	16.00	5.84	15.99	4.78	17.31	4.86	17.30	4.52
	50	9.50	4.95	10.00	5.20	12.00	5.52	13.00	5.64	14.00	5.55	13.50	5.19	16.00	4.94	16.27	4.31	17.70	4.43	18.20	4.18
	45	9.04	4.56	10.00	4.55	11.95	4.98	13.00	5.20	13.56	4.66	13.50	4.27	16.00	4.05	16.55	3.83	18.09	3.99	17.23	3.42
	40	9.26	4.38	11.52	5.00	12.51	4.90	13.15	4.87	14.15	4.58	14.00	4.23	16.00	3.84	16.66	3.40	18.16	3.40	17.04	2.67
	35	9.48	4.19	11.70	4.84	13.00	4.81	14.00	4.82	14.74	4.50	14.00	4.07	16.00	3.61	16.77	2.96	18.22	2.81	16.86	1.92
	30	9.92	3.93	11.96	4.43	12.81	4.33	13.15	4.13	14.17	3.86	14.00	3.58	16.00	2.94	16.71	2.59	17.81	2.50	17.56	2.18
	25	-	-	-	-	13.00	4.50	13.28	4.33	13.74	3.98	13.89	3.64	16.00	3.23	17.18	2.57	16.80	2.23	17.09	2.02
	20	-	-	-	-	13.00	4.45	13.35	4.43	13.53	4.05	13.34	3.56	16.00	3.37	17.41	2.56	17.19	2.20	17.88	2.03
RASM-7R(W)1E	60	-	-	-	-	13.32	7.62	14.30	7.80	15.95	8.08	16.00	7.79	18.00	6.00	20.74	6.53	22.00	6.71	24.10	7.02
	55	12.64	6.40	13.25	7.16	15.00	7.42	16.00	7.56	16.97	7.58	16.00	7.00	18.00	7.10	19.41	6.01	21.28	6.01	24.39	6.01
	50	13.00	6.51	14.00	6.76	15.00	7.04	16.00	7.21	16.36	6.39	16.00	5.90	17.58	5.65	19.17	5.27	20.78	5.36	23.46	5.51
	45	11.14	5.88	13.26	6.19	15.00	6.36	15.46	6.24	15.76	5.19	16.00	4.81	17.85	4.48	18.94	4.52	20.29	4.71	22.54	5.01
	40	11.42	5.61	13.47	5.93	14.85	6.14	15.52	6.06	15.93	5.03	16.00	4.73	18.00	4.38	19.47	4.11	20.82	4.08	23.07	4.04
	35	11.70	5.34	13.69	5.68	14.61	5.88	16.00	6.03	16.10	4.86	16.00	4.44	18.00	4.25	20.00	3.69	21.35	3.46	23.61	3.07
	30	13.00	5.10	14.00	5.15	15.00	5.33	16.00	5.42	15.96	4.35	16.00	4.06	17.82	3.25	19.85	2.97	21.48	2.87	24.19	2.70
	25	-	-	-	-	15.00	5.07	16.00	5.14	15.84	4.66	15.79	4.24	18.00	4.22	20.24	3.04	21.25	2.45	22.93	2.09
	20	-	-	-	-	15.00	4.90	16.00	5.05	15.78	4.81	15.45	4.33	18.00	4.60	20.43	3.07	21.13	2.33	22.30	2.03

Maximum heating capacity table (Standard Humidity)

- CAP: Capacity at compressor maximum frequency (kW). Capacity is valid for difference between water inlet and water outlet of 3-8°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 YUTAKI’ maximum capacity data at standard humidity conditions has been based on the most representative locations considering:

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

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) (Integrated - High Humidity)

3.2.1 Split system RAS-(2-3)WHVRP1 combination models only

System	Water outlet temp (°C)	Ambient temperature (°C WB)																					
		-20		-15		-10		-7		-2		2		7		12		15		20		25	
		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)	CAP (kW)	IPT (kW)
RAS-2WHVRP1 + RWM-2.0R1E / RWD-2.0RW1E-220S(-K)	60	-	-	-	-	-	-	2.61	1.99	3.20	2.03	3.68	2.07	4.50	2.04	5.50	1.77	5.66	1.71	5.93	1.61	6.20	1.51
	55	-	-	-	-	3.70	2.24	3.73	2.02	4.09	2.08	4.38	2.13	5.70	2.22	6.30	1.80	6.46	1.68	6.73	1.48	7.00	1.27
	50	-	-	-	-	3.80	2.08	3.97	1.97	4.34	1.95	4.64	1.94	5.84	2.01	6.65	1.71	6.85	1.61	7.17	1.43	7.50	1.25
	45	3.26	1.96	3.41	1.91	3.91	1.92	4.21	1.92	4.60	1.83	4.91	1.75	5.99	1.80	7.00	1.63	7.23	1.54	7.62	1.38	8.00	1.23
	40	3.52	2.00	3.91	1.96	4.30	1.93	4.53	1.90	4.85	1.77	5.11	1.66	5.98	1.61	7.25	1.48	7.48	1.42	7.87	1.31	8.25	1.21
	35	3.78	2.04	3.90	1.94	4.50	1.91	4.85	1.89	5.10	1.71	5.30	1.56	5.98	1.43	7.50	1.34	7.73	1.30	8.12	1.24	8.50	1.18
	30	3.95	1.94	4.16	1.86	4.67	1.77	4.97	1.72	5.35	1.63	5.65	1.56	6.16	1.34	7.75	1.30	7.98	1.27	8.37	1.20	8.75	1.14
	25	4.13	1.84	4.43	1.79	4.84	1.64	5.09	1.55	5.60	1.55	6.00	1.55	6.35	1.25	8.00	1.27	8.23	1.23	8.62	1.16	9.00	1.09
	20	4.30	1.73	4.69	1.71	5.01	1.51	5.21	1.38	5.84	1.47	6.35	1.54	6.53	1.16	8.25	1.24	8.48	1.19	8.87	1.12	9.25	1.05
RAS-2.5WHVRP1 + RWM-2.5R1E / RWD-2.5RW1E-220S(-K)	60	-	-	-	-	-	-	2.94	2.61	3.68	2.70	4.26	2.77	5.27	2.20	6.50	2.24	6.66	2.25	6.93	2.27	7.20	2.29
	55	-	-	-	-	3.68	2.37	4.00	2.35	4.52	2.41	4.93	2.46	6.51	2.41	7.50	2.42	7.73	2.34	8.12	2.21	8.50	2.07
	50	-	-	-	-	4.02	2.36	4.35	2.35	4.94	2.32	5.40	2.30	6.77	2.34	8.00	2.27	8.74	2.26	9.96	2.25	8.75	1.85
	45	3.49	2.26	3.80	2.33	4.37	2.34	4.71	2.34	5.35	2.23	5.87	2.14	7.04	2.26	8.50	2.12	8.62	2.01	8.81	1.82	9.00	1.64
	40	3.80	2.32	4.22	2.28	4.64	2.24	4.89	2.21	5.50	2.11	5.99	2.02	7.00	2.05	8.85	1.95	9.00	1.84	9.25	1.66	9.50	1.48
	35	4.10	2.39	4.43	2.28	4.83	2.16	5.07	2.08	5.66	1.99	6.12	1.91	6.97	1.84	9.20	1.77	9.39	1.67	9.70	1.50	10.01	1.33
	30	4.31	2.33	4.68	2.24	4.94	2.05	5.09	1.94	5.81	1.88	6.39	1.84	7.18	1.76	9.50	1.67	9.63	1.59	9.84	1.44	10.05	1.29
	25	4.52	2.26	4.94	2.20	5.04	1.95	5.11	1.80	5.97	1.78	6.66	1.76	7.39	1.67	9.80	1.58	9.87	1.50	9.98	1.38	10.10	1.25
	20	4.73	2.15	5.19	2.11	5.15	1.89	5.13	1.76	6.13	1.73	6.93	1.71	7.60	1.59	10.10	1.49	10.11	1.42	10.13	1.31	10.15	1.20
RAS-3WHVRP1 + RWM-3.0R1E / RWD-3.0RW1E-220S(-K)	60	-	-	-	-	-	-	3.38	2.96	4.12	2.85	4.71	2.76	4.88	2.60	8.00	2.76	8.12	2.73	8.31	2.70	8.50	2.66
	55	-	-	-	-	4.15	3.14	4.40	3.14	5.18	3.01	5.80	2.90	7.50	2.78	9.80	3.11	9.85	3.07	9.92	3.01	10.00	2.94
	50	-	-	-	-	4.49	2.85	4.78	2.86	5.46	2.75	6.00	2.67	7.76	2.56	9.90	2.91	10.03	2.88	10.24	2.83	10.45	2.78
	45	3.99	2.85	4.27	2.52	4.83	2.55	5.16	2.57	5.74	2.50	6.20	2.44	8.01	2.35	10.00	2.70	10.21	2.68	10.55	2.66	10.90	2.63
	40	4.27	2.73	4.76	2.63	5.24	2.52	5.53	2.46	6.07	2.41	6.50	2.38	8.52	2.39	10.75	2.60	10.88	2.59	11.09	2.56	11.30	2.53
	35	4.56	2.62	4.90	2.61	5.52	2.45	5.89	2.35	6.40	2.33	6.80	2.32	9.03	2.44	11.50	2.50	11.55	2.49	11.62	2.46	11.70	2.44
	30	4.75	2.58	5.10	2.55	5.56	2.39	5.84	2.29	6.66	2.30	7.31	2.30	9.14	2.34	11.65	2.32	11.70	2.30	11.77	2.26	11.85	2.22
	25	4.94	2.55	5.30	2.50	5.61	2.33	5.79	2.23	6.92	2.26	7.82	2.28	9.25	2.23	11.80	2.15	11.85	2.11	11.92	2.06	12.00	2.00
	20	5.13	2.52	5.51	2.44	5.65	2.27	5.74	2.17	8.11	2.30	10.00	2.40	11.50	2.40	12.00	2.00	12.16	1.97	12.43	1.92	12.70	1.87

Maximum heating capacity table

- 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.
- 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.
- In case of very high humidity conditions or extremely severe climate weather such as during raining

conditions, wind, snow, etc.... an additional corrective defrost factor must be considered in order to ensure proper unit selection.

The calculation of YUTAKI's maximum capacity data at high humidity conditions has been based on severe climate conditions or operations in a transitional period:

- ✓ High humidity condition
- ✓ Short refrigerant piping length (7 meters)
- ✓ Low installation altitude location (<300m)

3.3 Maximum cooling capacity table (kW)

3.3.1 Split system - YUTAKI S / YUTAKI S Combi

System		Water outlet temp (°C)	Ambient temperature (°C DB)															
			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-2WHVRP1	+ RWM-2.0R1E / RWD-2.0RW1E-220S(-K)	22	-	-	-	-	-	-	7.40	0.95	6.93	1.03	6.45	1.11	5.98	1.19	5.50	1.26
		18	-	-	-	-	7.50	0.88	7.10	0.97	6.80	1.08	6.40	1.21	5.75	1.27	5.10	1.32
		15	7.00	0.97	6.92	0.99	6.83	1.00	6.75	1.01	6.27	1.10	5.79	1.19	5.31	1.29	4.83	1.38
		10	6.80	0.97	6.58	1.01	6.37	1.04	6.15	1.08	5.71	1.17	5.26	1.27	4.82	1.37	4.37	1.47
		7	6.20	0.98	6.10	1.03	6.00	1.07	5.80	1.12	5.40	1.23	5.00	1.33	4.55	1.43	4.10	1.52
		5	-	-	5.50	1.08	5.20	1.17	4.90	1.26	4.60	1.34	4.30	1.43	4.00	1.52	3.70	1.61
RAS-2.5WHVRP1	+ RWM-2.5R1E / RWD-2.5RW1E-220S(-K)	22	-	-	-	-	-	-	8.70	1.19	8.10	1.27	7.50	1.35	6.90	1.42	6.30	1.50
		18	-	-	-	-	8.50	1.21	8.30	1.24	7.90	1.36	7.20	1.48	6.60	1.58	6.00	1.67
		15	8.10	1.25	8.03	1.26	7.96	1.27	7.89	1.28	7.35	1.39	6.81	1.50	6.27	1.61	5.73	1.72
		10	7.60	1.25	7.47	1.28	7.34	1.31	7.21	1.35	6.73	1.46	6.24	1.57	5.76	1.69	5.27	1.80
		7	7.10	1.13	7.20	1.16	7.30	1.20	6.80	1.39	6.30	1.58	6.00	1.74	5.50	1.80	5.00	1.85
		5	-	-	6.80	1.36	6.43	1.49	6.07	1.62	5.70	1.75	5.33	1.88	4.97	2.01	4.60	2.14
RAS-3WHVRP1	+ RWM-3.0R1E / RWD-3.0RW1E-220S(-K)	22	-	-	-	-	-	-	10.50	1.67	9.90	1.73	9.30	1.80	8.70	1.86	8.10	1.93
		18	-	-	-	-	10.60	1.64	10.20	1.71	9.50	1.84	9.00	1.94	8.00	1.98	7.00	2.03
		15	9.50	1.40	9.52	1.54	9.53	1.68	9.55	1.82	8.84	1.90	8.14	1.98	7.43	2.06	6.73	2.14
		10	8.80	1.44	8.68	1.63	8.57	1.81	8.45	2.00	7.91	2.08	7.36	2.17	6.82	2.25	6.27	2.33
		7	8.10	1.56	8.00	1.74	7.90	1.93	7.80	2.11	7.60	2.08	7.00	2.19	6.50	2.32	6.00	2.45
		5	-	-	8.00	1.74	7.68	1.86	7.35	1.99	7.03	2.11	6.70	2.23	6.15	2.45	5.60	2.67
RAS-4WH(V)NPE	+ RWM-4.0N1E / RWD-4.0NW1E-220S(+K)	22	-	-	-	-	-	-	16.10	2.64	15.66	3.10	15.22	3.57	14.78	4.03	14.34	4.49
		18	-	-	-	-	17.00	2.93	16.10	2.85	15.50	3.60	15.00	4.00	14.35	4.45	13.70	4.89
		15	16.00	2.71	15.77	2.79	15.54	2.87	15.31	2.95	14.65	3.45	13.99	3.95	13.33	4.45	12.66	4.95
		10	15.10	2.75	14.73	2.87	14.36	2.99	13.99	3.12	13.23	3.60	12.46	4.09	11.70	4.57	10.94	5.06
		7	14.00	2.30	13.89	3.43	13.40	2.53	13.20	3.22	12.30	3.57	11.80	4.07	10.85	4.59	9.90	5.12
		5	-	-	13.33	3.81	12.54	4.04	11.76	4.28	10.97	4.51	10.18	4.74	9.39	4.98	8.60	5.21
RAS-5WH(V)NPE	+ RWM-5.0N1E / RWD-5.0NW1E-220S(+K)	22	-	-	-	-	-	-	18.30	3.27	17.98	3.92	17.65	4.56	17.33	5.21	17.00	5.86
		18	-	-	-	-	18.50	3.43	17.60	3.12	17.40	4.05	16.00	4.27	15.00	4.83	14.00	5.38
		15	17.10	3.42	17.09	3.40	17.09	3.38	17.08	3.36	16.07	3.90	15.05	4.43	14.03	4.96	13.02	5.49
		10	16.60	3.32	16.47	3.47	16.35	3.62	16.22	3.78	15.01	4.25	13.80	4.72	12.59	5.20	11.38	5.67
		7	16.10	3.16	15.90	3.25	15.40	3.14	15.70	4.03	13.20	3.83	12.60	4.67	11.50	5.22	10.40	5.78
		5	-	-	15.51	3.10	14.59	3.63	13.67	4.15	12.76	4.68	11.84	5.20	10.92	5.73	10.00	6.25

System		Water outlet temp (°C)	Ambient temperature (°C DB)															
			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-6WH(V)NPE + RWM-6.0N1E/ RWD-4.0NW1E-220S(-K)		22	-	-	-	-	-	-	20.00	4.00	19.63	4.71	19.25	5.43	18.88	6.14	18.50	6.85
		18	-	-	-	-	20.00	3.85	19.00	3.73	17.80	4.45	17.50	4.86	16.65	5.72	15.80	6.58
		15	18.00	4.09	18.10	4.07	18.19	4.05	18.29	4.02	17.34	4.66	16.39	5.29	15.44	5.92	14.49	6.55
		10	17.50	3.89	17.37	4.10	17.24	4.31	17.11	4.52	15.91	5.02	14.71	5.51	13.51	6.01	12.31	6.50
		7	17.00	3.70	16.79	3.73	16.70	4.07	16.40	4.82	14.90	4.32	13.70	5.37	12.35	5.92	11.00	6.47
		5	-	-	16.40	3.49	15.58	4.23	14.77	4.97	13.95	5.71	13.13	6.45	12.32	7.19	11.50	7.93
RAS-8WHNPE + RWM-8.0N1E		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-10.0N1E		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

3.3.2 Monobloc system - YUTAKI M

System	Water outlet temp (°C)	Ambient temperature (°C WB)																							
		10			15			20			25			30			35			40			45		
		CAP (kW)	IPT (kW)	EER (kW)	CAP (kW)	IPT (kW)	EER (kW)	CAP (kW)	IPT (kW)	EER (kW)	CAP (kW)	IPT (kW)	EER (kW)	CAP (kW)	IPT (kW)	EER (kW)	CAP (kW)	IPT (kW)	EER (kW)	CAP (kW)	IPT (kW)	EER (kW)	CAP (kW)	IPT (kW)	EER (kW)
RASM-2VRE	22	-	-	-	-	-	-	-	-	-	7.40	0.95	7.80	6.93	1.03	6.74	6.45	1.11	5.83	5.98	1.19	5.04	5.50	1.26	4.35
	18	-	-	-	-	-	-	7.50	0.96	7.80	7.10	0.97	7.30	6.80	1.08	6.30	6.40	1.21	5.30	5.75	1.27	4.54	5.10	1.32	3.85
	15	7.00	0.97	7.20	6.92	0.99	7.02	6.83	1.00	6.84	6.75	1.01	6.67	6.27	1.10	5.68	5.79	1.19	4.84	5.31	1.29	4.13	4.83	1.38	3.50
	10	6.80	0.97	7.00	6.58	1.01	6.54	6.37	1.04	6.12	6.15	1.08	5.72	5.71	1.17	4.86	5.26	1.27	4.14	4.82	1.37	3.52	4.37	1.47	2.98
	7	6.20	0.98	6.30	6.10	1.03	5.94	6.00	1.07	5.60	5.80	1.12	5.20	5.40	1.23	4.40	5.00	1.33	3.75	4.55	1.43	3.19	4.10	1.52	2.70
	5	-	-	-	5.50	1.08	5.10	5.20	1.17	4.46	4.90	1.26	3.90	4.60	1.34	3.42	4.30	1.43	3.00	4.00	1.52	2.63	3.70	1.61	2.30
RASM-3VRE	22	-	-	-	-	-	-	-	-	-	10.50	1.67	6.30	9.90	1.73	5.72	9.30	1.80	5.17	8.70	1.86	4.67	8.10	1.93	4.20
	18	-	-	-	-	-	-	10.60	1.64	6.45	10.20	1.71	5.95	9.50	1.84	5.15	9.00	1.94	4.65	8.00	1.98	4.04	7.00	2.03	3.45
	15	9.50	1.40	6.80	9.52	1.52	6.26	9.55	1.65	5.80	9.57	1.77	5.40	8.86	1.87	4.75	8.15	1.96	4.16	7.44	2.05	3.63	6.73	2.14	3.14
	10	8.80	1.44	6.10	8.71	1.58	5.50	8.62	1.73	4.99	8.53	1.87	4.56	7.96	1.99	4.01	7.40	2.10	3.52	6.84	2.22	3.08	6.27	2.33	2.69
	7	8.10	1.56	5.20	8.03	1.68	4.78	7.97	1.80	4.42	7.90	1.93	4.10	7.60	2.05	3.70	7.00	2.19	3.20	6.50	2.32	2.80	6.00	2.45	2.45
	5				8.00	1.74	4.60	7.68	1.86	4.12	7.35	1.99	3.70	7.03	2.11	3.33	6.70	2.23	3.00	6.15	2.45	2.51	5.60	2.67	2.10

System	Water outlet temp (°C)	Ambient temperature (°C WB)																							
		10			15			20			25			30			35			40			45		
		CAP (KW)	IPT (KW)	EER	CAP (KW)	IPT (KW)	EER	CAP (KW)	IPT (KW)	EER	CAP (KW)	IPT (KW)	EER	CAP (KW)	IPT (KW)	EER	CAP (KW)	IPT (KW)	EER	CAP (KW)	IPT (KW)	EER	CAP (KW)	IPT (KW)	EER
RASM-4R1E	20	0.00	0.00	0.00	16.68	2.75	6.05	16.68	2.75	6.05	16.68	2.76	6.04	16.68	2.95	5.66	16.91	3.32	5.10	15.88	3.87	4.11	13.00	4.76	2.73
	18	0.00	0.00	0.00	14.79	2.68	5.32	14.79	2.68	5.32	15.24	2.86	4.84	15.49	3.13	4.47	15.68	3.50	4.05	14.69	3.97	3.41	11.92	4.66	2.38
	15	13.93	2.62	5.32	13.93	2.62	5.32	13.93	2.62	5.32	14.16	2.93	4.84	14.59	3.27	4.47	14.76	3.64	4.05	13.79	4.05	3.41	11.11	4.66	2.38
	10	12.50	2.53	4.95	12.50	2.53	4.95	12.50	2.53	4.95	12.50	3.05	4.10	13.10	3.50	3.75	13.22	3.87	3.42	12.29	4.18	2.94	9.76	4.45	2.20
	7	12.27	2.53	4.85	12.27	2.53	4.85	12.27	2.53	4.85	12.63	3.15	4.01	12.13	3.36	3.61	11.76	3.41	3.45	11.39	4.25	2.68	8.95	4.37	2.05
	5	0.00	0.00	0.00	11.08	2.43	4.56	11.08	2.43	4.56	11.08	3.17	3.50	11.61	3.72	3.12	11.69	4.10	2.85	10.79	4.31	2.50	8.41	4.31	1.95
RASM-5R1E	20	0.00	0.00	0.00	17.94	3.40	5.28	17.94	3.40	5.28	17.94	3.24	5.53	17.94	3.32	5.41	18.22	3.63	5.02	17.16	4.17	4.11	14.12	5.13	2.75
	18	0.00	0.00	0.00	16.04	3.25	4.93	16.04	3.25	4.93	16.30	3.28	4.96	16.65	3.47	4.80	16.92	3.80	4.45	15.87	4.28	3.71	12.87	5.05	2.55
	15	15.11	3.14	4.81	15.11	3.14	4.81	15.11	3.14	4.81	15.11	3.32	4.56	15.69	3.58	4.38	15.95	3.93	4.06	14.91	4.36	3.42	11.94	5.05	2.36
	10	13.57	2.96	4.59	13.57	2.96	4.59	13.57	2.96	4.59	13.57	3.37	4.02	14.08	3.77	3.74	14.33	4.14	3.46	13.30	4.49	2.96	10.38	4.89	2.12
	7	13.17	2.94	4.49	13.17	2.94	4.49	13.17	2.94	4.49	12.85	3.31	3.88	13.22	3.69	3.58	14.01	4.45	3.15	12.34	4.57	2.70	9.45	4.83	1.96
	5	0.00	0.00	0.00	12.02	2.77	4.33	12.02	2.77	4.33	12.02	3.43	3.51	12.47	3.95	3.15	12.71	4.35	2.92	11.70	4.63	2.53	8.83	4.79	1.84
RASM-6R1E	20	0.00	0.00	0.00	19.08	3.61	5.28	19.08	3.61	5.28	19.08	3.45	5.53	19.08	3.53	5.41	19.38	3.86	5.02	18.25	4.44	4.11	15.02	5.46	2.75
	18	0.00	0.00	0.00	17.06	3.46	4.81	17.06	3.46	4.81	17.34	3.49	4.56	17.71	3.69	4.38	18.00	4.04	4.06	16.89	4.55	3.42	13.70	5.38	2.36
	15	16.07	3.34	4.81	16.07	3.34	4.81	16.07	3.34	4.81	16.07	3.53	4.56	16.69	3.81	4.38	16.97	4.18	4.06	15.86	4.64	3.42	12.70	5.38	2.36
	10	14.43	3.15	4.59	14.43	3.15	4.59	14.43	3.15	4.59	14.43	3.15	4.59	14.98	4.01	3.74	15.24	4.40	3.46	14.15	4.78	2.96	11.05	5.20	2.12
	7	14.01	3.12	4.49	14.01	3.12	4.49	14.01	3.12	4.49	13.67	3.52	3.88	14.07	3.92	3.58	14.91	4.74	3.15	13.13	4.87	2.70	10.05	5.14	1.96
	5	0.00	0.00	0.00	12.79	2.95	4.33	12.79	2.95	4.33	12.79	3.64	3.51	13.26	4.20	3.15	13.52	4.63	2.92	12.44	4.92	2.53	9.39	5.10	1.84
RASM-7R1E	20	0.00	0.00	0.00	21.36	4.58	4.66	21.36	4.58	4.66	21.36	4.17	5.12	21.36	4.11	5.19	21.70	4.41	4.92	20.49	5.05	4.06	17.03	6.29	2.71
	18	0.00	0.00	0.00	19.71	4.29	4.53	19.71	4.29	4.53	19.83	4.15	4.52	19.80	4.25	4.28	19.87	4.58	3.92	18.60	5.16	3.28	15.33	6.16	2.28
	15	18.47	4.08	4.53	18.47	4.08	4.53	18.47	4.08	4.53	18.69	4.14	4.52	18.63	4.35	4.28	18.50	4.72	3.92	17.18	5.24	3.28	14.06	6.16	2.28
	10	16.41	3.72	4.41	16.41	3.72	4.41	16.41	3.72	4.41	16.78	4.11	4.08	16.68	4.52	3.69	16.21	4.94	3.28	14.82	5.38	2.76	11.94	5.92	2.02
	7	15.74	3.56	4.43	15.74	3.56	4.43	15.74	3.56	4.43	15.86	3.98	3.98	15.41	4.39	3.51	15.48	5.07	3.05	13.40	5.46	2.45	10.67	5.83	1.83
	5	0.00	0.00	0.00	14.35	3.36	4.27	14.35	3.36	4.27	14.87	4.09	3.63	14.73	4.69	3.14	13.92	5.17	2.70	12.46	5.51	2.26	9.82	5.77	1.70

CAPACITY AND SELECTION DATA

3

MAXIMUM COOLING CAPACITY TABLE (KW)

System	Water outlet temp (°C)	Ambient temperature (°C WB)																							
		10			15			20			25			30			35			40			45		
		CAP (KW)	IPT (KW)	EER	CAP (KW)	IPT (KW)	EER	CAP (KW)	IPT (KW)	EER	CAP (KW)	IPT (KW)	EER	CAP (KW)	IPT (KW)	EER	CAP (KW)	IPT (KW)	EER	CAP (KW)	IPT (KW)	EER	CAP (KW)	IPT (KW)	EER
RASM-4VR1E	20	0.00	0.00	0.00	15.80	2.44	6.49	15.80	2.44	6.49	15.80	2.69	5.87	15.80	3.12	5.06	15.86	3.55	4.46	14.90	3.88	3.84	12.41	4.16	2.99
	18	0.00	0.00	0.00	15.09	2.43	6.22	15.09	2.43	6.22	15.08	2.68	5.63	14.97	3.11	4.81	14.82	3.52	4.21	13.79	3.86	3.57	11.42	4.19	2.73
	15	14.55	2.42	6.02	14.55	2.42	6.02	14.55	2.42	6.02	14.54	2.68	5.43	14.35	3.11	4.62	14.04	3.50	4.02	12.97	3.85	3.37	10.67	4.19	2.55
	10	13.66	2.40	5.69	13.66	2.40	5.69	13.66	2.40	5.69	13.63	2.73	4.99	13.32	3.09	4.31	12.74	3.45	3.69	11.58	3.82	3.03	9.43	4.25	2.22
	7	13.12	2.47	5.32	13.12	2.47	5.32	13.12	2.47	5.32	13.09	2.76	4.73	12.70	3.08	4.12	11.96	3.43	3.49	10.76	3.80	2.83	8.69	4.28	2.03
	5	0.00	0.00	0.00	12.77	2.53	5.04	12.77	2.53	5.04	12.73	2.79	4.57	12.28	3.08	3.99	11.44	3.41	3.35	10.20	3.79	2.69	8.19	4.29	1.91
RASM-5VR1E	20	0.00	0.00	0.00	15.89	2.46	6.45	15.89	2.46	6.45	15.89	2.77	5.74	15.89	3.27	4.85	17.18	3.81	4.51	16.85	4.26	3.96	14.34	4.67	3.07
	18	0.00	0.00	0.00	15.16	2.56	5.91	15.16	2.56	5.91	15.16	2.93	5.18	15.44	3.47	4.45	16.45	3.96	4.15	15.85	4.34	3.65	13.03	4.67	2.79
	15	14.75	2.64	5.59	14.75	2.64	5.59	14.75	2.64	5.59	14.75	3.06	4.82	15.10	3.62	4.17	15.90	4.07	3.91	15.10	4.41	3.43	12.05	4.67	2.58
	10	14.06	2.77	5.08	14.06	2.77	5.08	14.06	2.77	5.08	14.06	3.36	4.18	14.54	3.87	3.76	14.98	4.25	3.53	13.86	4.51	3.07	10.42	4.67	2.23
	7	15.02	3.47	4.33	15.02	3.47	4.33	15.02	3.47	4.33	14.35	3.75	3.83	14.16	3.95	3.58	14.39	4.30	3.35	13.11	4.58	2.86	9.44	4.67	2.02
	5	0.00	0.00	0.00	13.38	3.07	4.35	13.38	3.07	4.35	13.38	3.66	3.65	13.98	4.11	3.40	14.07	4.43	3.18	12.61	4.62	2.73	8.78	4.67	1.88
RASM-6VR1E	20	0.00	0.00	0.00	16.90	2.62	6.45	16.90	2.62	6.45	16.90	2.94	5.74	16.90	3.48	4.85	18.27	4.06	4.51	17.93	4.53	3.96	15.25	4.97	3.07
	18	0.00	0.00	0.00	16.13	2.73	5.91	16.13	2.73	5.91	16.13	3.11	5.18	16.42	3.69	4.45	17.49	4.21	4.15	16.87	4.62	3.65	13.86	4.97	2.79
	15	15.69	2.81	5.59	15.69	2.81	5.59	15.69	2.81	5.59	15.69	3.26	4.82	16.06	3.85	4.17	16.91	4.33	3.91	16.07	4.69	3.43	12.82	4.97	2.58
	10	14.96	2.94	5.08	14.96	2.94	5.08	14.96	2.94	5.08	14.96	3.57	4.18	15.46	4.11	3.76	15.94	4.52	3.53	14.74	4.80	3.07	11.08	4.96	2.23
	7	15.97	3.69	4.33	15.97	3.69	4.33	15.97	3.69	4.33	15.27	3.99	3.83	15.07	4.21	3.58	15.31	4.57	3.35	13.94	4.87	2.86	10.04	4.96	2.02
	5	0.00	0.00	0.00	14.23	3.27	4.35	14.23	3.27	4.35	14.23	3.89	3.65	14.87	4.37	3.40	14.97	4.71	3.18	13.41	4.91	2.73	9.34	4.96	1.88

3.3.3 Hydrosplit system

System	Water outlet temp (°C)	Ambient temperature (°C WB)																							
		10			15			20			25			30			35			40			45		
		CAP (KW)	IPT (KW)	EER	CAP (KW)	IPT (KW)	EER	CAP (KW)	IPT (KW)	EER	CAP (KW)	IPT (KW)	EER	CAP (KW)	IPT (KW)	EER	CAP (KW)	IPT (KW)	EER	CAP (KW)	IPT (KW)	EER	CAP (KW)	IPT (KW)	EER
RASM-4RW1E	20	0.00	0.00	0.00	16.68	2.75	6.05	16.68	2.75	6.05	16.68	2.76	6.04	16.68	2.95	5.66	16.91	3.32	5.10	15.88	3.87	4.11	13.00	4.76	2.73
	18	0.00	0.00	0.00	14.79	2.68	5.32	14.79	2.68	5.32	15.24	2.86	4.84	15.49	3.13	4.47	15.68	3.50	4.05	14.69	3.97	3.41	11.92	4.66	2.38
	15	13.93	2.62	5.32	13.93	2.62	5.32	13.93	2.62	5.32	14.16	2.93	4.84	14.59	3.27	4.47	14.76	3.64	4.05	13.79	4.05	3.41	11.11	4.66	2.38
	10	12.50	2.53	4.95	12.50	2.53	4.95	12.50	2.53	4.95	12.50	3.05	4.10	13.10	3.50	3.75	13.22	3.87	3.42	12.29	4.18	2.94	9.76	4.45	2.20
	7	12.27	2.53	4.85	12.27	2.53	4.85	12.27	2.53	4.85	12.63	3.15	4.01	12.13	3.36	3.61	11.76	3.41	3.45	11.39	4.25	2.68	8.95	4.37	2.05
	5	0.00	0.00	0.00	11.08	2.43	4.56	11.08	2.43	4.56	11.08	3.17	3.50	11.61	3.72	3.12	11.69	4.10	2.85	10.79	4.31	2.50	8.41	4.31	1.95
RASM-5RW1E	20	0.00	0.00	0.00	17.94	3.40	5.28	17.94	3.40	5.28	17.94	3.24	5.53	17.94	3.32	5.41	18.22	3.63	5.02	17.16	4.17	4.11	14.12	5.13	2.75
	18	0.00	0.00	0.00	16.04	3.25	4.93	16.04	3.25	4.93	16.30	3.28	4.96	16.65	3.47	4.80	16.92	3.80	4.45	15.87	4.28	3.71	12.87	5.05	2.55
	15	15.11	3.14	4.81	15.11	3.14	4.81	15.11	3.14	4.81	15.11	3.32	4.56	15.69	3.58	4.38	15.95	3.93	4.06	14.91	4.36	3.42	11.94	5.05	2.36
	10	13.57	2.96	4.59	13.57	2.96	4.59	13.57	2.96	4.59	13.57	3.37	4.02	14.08	3.77	3.74	14.33	4.14	3.46	13.30	4.49	2.96	10.38	4.89	2.12
	7	13.17	2.94	4.49	13.17	2.94	4.49	13.17	2.94	4.49	12.85	3.31	3.88	13.22	3.69	3.58	14.01	4.45	3.15	12.34	4.57	2.70	9.45	4.83	1.96
	5	0.00	0.00	0.00	12.02	2.77	4.33	12.02	2.77	4.33	12.02	3.43	3.51	12.47	3.95	3.15	12.71	4.35	2.92	11.70	4.63	2.53	8.83	4.79	1.84
RASM-6RW1E	20	0.00	0.00	0.00	19.08	3.61	5.28	19.08	3.61	5.28	19.08	3.45	5.53	19.08	3.53	5.41	19.38	3.86	5.02	18.25	4.44	4.11	15.02	5.46	2.75
	18	0.00	0.00	0.00	17.06	3.46	4.81	17.06	3.46	4.81	17.34	3.49	4.56	17.71	3.69	4.38	18.00	4.04	4.06	16.89	4.55	3.42	13.70	5.38	2.36
	15	16.07	3.34	4.81	16.07	3.34	4.81	16.07	3.34	4.81	16.07	3.53	4.56	16.69	3.81	4.38	16.97	4.18	4.06	15.86	4.64	3.42	12.70	5.38	2.36
	10	14.43	3.15	4.59	14.43	3.15	4.59	14.43	3.15	4.59	14.43	3.15	4.59	14.98	4.01	3.74	15.24	4.40	3.46	14.15	4.78	2.96	11.05	5.20	2.12
	7	14.01	3.12	4.49	14.01	3.12	4.49	14.01	3.12	4.49	13.67	3.52	3.88	14.07	3.92	3.58	14.91	4.74	3.15	13.13	4.87	2.70	10.05	5.14	1.96
	5	0.00	0.00	0.00	12.79	2.95	4.33	12.79	2.95	4.33	12.79	3.64	3.51	13.26	4.20	3.15	13.52	4.63	2.92	12.44	4.92	2.53	9.39	5.10	1.84
RASM-7RW1E	20	0.00	0.00	0.00	21.36	4.58	4.66	21.36	4.58	4.66	21.36	4.17	5.12	21.36	4.11	5.19	21.70	4.41	4.92	20.49	5.05	4.06	17.03	6.29	2.71
	18	0.00	0.00	0.00	19.71	4.29	4.53	19.71	4.29	4.53	19.83	4.15	4.52	19.80	4.25	4.28	19.87	4.58	3.92	18.60	5.16	3.28	15.33	6.16	2.28
	15	18.47	4.08	4.53	18.47	4.08	4.53	18.47	4.08	4.53	18.69	4.14	4.52	18.63	4.35	4.28	18.50	4.72	3.92	17.18	5.24	3.28	14.06	6.16	2.28
	10	16.41	3.72	4.41	16.41	3.72	4.41	16.41	3.72	4.41	16.78	4.11	4.08	16.68	4.52	3.69	16.21	4.94	3.28	14.82	5.38	2.76	11.94	5.92	2.02
	7	15.74	3.56	4.43	15.74	3.56	4.43	15.74	3.56	4.43	15.86	3.98	3.98	15.41	4.39	3.51	15.48	5.07	3.05	13.40	5.46	2.45	10.67	5.83	1.83
	5	0.00	0.00	0.00	14.35	3.36	4.27	14.35	3.36	4.27	14.87	4.09	3.63	14.73	4.69	3.14	13.92	5.17	2.70	12.46	5.51	2.26	9.82	5.77	1.70

CAPACITY AND SELECTION DATA

3

MAXIMUM COOLING CAPACITY TABLE (KW)

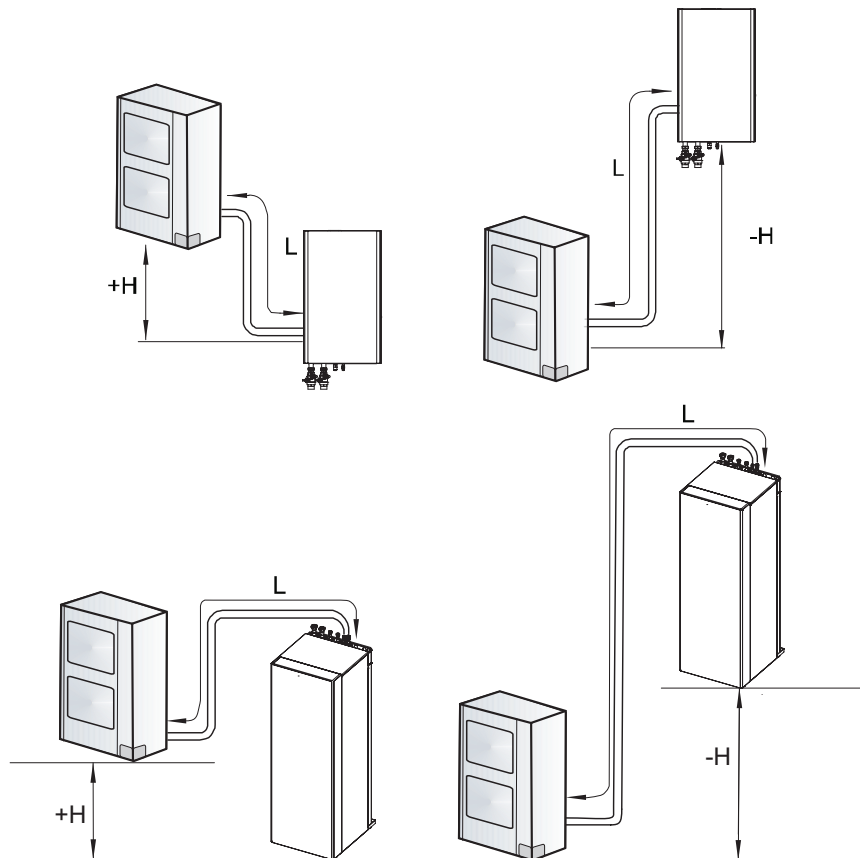
System	Water outlet temp (°C)	Ambient temperature (°C WB)																							
		10			15			20			25			30			35			40			45		
		CAP (KW)	IPT (KW)	EER	CAP (KW)	IPT (KW)	EER	CAP (KW)	IPT (KW)	EER	CAP (KW)	IPT (KW)	EER	CAP (KW)	IPT (KW)	EER	CAP (KW)	IPT (KW)	EER	CAP (KW)	IPT (KW)	EER	CAP (KW)	IPT (KW)	EER
RASM-4VRW1E	20	0.00	0.00	0.00	15.80	2.44	6.49	15.80	2.44	6.49	15.80	2.69	5.87	15.80	3.12	5.06	15.86	3.55	4.46	14.90	3.88	3.84	12.41	4.16	2.99
	18	0.00	0.00	0.00	15.09	2.43	6.22	15.09	2.43	6.22	15.08	2.68	5.63	14.97	3.11	4.81	14.82	3.52	4.21	13.79	3.86	3.57	11.42	4.19	2.73
	15	14.55	2.42	6.02	14.55	2.42	6.02	14.55	2.42	6.02	14.54	2.68	5.43	14.35	3.11	4.62	14.04	3.50	4.02	12.97	3.85	3.37	10.67	4.19	2.55
	10	13.66	2.40	5.69	13.66	2.40	5.69	13.66	2.40	5.69	13.63	2.73	4.99	13.32	3.09	4.31	12.74	3.45	3.69	11.58	3.82	3.03	9.43	4.25	2.22
	7	13.12	2.47	5.32	13.12	2.47	5.32	13.12	2.47	5.32	13.09	2.76	4.73	12.70	3.08	4.12	11.96	3.43	3.49	10.76	3.80	2.83	8.69	4.28	2.03
	5	0.00	0.00	0.00	12.77	2.53	5.04	12.77	2.53	5.04	12.73	2.79	4.57	12.28	3.08	3.99	11.44	3.41	3.35	10.20	3.79	2.69	8.19	4.29	1.91
RASM-5VRW1E	20	0.00	0.00	0.00	15.89	2.46	6.45	15.89	2.46	6.45	15.89	2.77	5.74	15.89	3.27	4.85	17.18	3.81	4.51	16.85	4.26	3.96	14.34	4.67	3.07
	18	0.00	0.00	0.00	15.16	2.56	5.91	15.16	2.56	5.91	15.16	2.93	5.18	15.44	3.47	4.45	16.45	3.96	4.15	15.85	4.34	3.65	13.03	4.67	2.79
	15	14.75	2.64	5.59	14.75	2.64	5.59	14.75	2.64	5.59	14.75	3.06	4.82	15.10	3.62	4.17	15.90	4.07	3.91	15.10	4.41	3.43	12.05	4.67	2.58
	10	14.06	2.77	5.08	14.06	2.77	5.08	14.06	2.77	5.08	14.06	3.36	4.18	14.54	3.87	3.76	14.98	4.25	3.53	13.86	4.51	3.07	10.42	4.67	2.23
	7	15.02	3.47	4.33	15.02	3.47	4.33	15.02	3.47	4.33	14.35	3.75	3.83	14.16	3.95	3.58	14.39	4.30	3.35	13.11	4.58	2.86	9.44	4.67	2.02
	5	0.00	0.00	0.00	13.38	3.07	4.35	13.38	3.07	4.35	13.38	3.66	3.65	13.98	4.11	3.40	14.07	4.43	3.18	12.61	4.62	2.73	8.78	4.67	1.88
RASM-6VRW1E	20	0.00	0.00	0.00	16.90	2.62	6.45	16.90	2.62	6.45	16.90	2.94	5.74	16.90	3.48	4.85	18.27	4.06	4.51	17.93	4.53	3.96	15.25	4.97	3.07
	18	0.00	0.00	0.00	16.13	2.73	5.91	16.13	2.73	5.91	16.13	3.11	5.18	16.42	3.69	4.45	17.49	4.21	4.15	16.87	4.62	3.65	13.86	4.97	2.79
	15	15.69	2.81	5.59	15.69	2.81	5.59	15.69	2.81	5.59	15.69	3.26	4.82	16.06	3.85	4.17	16.91	4.33	3.91	16.07	4.69	3.43	12.82	4.97	2.58
	10	14.96	2.94	5.08	14.96	2.94	5.08	14.96	2.94	5.08	14.96	3.57	4.18	15.46	4.11	3.76	15.94	4.52	3.53	14.74	4.80	3.07	11.08	4.96	2.23
	7	15.97	3.69	4.33	15.97	3.69	4.33	15.97	3.69	4.33	15.27	3.99	3.83	15.07	4.21	3.58	15.31	4.57	3.35	13.94	4.87	2.86	10.04	4.96	2.02
	5	0.00	0.00	0.00	14.23	3.27	4.35	14.23	3.27	4.35	14.23	3.89	3.65	14.87	4.37	3.40	14.97	4.71	3.18	13.41	4.91	2.73	9.34	4.96	1.88

- 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.

3.4 Correction factors

3.4.1 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).

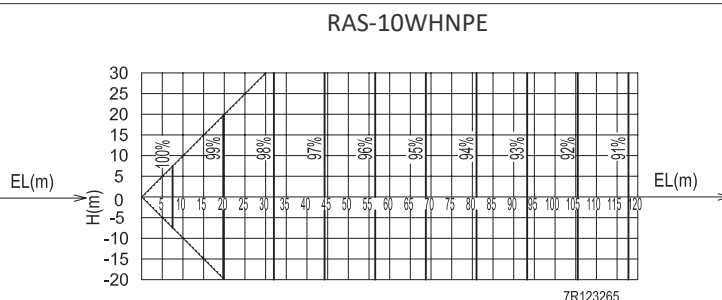
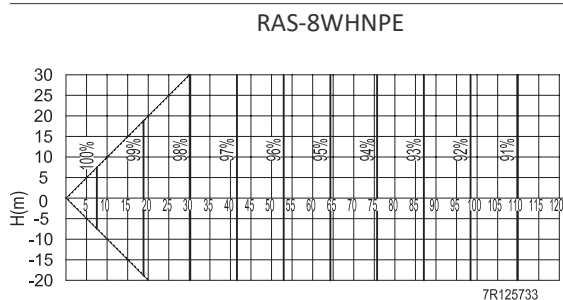
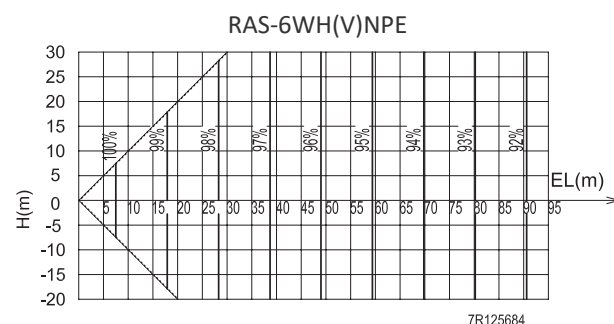
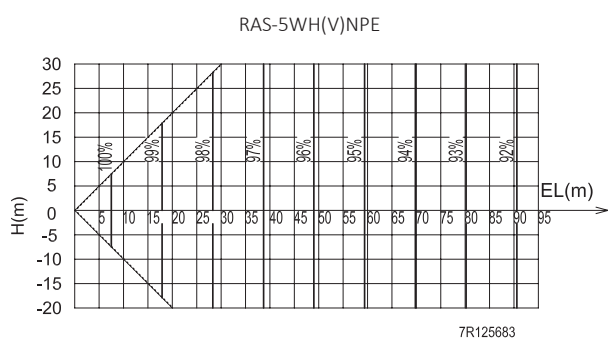
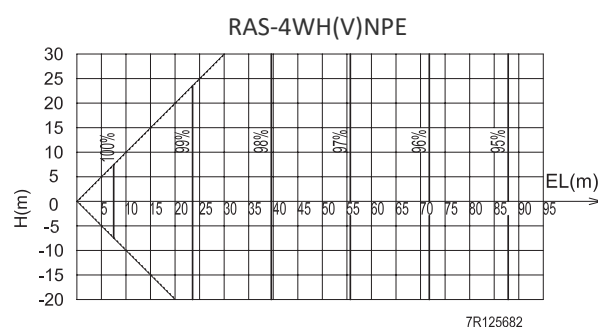
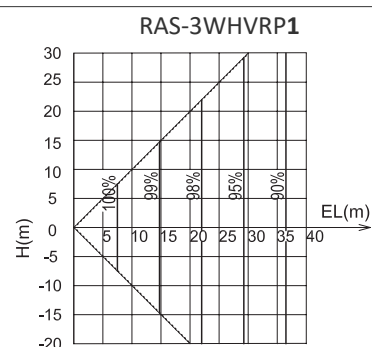
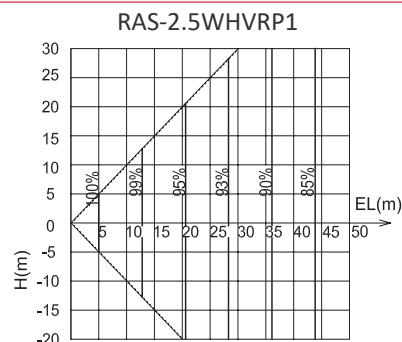
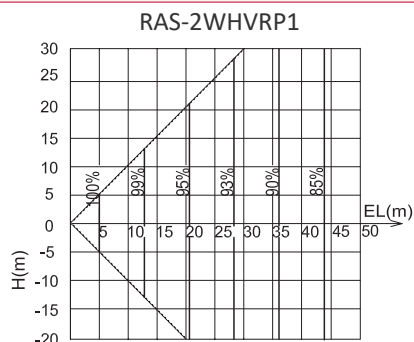
L: Actual one-way piping length between indoor unit and outdoor unit (m).

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.

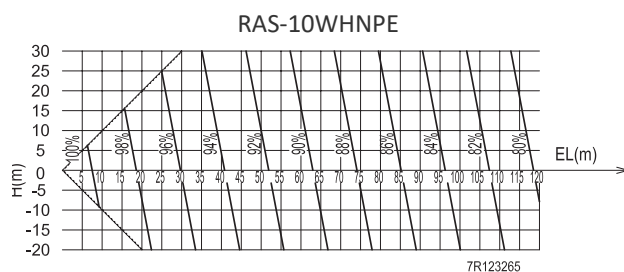
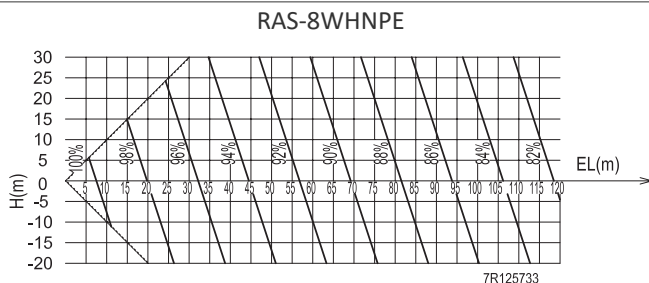
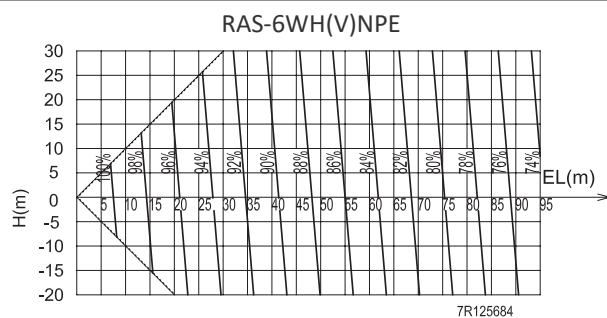
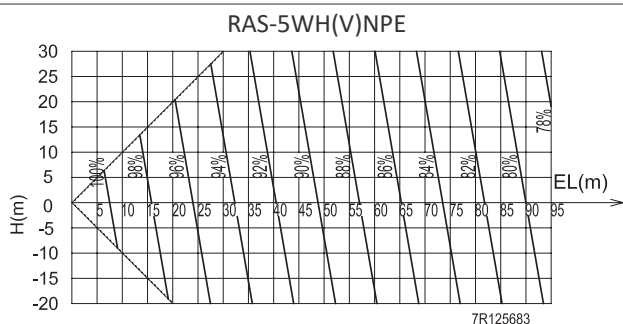
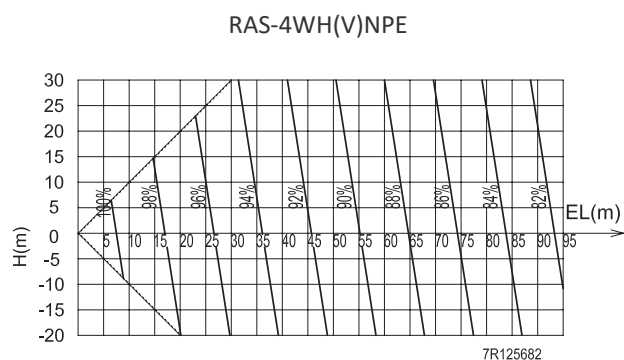
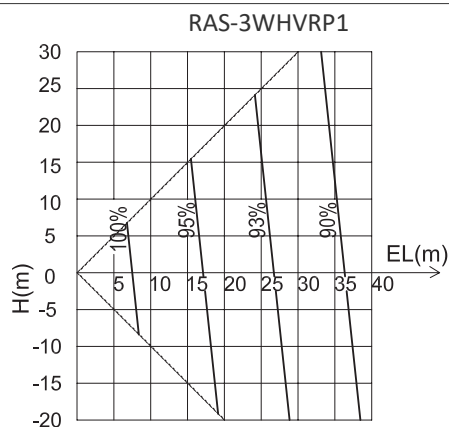
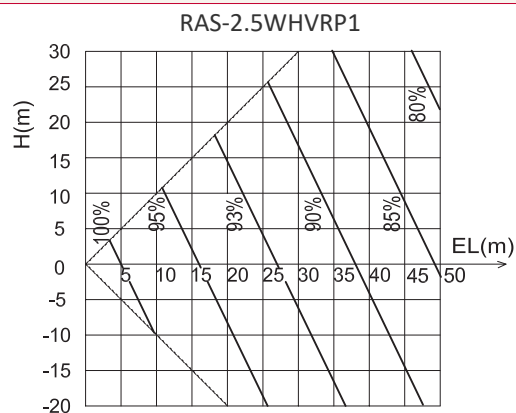
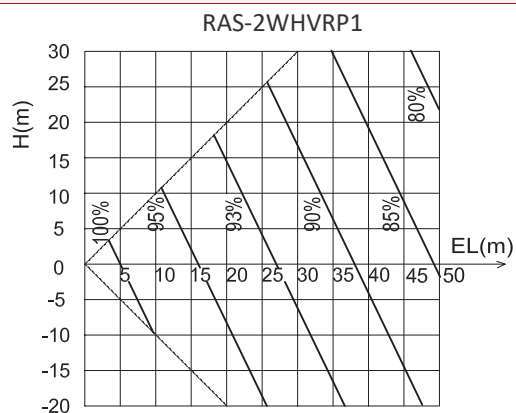
◆ Heating piping length correction factor

Heating



◆ Cooling piping length correction factor

Cooling



3.4.2 Correction factor owing to use of glycol

CAUTION

This chapter is only applicable to the corresponding models of Monobloc system - YUTAKI M and Hydrosplit system.

◆ Application at low ambient temperature

When the ambient temperature is low in winter, the water in the pipes and circulating pump may freeze and damage the pipes and water pumps during shutdown periods.

To prevent this, it is useful to drain the water from the installation or not to cut off the power supply of the installation, as an electrical cable can prevent the water from freezing in the circuit.

In addition, in cases where it is difficult to drain the water, it is advisable to use a mixture with antifreeze glycol (propylene glycol at a concentration between 10% and 45%).

Unit performance may be reduced when operating with glycol, depending on the percentage of glycol used, since glycol is denser than water.

Table for propylene glycol is shown below, indicating the percentage of glycol recommended for diverse values of outdoor air inlet temperature, with their respective correction factors.

Corrected heating capacity = capacity correction factor owing to use of glycol × heating capacity

✓ Ethylene glycol

Ambient Temperature	DB (°C)	-3	-7	-13	-22
Percentage of glycol required	%	10	20	30	40
Capacity correction factor	f_{gh}	1.00	1.00	0.99	0.99
Consumed power correction factor	f_{gi}	1.01	1.02	1.03	1.04
Flow rate correction factor	f_{gc}	1.01	1.01	1.02	1.04
Pressure loss correction factor	f_{gp}	1.03	1.09	1.16	1.26

✓ Propylene glycol

Ambient Temperature	DB (°C)	-3	-7	-13	-22
Percentage of glycol required	%	10	20	30	40
Capacity correction factor	f_{gh}	1.00	1.00	0.99	0.99
Consumed power correction factor	f_{gi}	1.01	1.02	1.03	1.04
Flow rate correction factor	f_{gc}	1.02	1.02	1.04	1.07
Pressure loss correction factor	f_{gp}	1.24	1.31	1.39	1.51

CAUTION

The use of glycol affect to the reading of some parameters like “water flow level” and “capacity” shown through the unit controller menu. When glycol is used, these data are not correct and must be not used.

3.4.3 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

Altitude	m	2100	2400	2700	3000	3300	3600	3900	4000
Correction factor		0.78	0.75	0.72	0.69	0.67	0.64	0.62	0.61

3.5 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/yutaki/login>

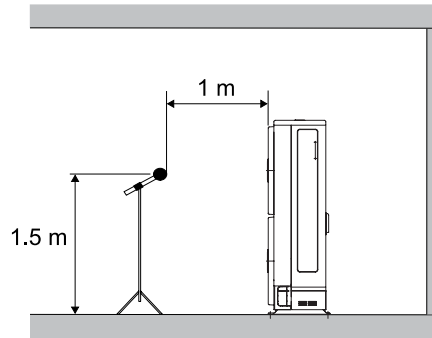


Sound data

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4.1 Considerations

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



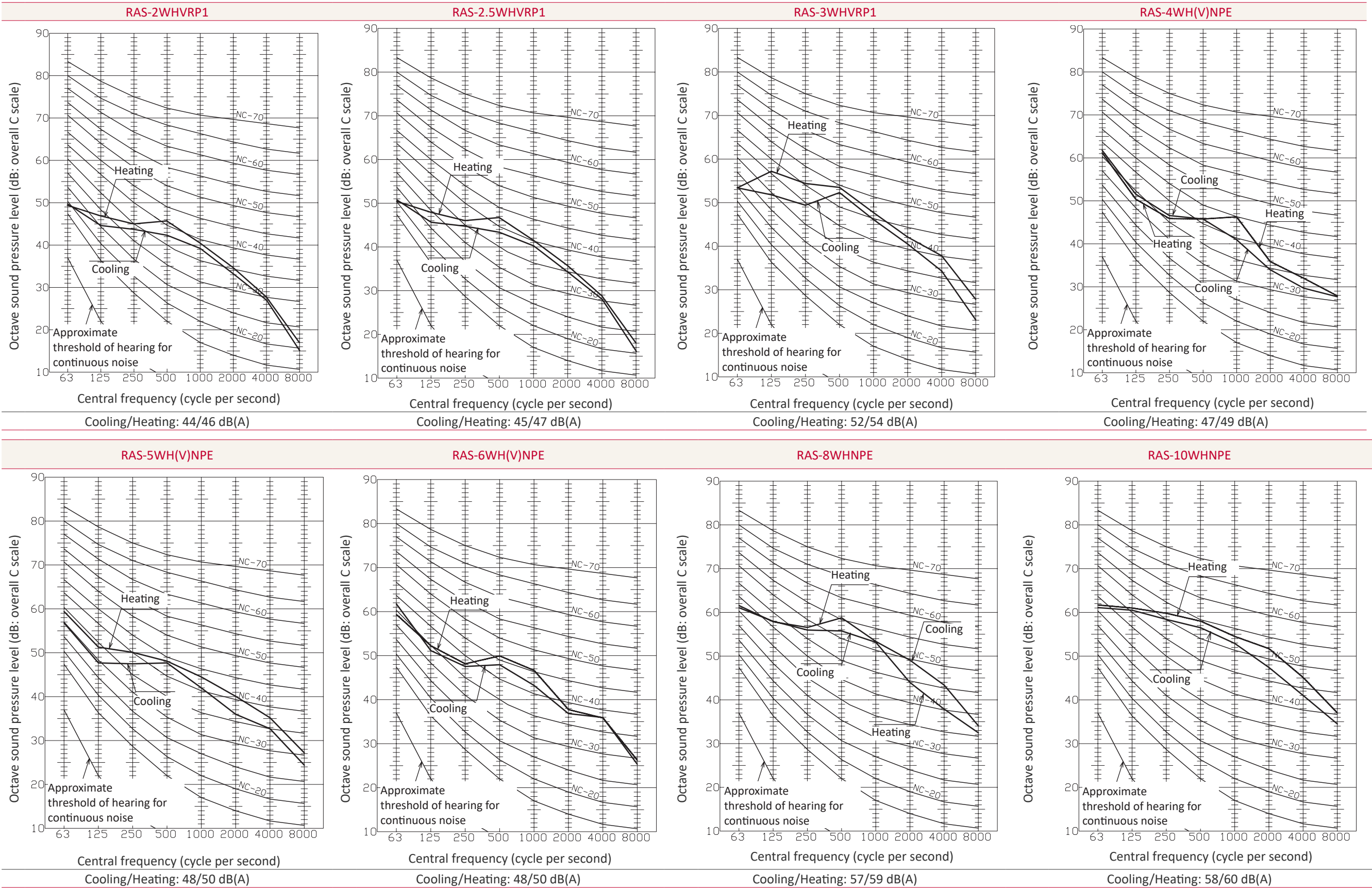
The data is measured in an anechoic chamber, so reflected sound should be taken into consideration when installing the unit.

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

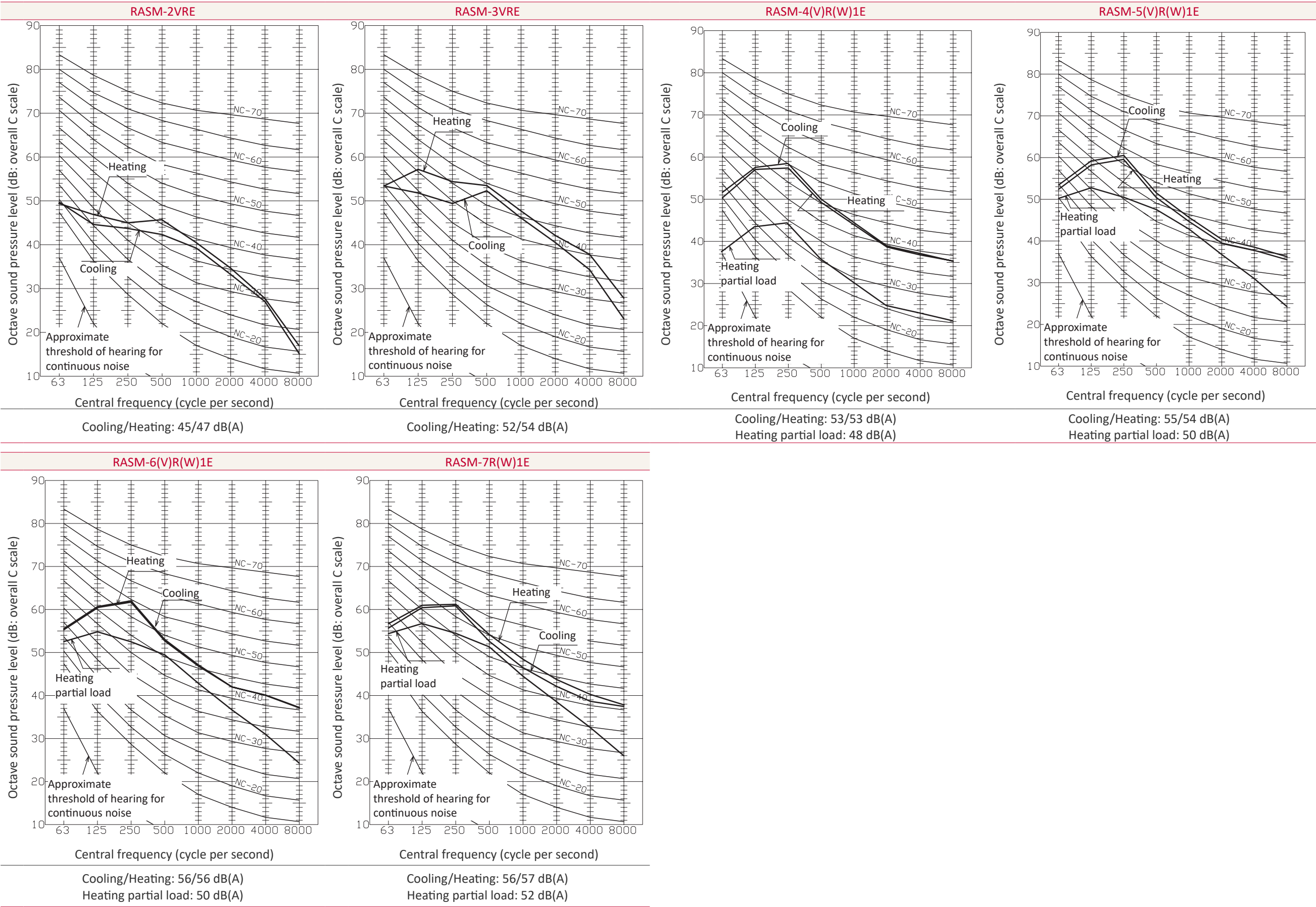
Reference acoustic pressure 0 dB=20 μ Pa.

4.2 Sound pressure level

4.2.1 Split system - Outdoor unit



4.2.2 Monobloc system - YUTAKI M and Hydrosplit system - Outdoor unit



Working range

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5.1 Power supply working range

◆ Nominal power supply

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

◆ Operating voltage

Between 90 and 110% of the nominal voltage.

◆ Starting voltage

Always higher than 85% of the nominal voltage.

◆ Relative humidity limit

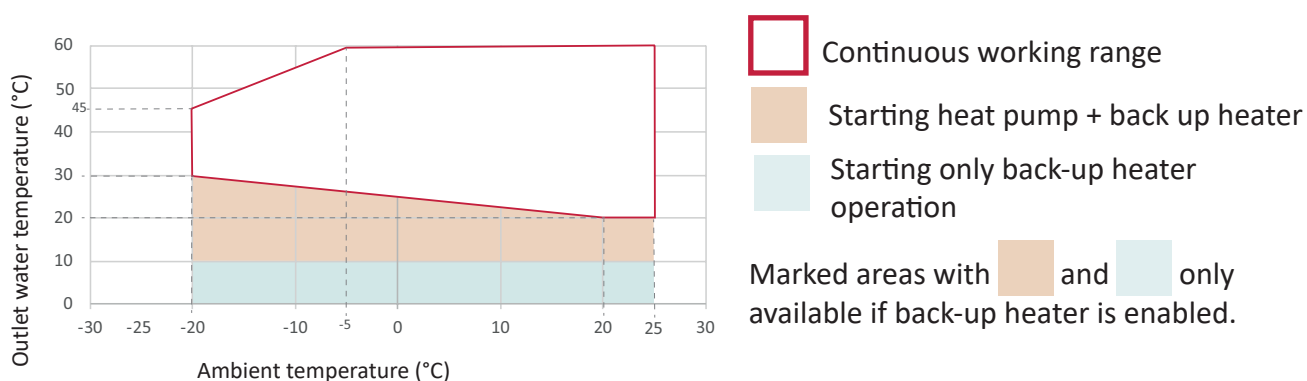
Lower than 80%.

5.2 Temperature working range

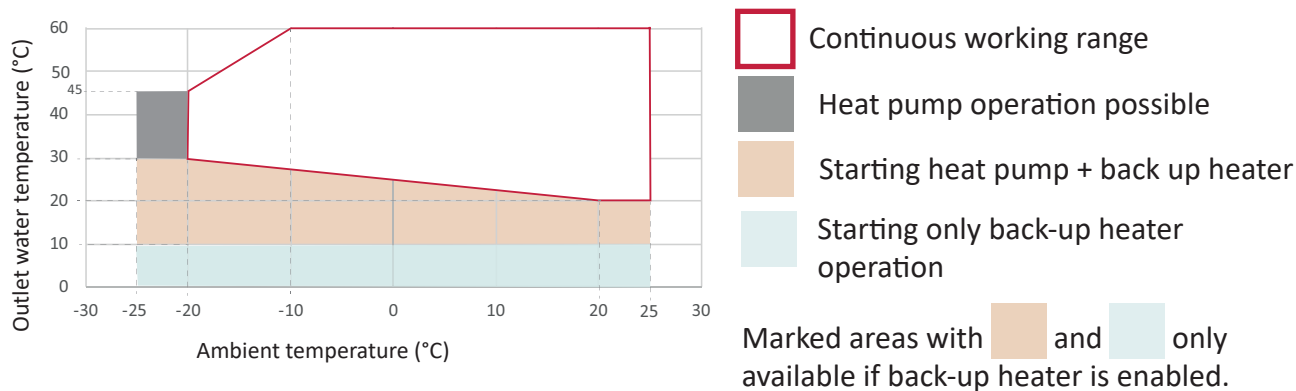
MODEL	2.0HP	2.5HP	3.0HP	4.0HP	5.0HP	6.0HP	8.0HP	10.0HP
Water temperature	Refer to the graphics for each case							
Indoor ambient temperature	5~30							

5.2.1 Space heating

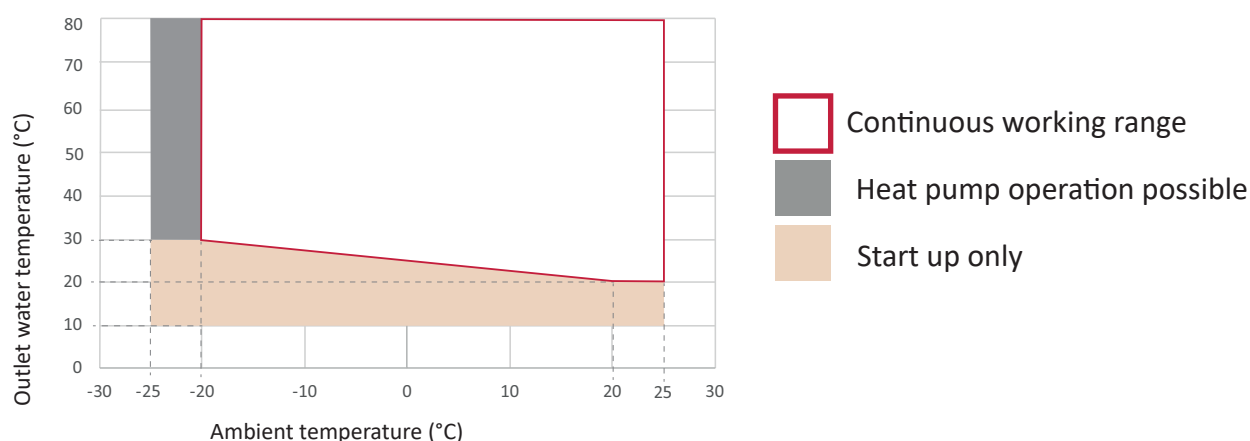
◆ Split system - YUTAKI S / YUTAKI S Combi (2.0-3.0 HP)



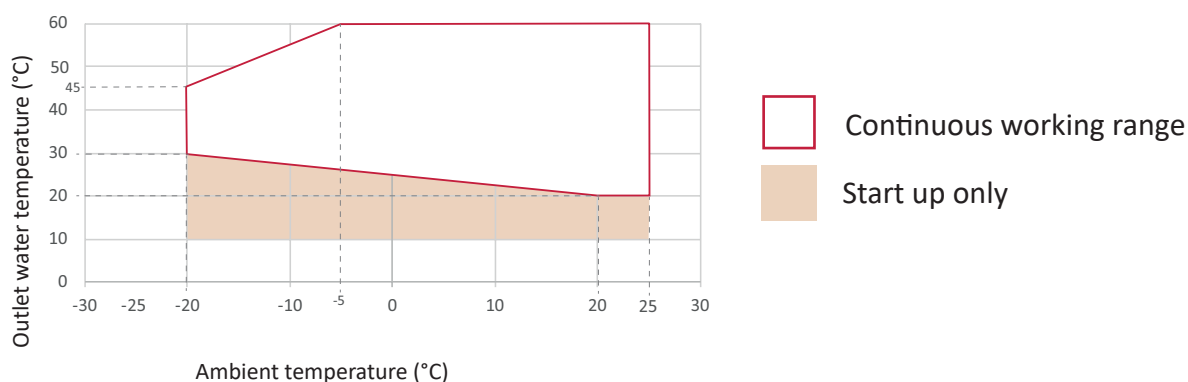
◆ Split system - YUTAKI S (4.0-10.0 HP) / YUTAKI S Combi (4.0-6.0 HP)



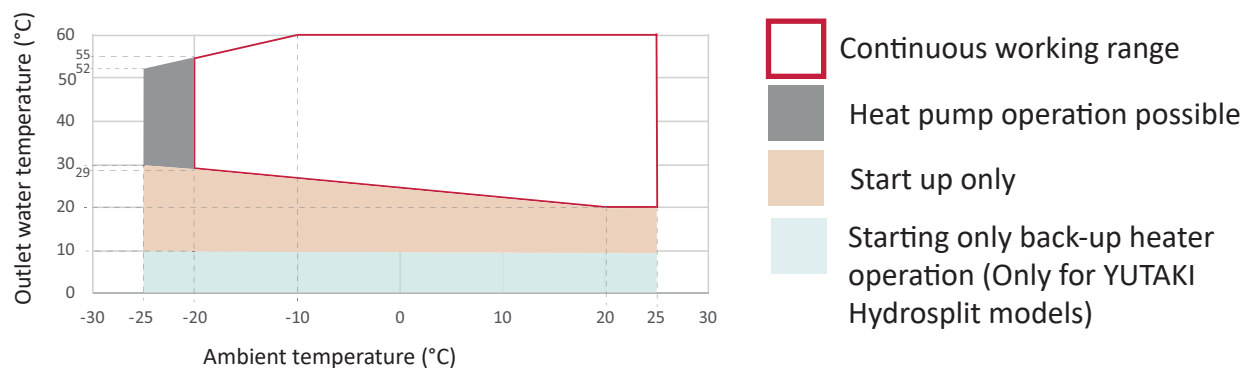
◆ Split system - YUTAKI S80



◆ Monobloc system -RASM-(2/3)VRE

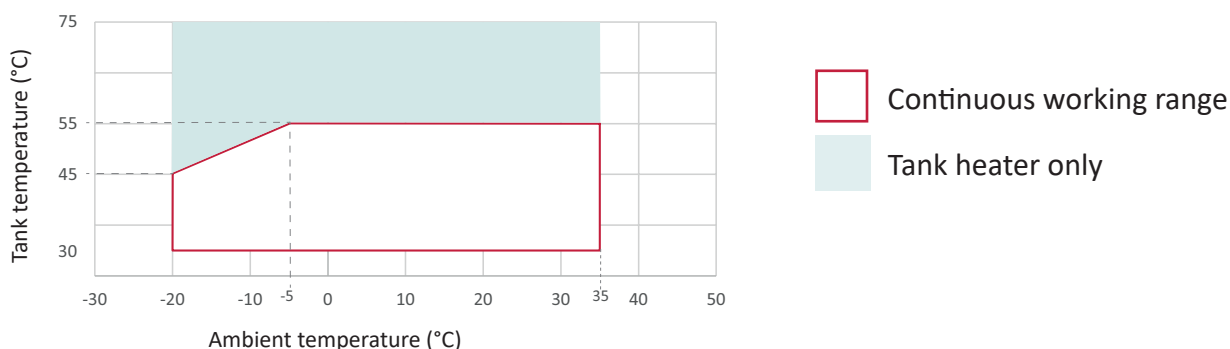


◆ Monobloc sytem and Hydrosplit system - RASM-(4-7)(V)R(W)1E



5.2.2 DHW

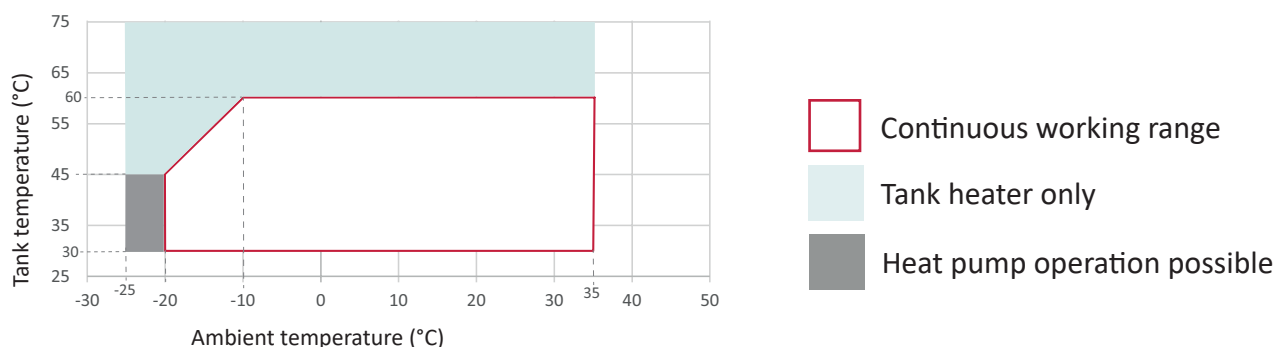
◆ Split system - YUTAKI S / YUTAKI S Combi (2-3 HP)



i 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.

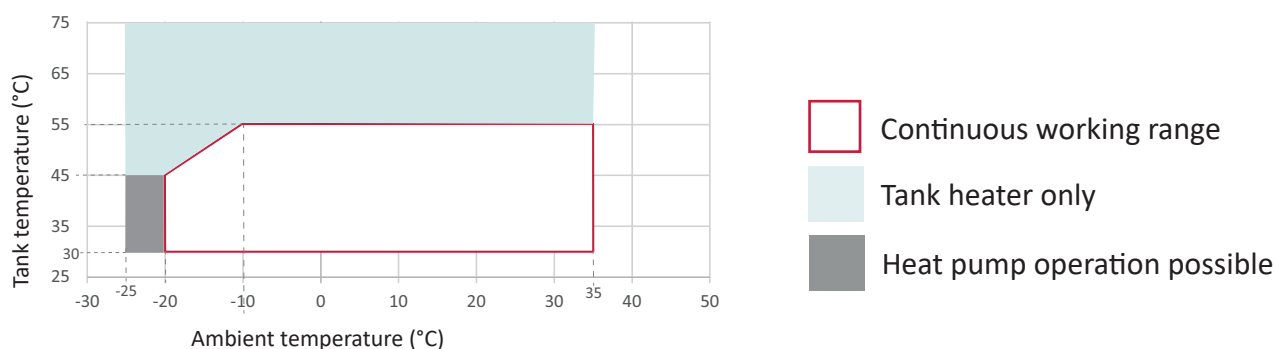
◆ Split system - YUTAKI S (4.0-10.0HP)



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.

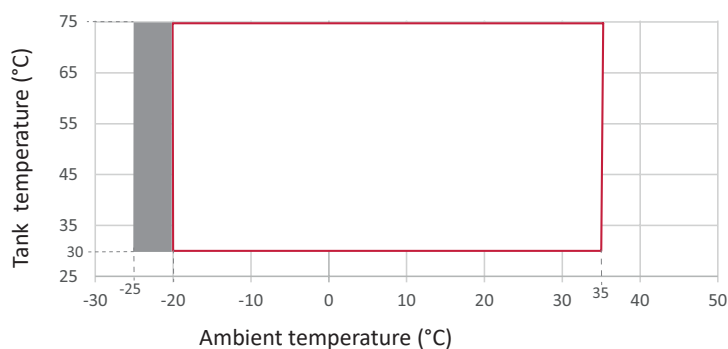
◆ Split system - YUTAKI S Combi (4.0-6.0HP)



i NOTE

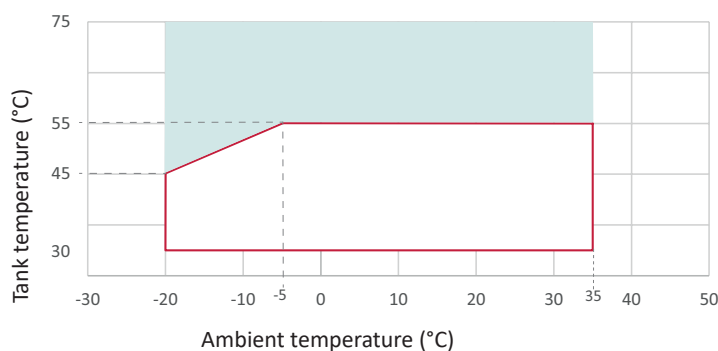
In case of heating up the DHW tank with an outdoor ambient temperature lower than -10 °C and without using the DHW electrical heater, the setting temperature will change automatically in order to not exceed the maximum value in the specified continuous working range.

◆ Split system - YUTAKI S80



- Continuous working range
- Heat pump operation possible

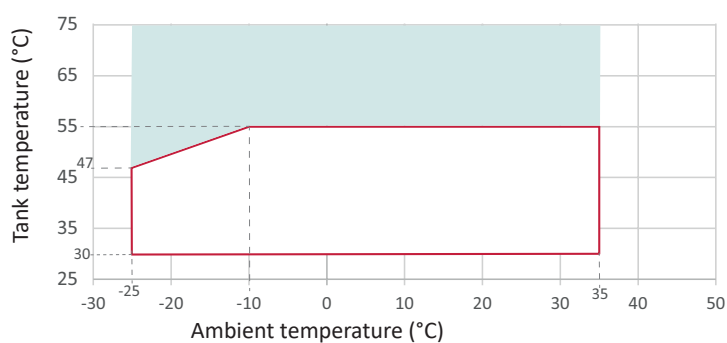
◆ Monobloc system - YUTAKI M - RASM-(2/3)VRE



- Continuous working range
- Tank heater only

Area marked with only available if DHW tank back-up heater is enabled.

◆ Monobloc system - YUTAKI M / Hydrosplit system - RASM-(4-7)(V)R(W)1E

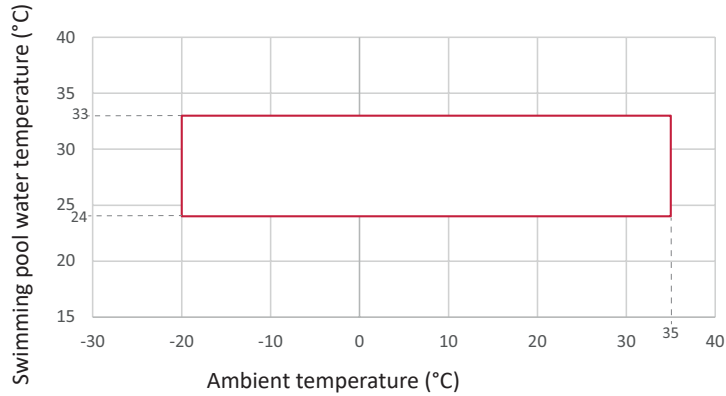


- Continuous working range
- Tank heater only

Area marked with only available if DHW tank back-up heater is enabled.

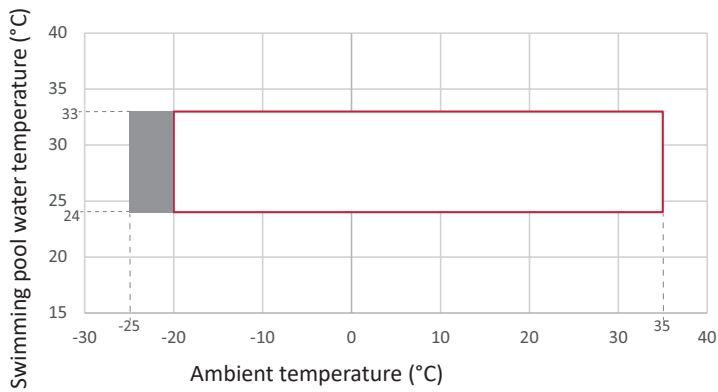
5.2.3 Swimming pool heating

◆ 2.0 - 3.0 HP units



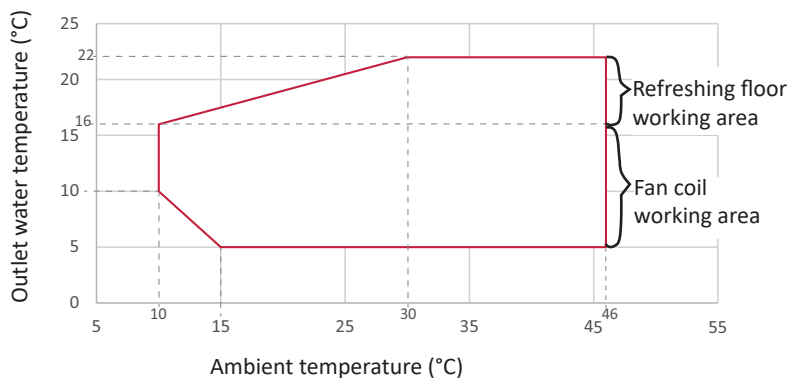
 Continuous working range

◆ 4.0 - 10.0 HP units



 Continuous working range
 Heat pump operation possible

5.2.4 Space cooling (Necessary cooling kit)



 Continuous working range

5.3 Hydraulic working range

5.3.1 Hydraulic data

◆ Split system - YUTAKI S

MODEL		2.0 HP	2.5 HP	3.0 HP	4.0 HP	5.0 HP	6.0 HP	8.0 HP	10.0 HP
Minimum water flow rate (*1)	m ³ /h	0.5	0.6	0.6	1.0	1.1	1.2	2.0	2.2
Maximum water flow rate (*1)	m ³ /h	1.9	2.0	2.1	2.9	3.0	3.0	4.5	4.6
Minimum installation water volume (*2)	l	28	28	28	38	46	55	76	79
Minimum allowable water pressure	MPa					0.1			
Maximum allowable water pressure	MPa					0.3			

◆ Split system - YUTAKI S Combi

MODEL		2.0 HP	2.5 HP	3.0 HP	4.0 HP	5.0 HP	6.0 HP
Minimum water flow rate (*1)	m ³ /h	0.5	0.6	0.6	1.0	1.1	1.2
Maximum water flow rate (*1)	m ³ /h	1.8	1.9	1.9	2.7	2.8	2.8
Minimum installation water volume (*2)	l	28	28	28	38	46	55
Minimum allowable water pressure	MPa				0.1		
Maximum allowable water pressure	MPa				0.3		

◆ Split system - YUTAKI S80

MODEL		4.0 HP		5.0 HP		6.0 HP	
		Version for indoor unit alone	Version for combination with DHW tank	Version for indoor unit alone	Version for combination with DHW tank	Version for indoor unit alone	Version for combination with DHW tank
Minimum water flow rate (*1)	m ³ /h	1.0		1.1		1.2	
Maximum water flow rate (*1)	m ³ /h	2.8	2.5	3.2	2.7	3.2	2.7
Minimum installation water volume (*2)	l	40		50		50	
Minimum allowable water pressure	MPa			0.1			
Maximum allowable water pressure	MPa			0.3			

◆ Monobloc system - YUTAKI M

MODEL		2.0 HP	2.5 HP	3.0 HP	4.0 HP	5.0 HP	6.0 HP	7.0 HP
Minimum water flow rate (*1)	m ³ /h	0.5	0.6	0.6	1.0	1.1	1.2	1.2
Maximum water flow rate (*1)	m ³ /h	1.9	2.0	2.1	2.8	3.0	3.0	3.0
Minimum installation water volume (*2)	l	28	28	28	50	55	55	65
Minimum allowable water pressure	MPa				0.1			
Maximum allowable water pressure	MPa				0.3			

◆ Hydrosplit system

MODEL		4.0 HP	5.0 HP	6.0 HP	7.0 HP
Minimum water flow rate (*1)	m ³ /h	1,0	1,1	1,2	1,2
Maximum water flow rate (*1)	m ³ /h	2,8	3,0	3,0	3,0
Minimum installation water volume (*2)	l	50	55	55	65
Minimum allowable water pressure	MPa			0,1	
Maximum allowable water pressure	MPa			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.

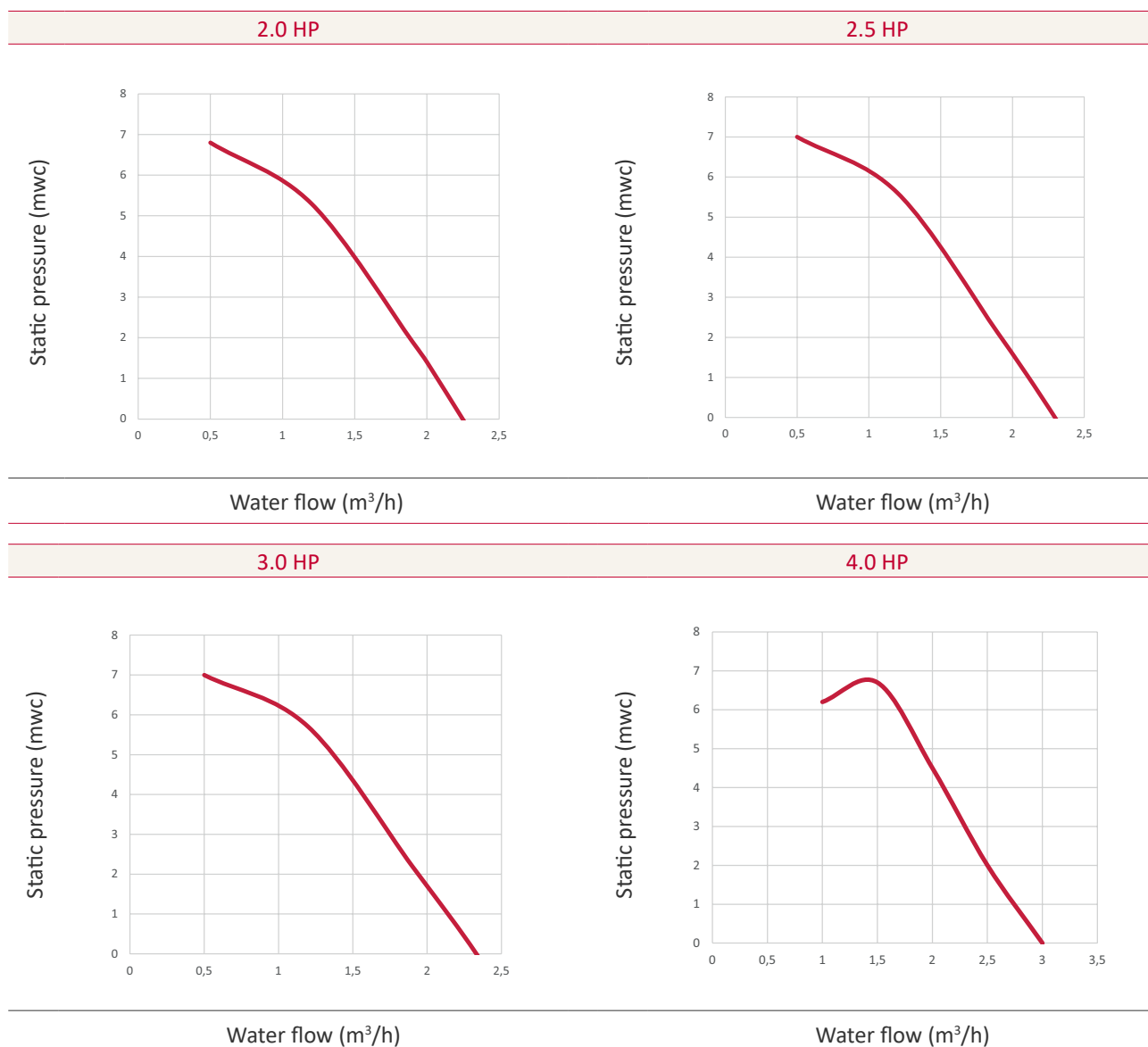
5.3.2 Pump performance curves

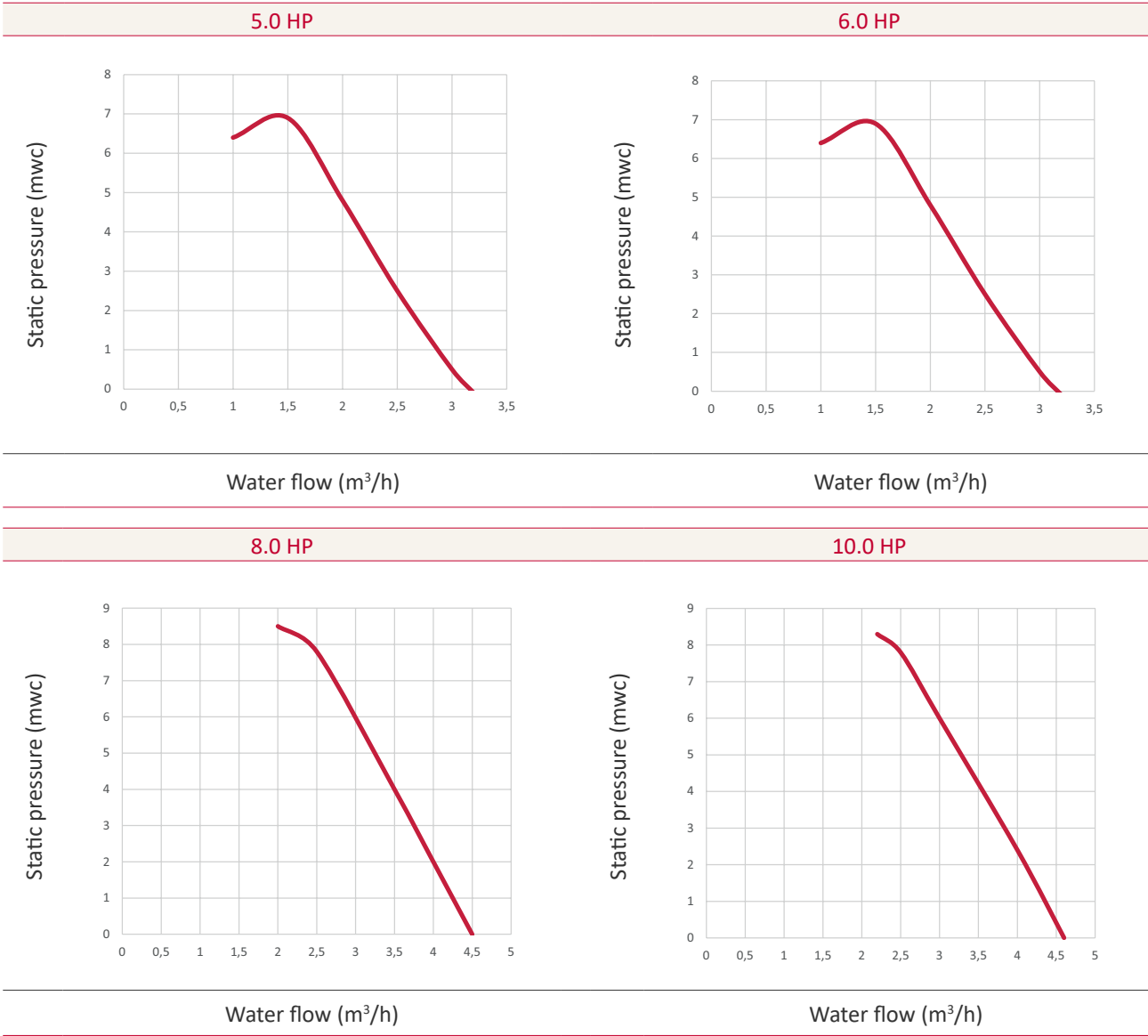
Operate the pump within the minimum and maximum water flow of the indoor unit following the tables below.

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 - YUTAKI S





WORKING RANGE

5

HYDRAULIC WORKING RANGE

5.3.2.2 Split system - YUTAKI S Combi



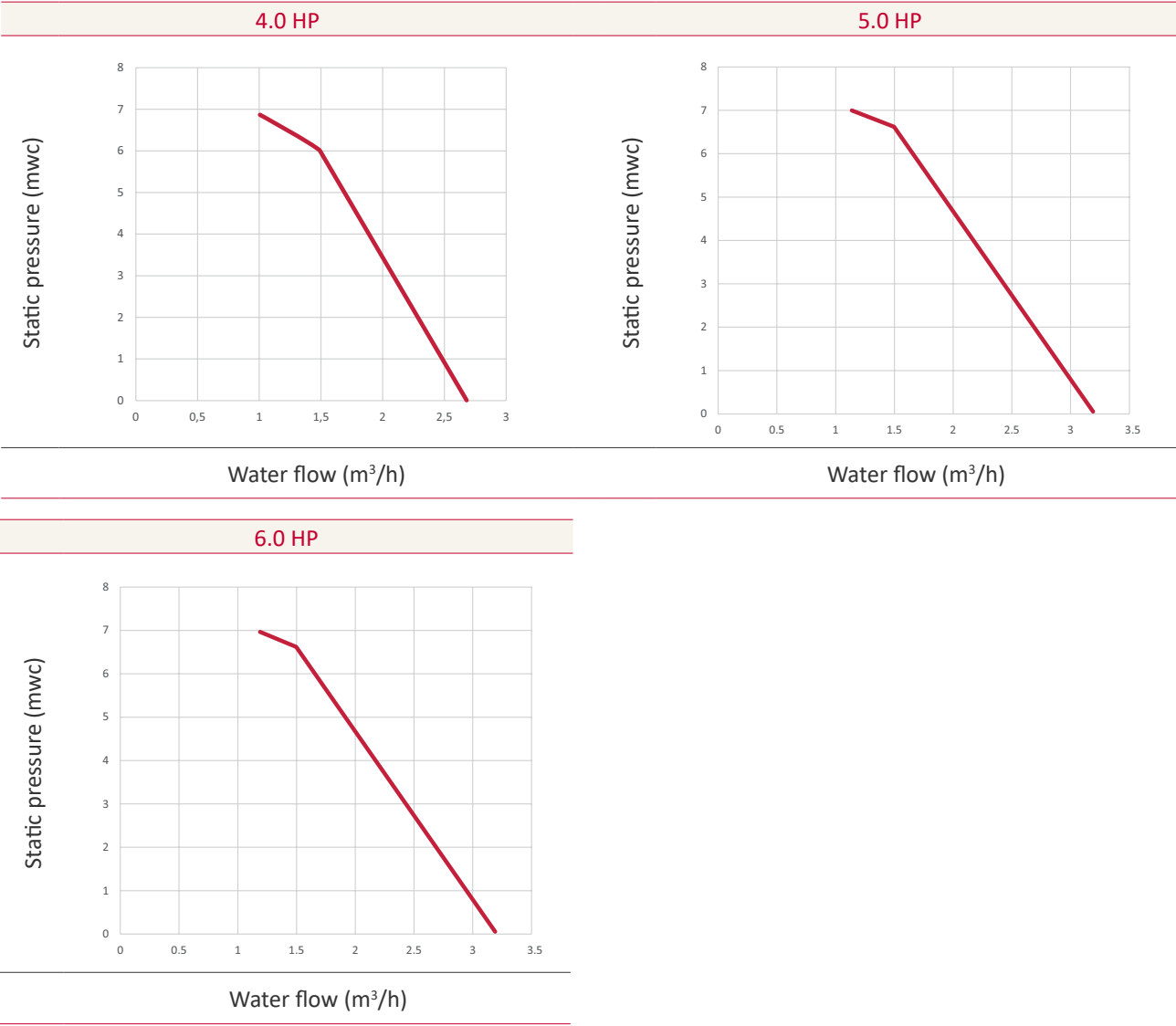
HYDRAULIC WORKING RANGE

5

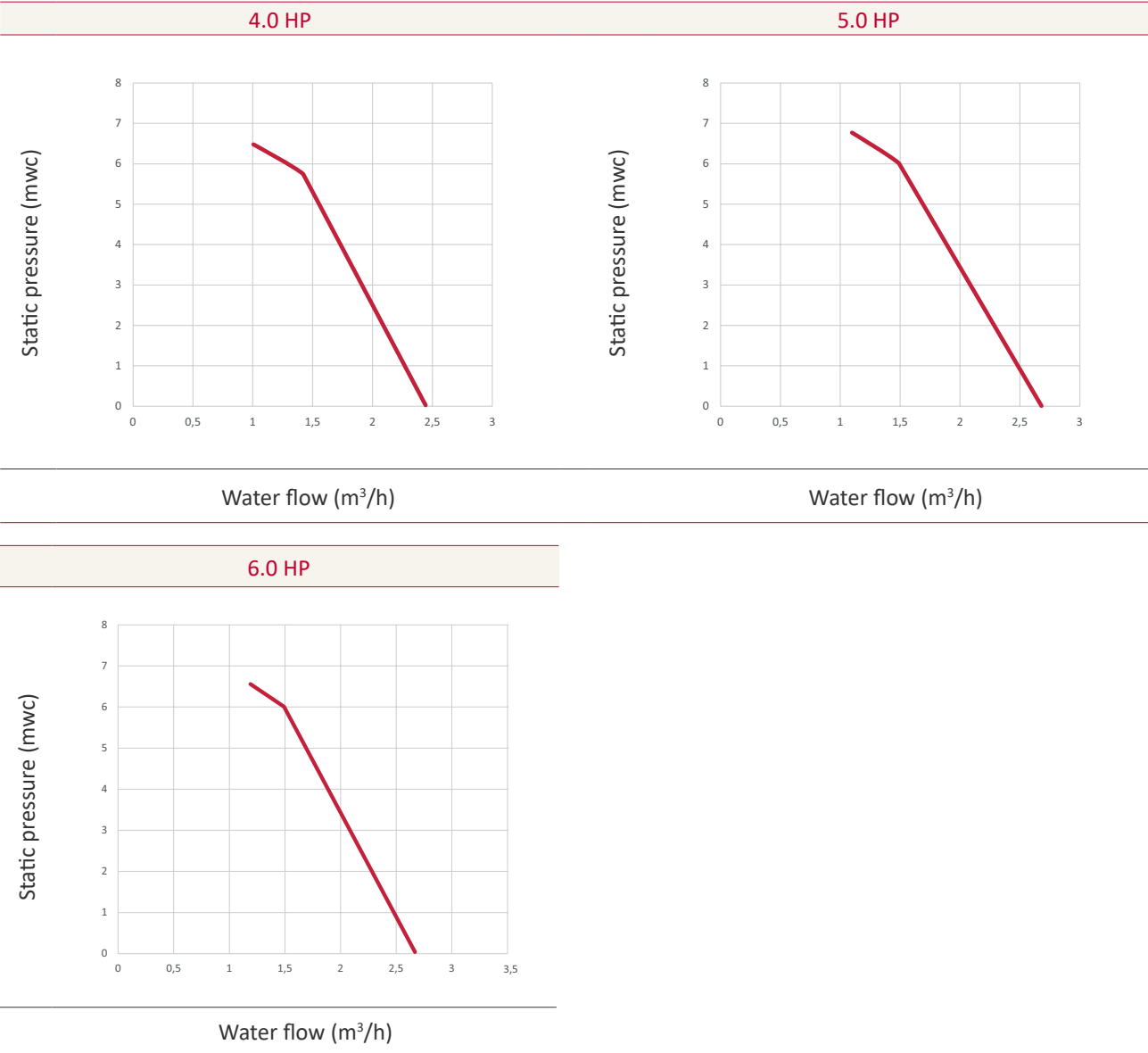
WORKING RANGE

5.3.2.3 Split system - YUTAKI S80

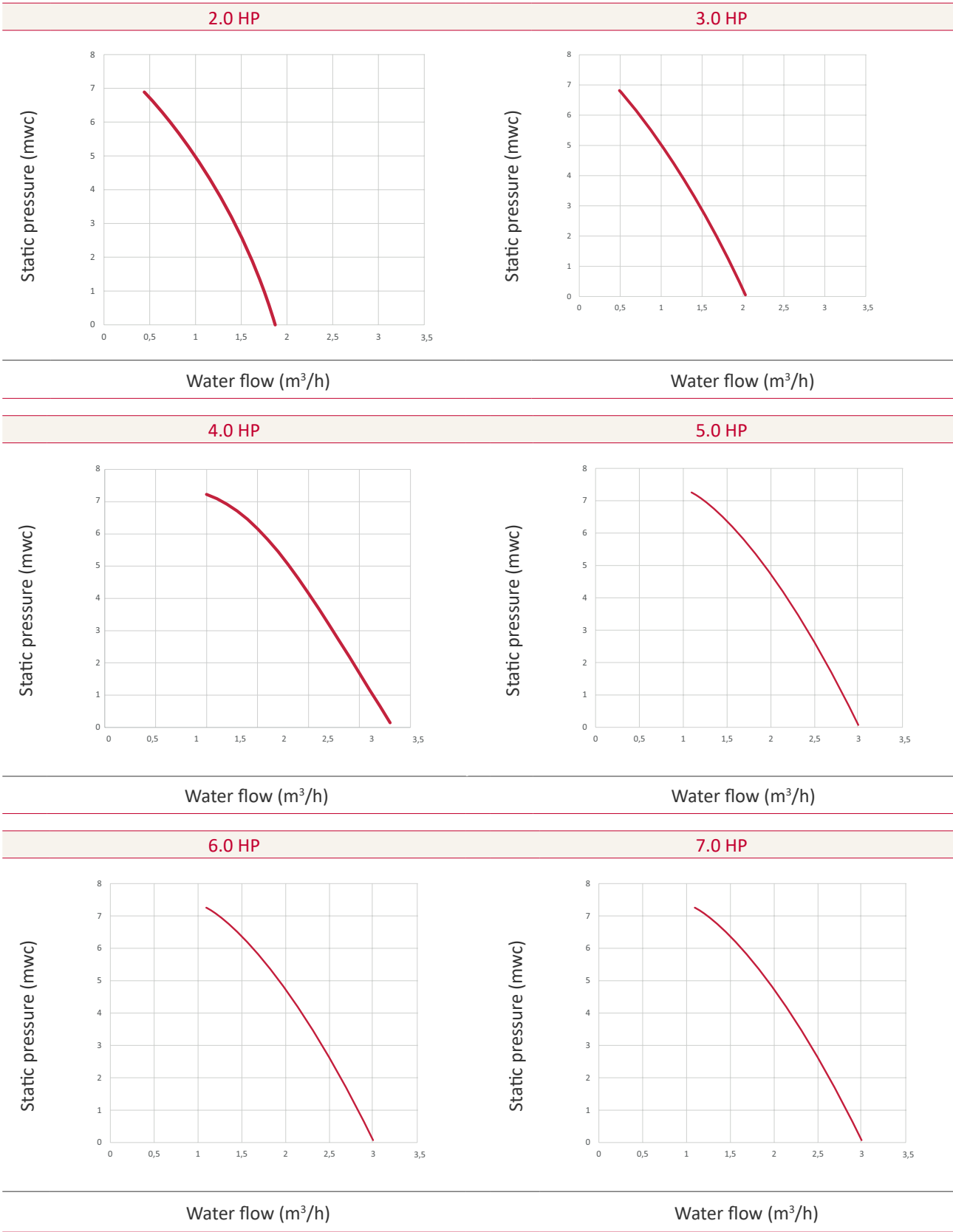
Version for indoor unit alone



Version for combination with DHW tank



5.3.2.4 Monobloc system - YUTAKI M

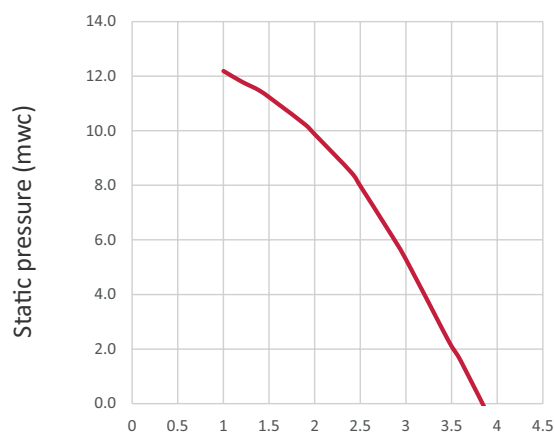


5.3.2.5 Hydrosplit system - YUTAKI H

i NOTE

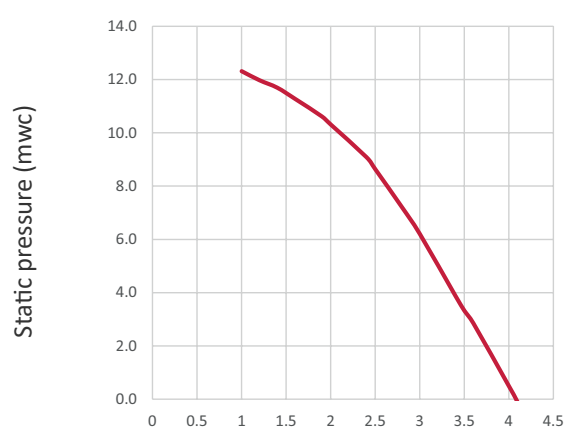
Available pressure shown is considering a distance of 0m between indoor and outdoor units. Consequently, value shown must be distributed between the installation and pipes between indoor and outdoor units.

4.0 HP



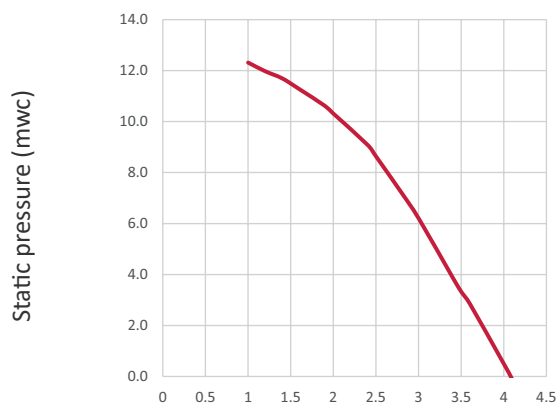
Water flow (m³/h)

5.0 HP



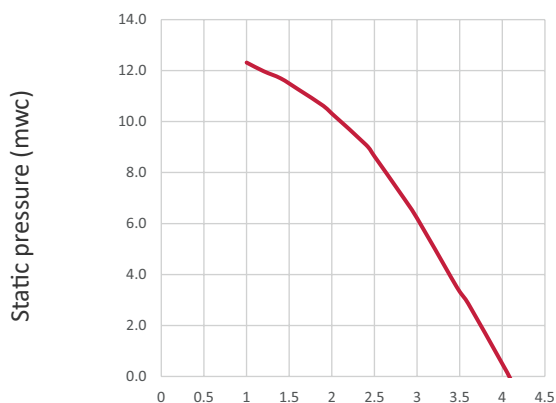
Water flow (m³/h)

6.0 HP



Water flow (m³/h)

7.0 HP

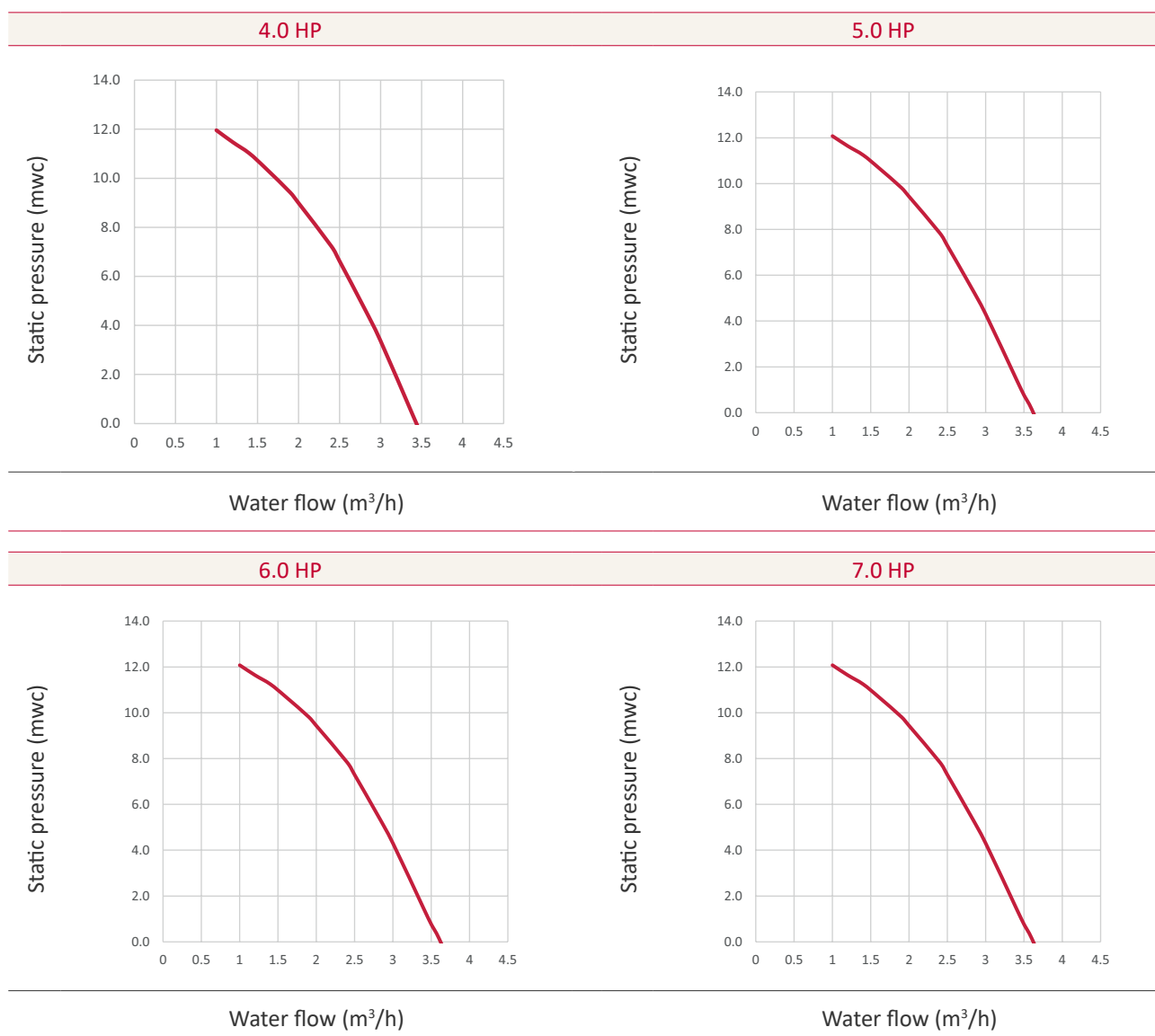


Water flow (m³/h)

5.3.2.6 Hydrosplit system - YUTAKI H Combi

NOTE

Available pressure shown is considering a distance of 0m between indoor and outdoor units. Consequently, value shown must be distributed between the installation and pipes between indoor and outdoor units.



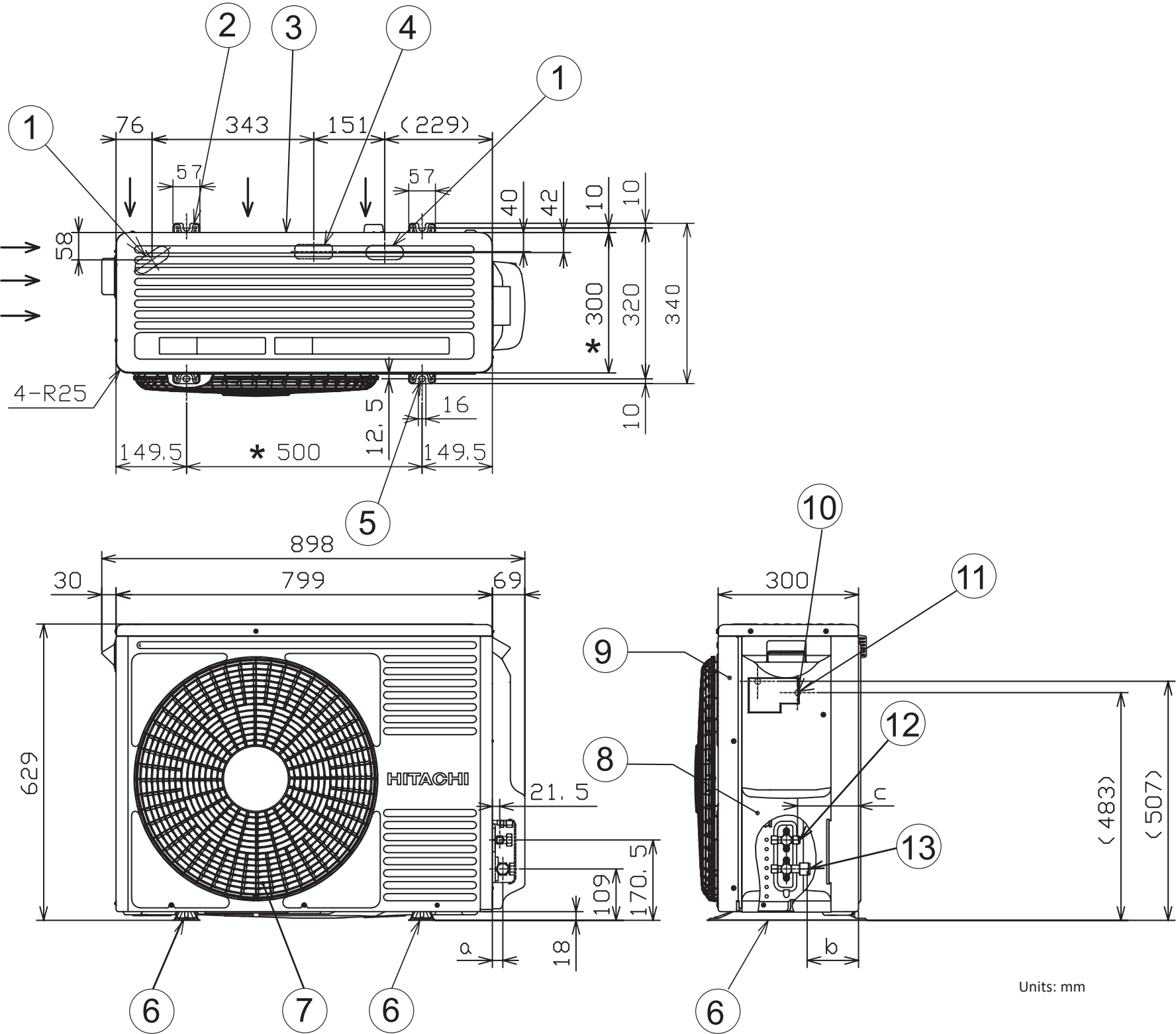
General dimensions

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6.2.6	Complementary system- YUTAKI Cascade Controller	165

6.1 Name of parts and Dimensional data

6.1.1 Split system - Outdoor unit

◆ RAS-(2-3)WHVRP1

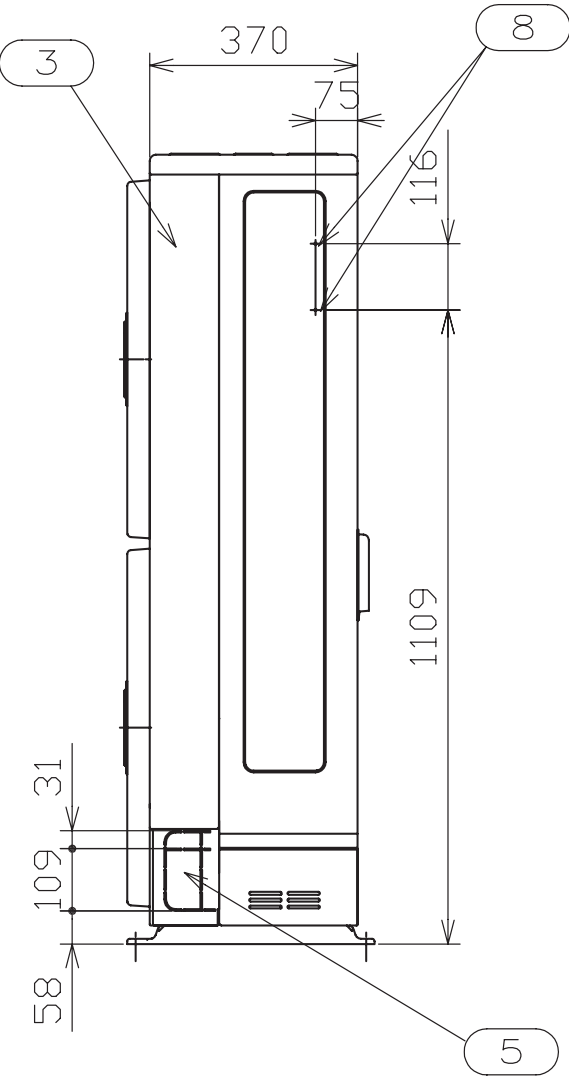
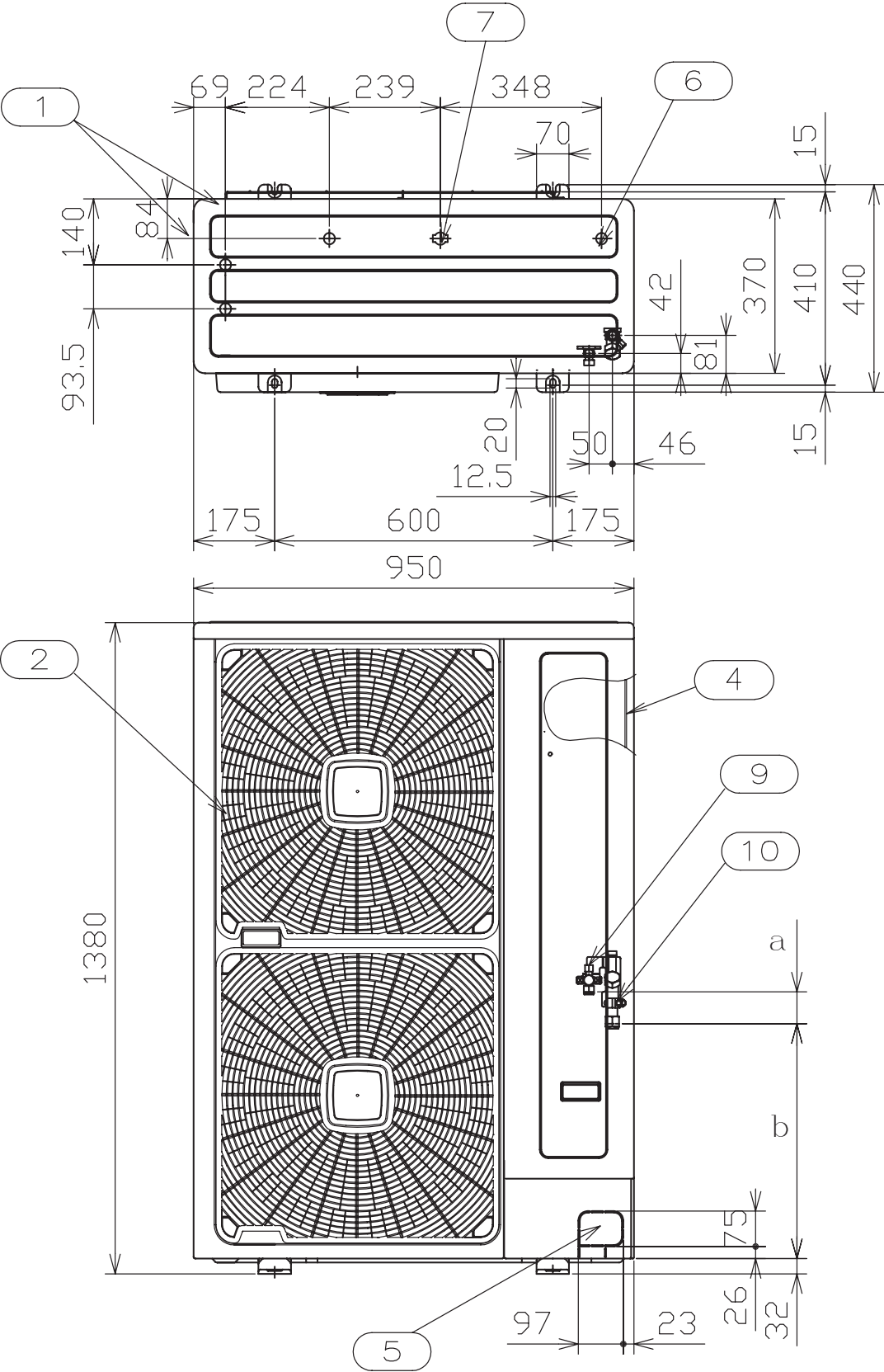


- 1. Punched drain hole for bush (30x80 long hole)
- 2. Attachment hole for M10 anchor bolt (2-U cut hole)
- 3. Air suction inlet
- 4. Punched drain hole (For drain pipe)
- 5. Attachment hole for M10 anchor bolt (2-Long hole)
- 6. Foot part
- 7. Air discharge outlet
- 8. Pipe cover
- 9. Service cover
- 10. Terminal board for power supply and transmission / Terminal screw of power supply wire (M5) / Terminal screw of transmission wire (M4)
- 11. Terminal screw of earth wire (M5)
- 12. Connection of refrigerant liquid pipe (With flare nut for Øe copper pipe)
- 13. Connection of refrigerant gas pipe (With flare nut for Ød copper pipe)

Dimension	a	b	c	d	e
Model					
RAS-2WHVRP1	22.5	109	129	12.7	6.35
RAS-2.5WHVRP1	22.5	109	129	12.7	6.35
RAS-3WHVRP1	26.5	103	127.5	15.88	9.52

The dimensions with the * mark indicate the pitch dimension of the holes for attachment of anchor bolts.

◆ RAS-(4-10)WH(V)NPE



Units: mm

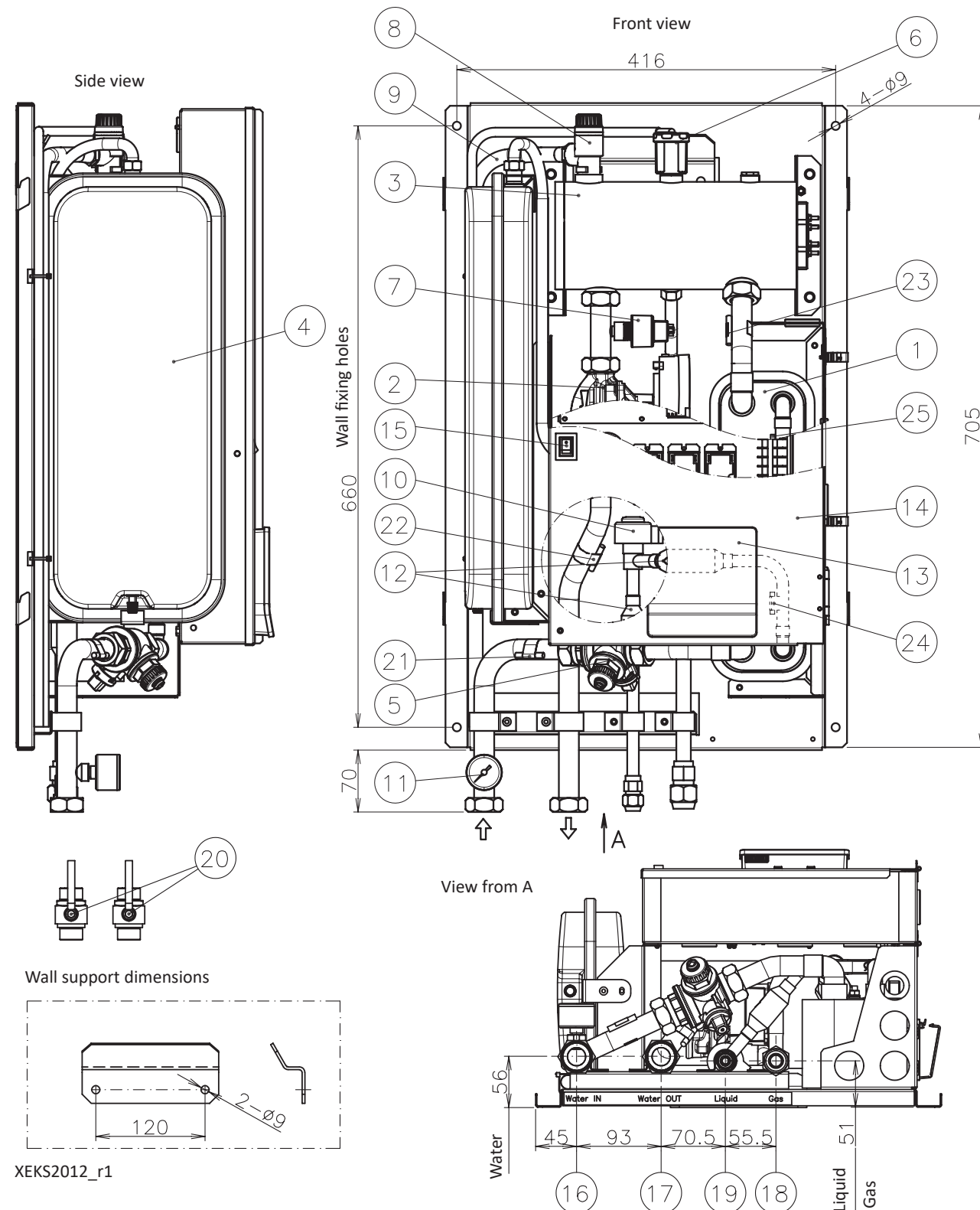
- 1. Air inlet
- 2. Air outlet
- 3. Service cover
- 4. Electrical switch box
- 5. Holes for refrigerant piping and electrical wiring piping
- 6. Drain holes (3-Ø24)
- 7. Drain holes (2-Ø26)
- 8. Holes for fixing machine to wall (4-(M5))
- 9. Refrigerant liquid pipe
- 10. Refrigerant gas pipe

Dimension		
Model	a	b
RAS-(2-6)WH(V)NPE	22.5	109
RAS-8WHNPE	22.5	109
RAS-10WHNPE	26.5	103

6.1.2 Split system - Indoor unit

6.1.2.1 YUTAKI S

◆ RWM-(2.0-3.0)R1E

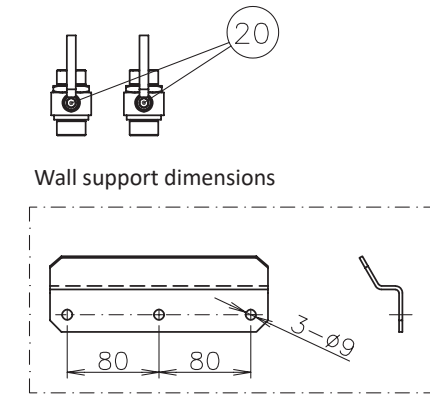
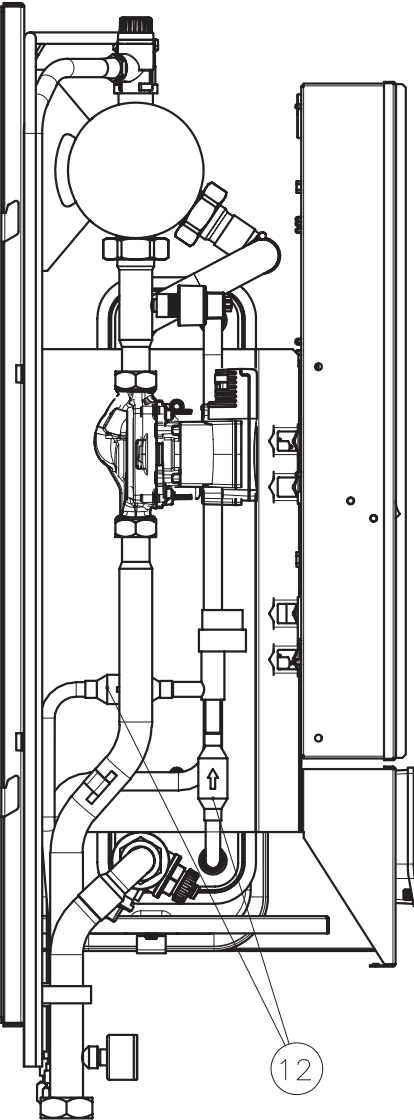


- 1.** Plate heat exchanger
- 2.** Water pump
- 3.** Electric water heater
- 4.** Expansion vessel 6L
- 5.** Water strainer
- 6.** Air purger
- 7.** Water pressure sensor
- 8.** Safety valve
- 9.** Drain pipe for safety valve
- 10.** Expansion valve
- 11.** Manometer
- 12.** Refrigerant strainer (x2)
- 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 - Ø15.88 (5/8")
- 19.** Refrigerant liquid pipe connection 2.0HP: Ø6.35 (1/4") / (2.5-3.0)HP: Ø9.52 (3/8")
- 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)

Units: mm

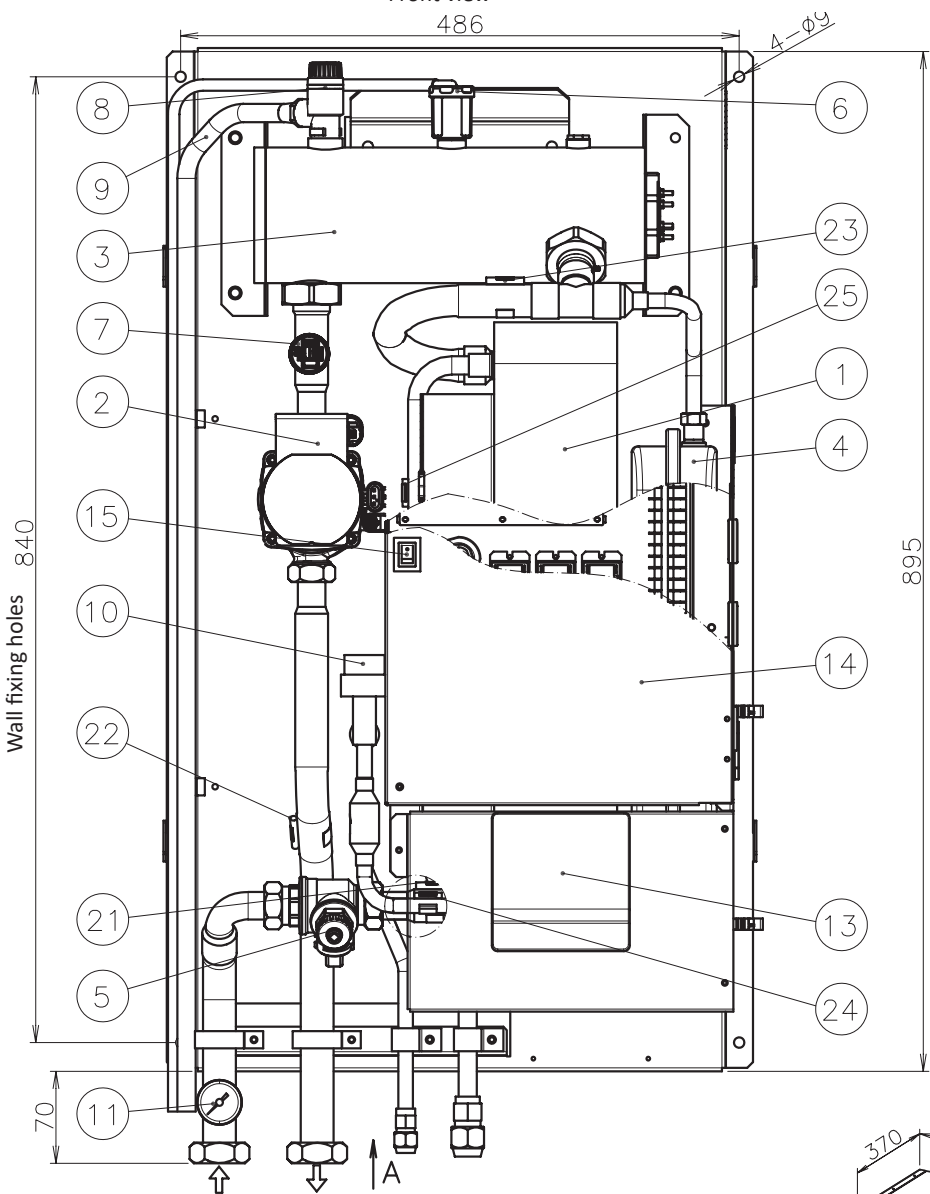
◆ RWM-(4.0-6.0)N1E

Side view



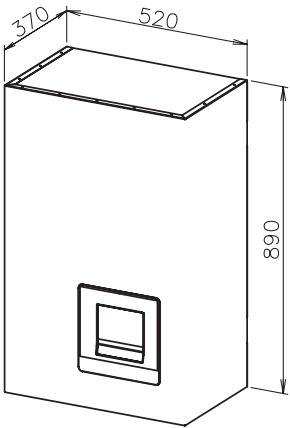
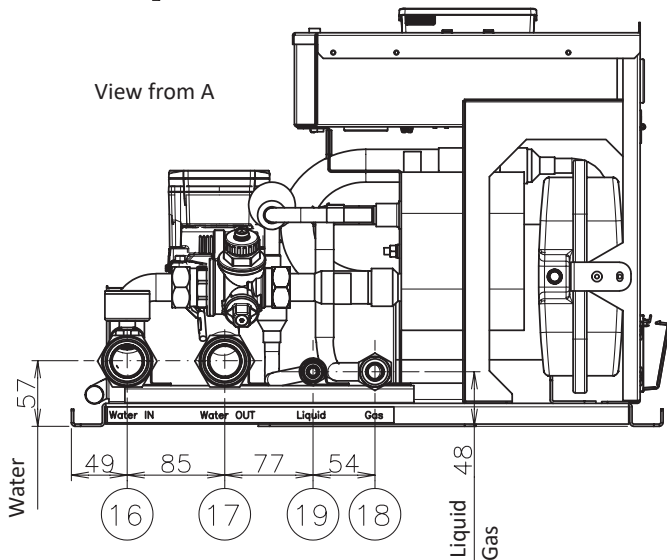
XEKS2013_r1

Front view
486



i NOTE
↶ Water flow direction

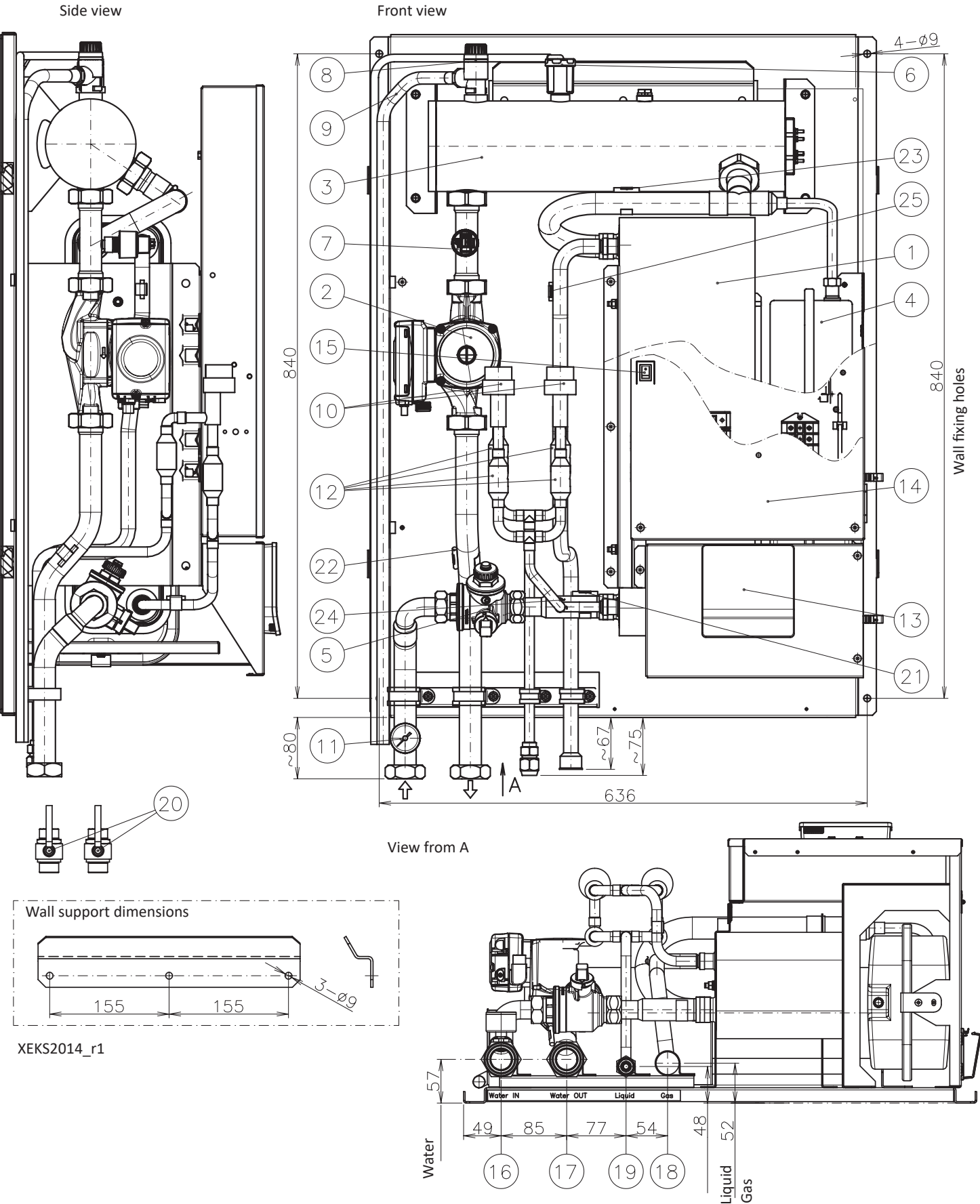
View from A



Units: mm

- 1. Plate heat exchanger
- 2. Water pump
- 3. Electric water heater
- 4. Expansion vessel 6L
- 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 1/4" female
- 17. Water outlet pipe connection - G 1 1/4" female
- 18. Refrigerant gas pipe connection - Ø 15.88 (5/8")
- 19. Refrigerant liquid pipe connection - Ø 9.52 (3/8")
- 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)

◆ RWM-(8.0-10.0)N1E

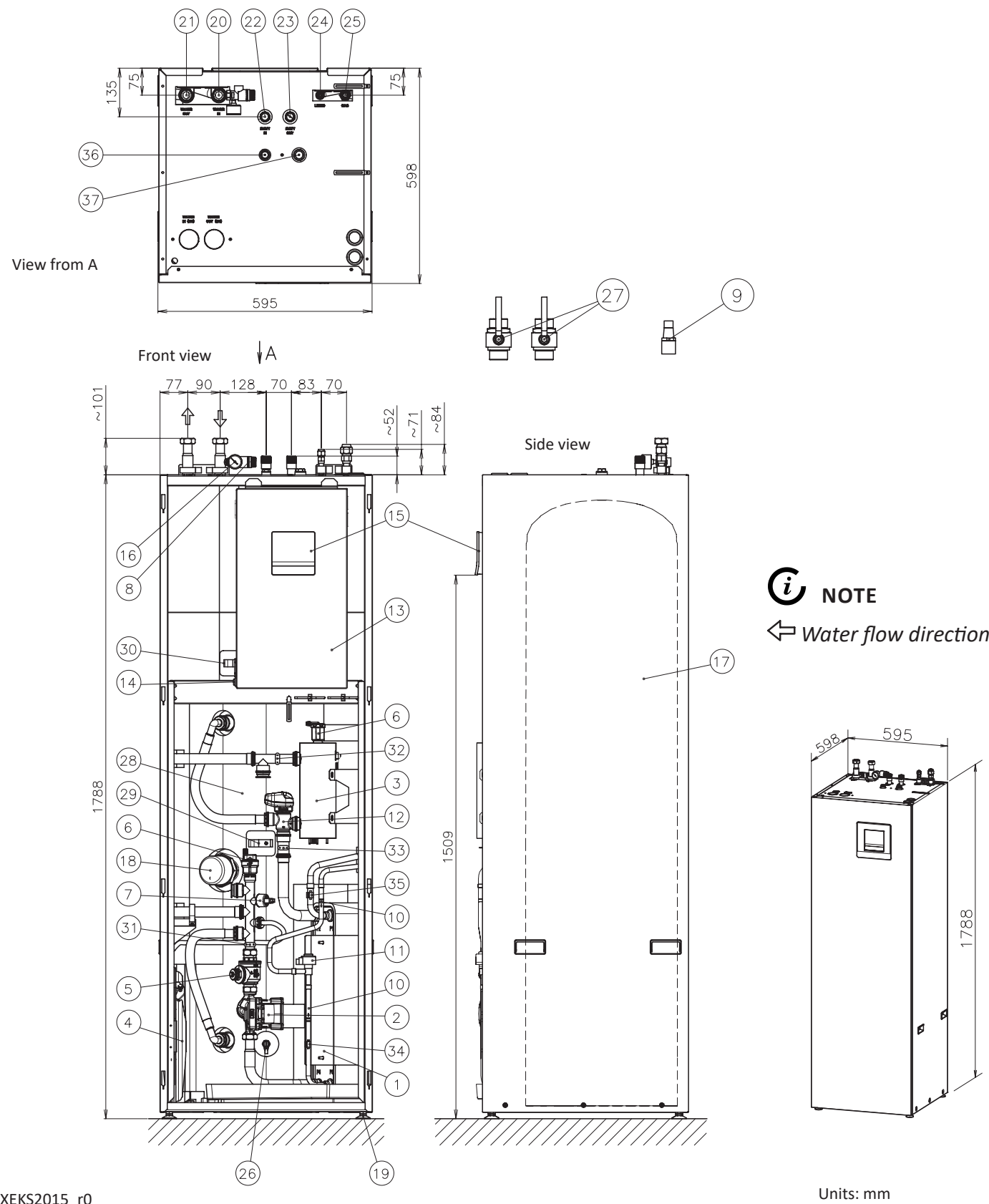


NOTE
↔ Water flow direction

- 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 - Ø25.4 (1")
- 19. Refrigerant liquid pipe connection 8HP: Ø9.52 (3/8") / 10HP: Ø12.7 (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)

6.1.2.2 YUTAKI S Combi

◆ RWD-(2.0-6.0)(N/R)W1E-220S(-K)



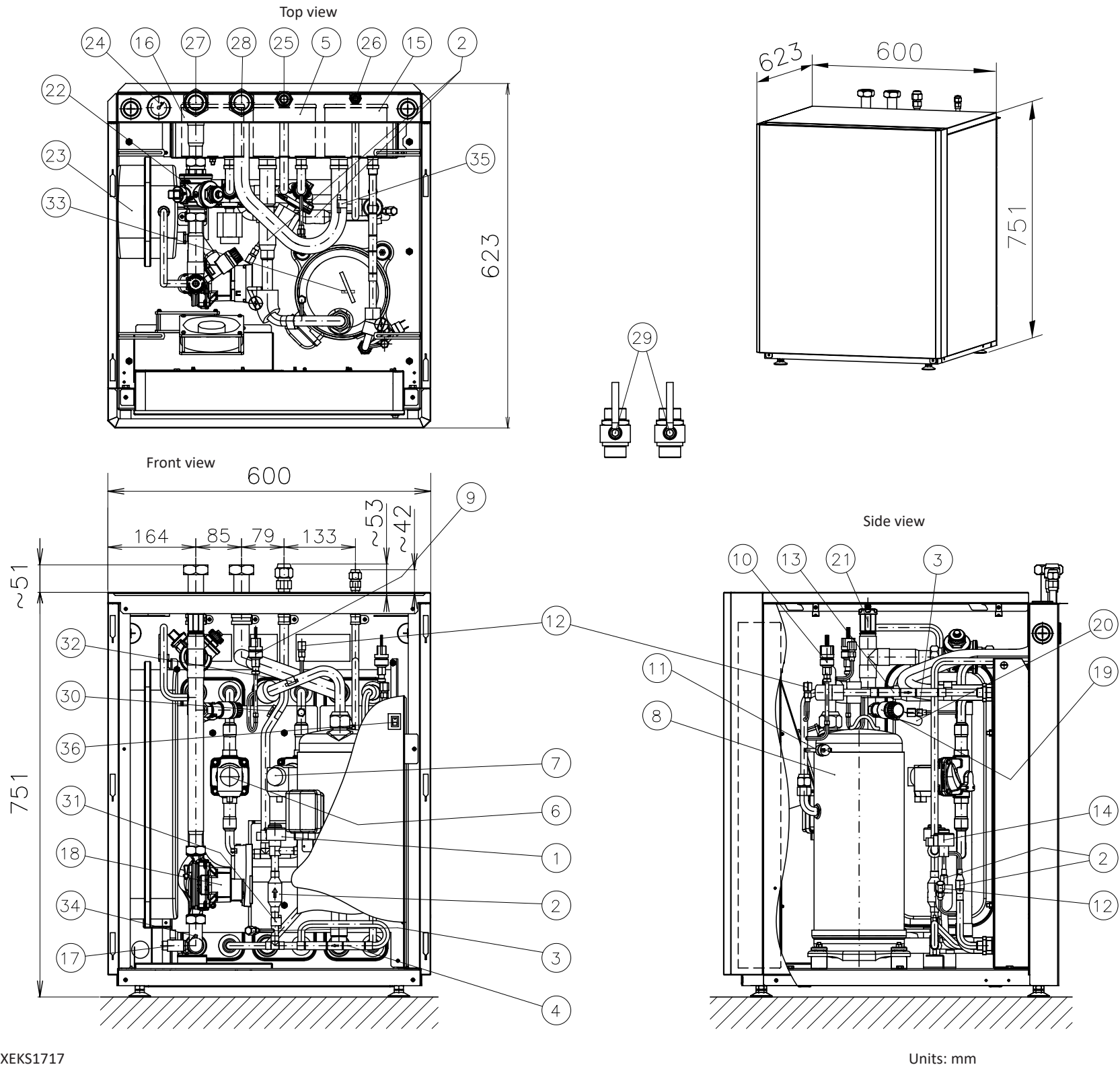
- 1. Plate heat exchanger
- 2. Water pump
- 3. Electric water heater
- 4. Expansion vessel 6L
- 5. Water strainer
- 6. Air purger (x2)
- 7. Water pressure sensor
- 8. Safety valve
- 9. Drain pipe for safety valve
- 10. Refrigerant strainer (x2)
- 11. Expansion valve
- 12. 3-way valve (for space heating and DHW)
- 13. Electrical box
- 14. Switch for DHW emergency operation
- 15. Unit controller
- 16. Manometer
- 17. DHW tank (220L)
- 18. DHW tank heater+thermostat
- 19. Mounting foot (x4)
- 20. Water inlet pipe connection 2.0-6.0HP: G 1" female
- 21. Water outlet pipe connection 2.0-6.0HP: G 1" female
- 22. DHW inlet pipe connection - G 3/4" male
- 23. DHW outlet pipe connection - G 3/4" male
- 24. Refrigerant liquid pipe connection 2.0HP: $\varnothing 6.35$ (1/4") / (2.5-6.0)HP: $\varnothing 9.52$ (3/8")
- 25. Refrigerant gas pipe connection - $\varnothing 15.88$ (5/8")
- 26. Drain port (For DHW) - G 3/8"
- 27. Shutdown valve (Factory supplied accessory)
- 28. Tank insulation
- 29. DHW thermistor 1
- 30. DHW thermistor 2
- 31. Water inlet thermistor
- 32. Water outlet thermistor
- 33. Water outlet PHEX thermistor
- 34. Refrigerant liquid pipe thermistor
- 35. Refrigerant gas pipe thermistor
- 36. P&T Valve (Only UK Models)
- 37. Anode connection (accessory)

XEKS2015_r0

6.1.2.3 YUTAKI S80

◆ TYPE 1: Version for operation in DHW but with a remote tank

RWH-(4.0-6.0)(V)NFE



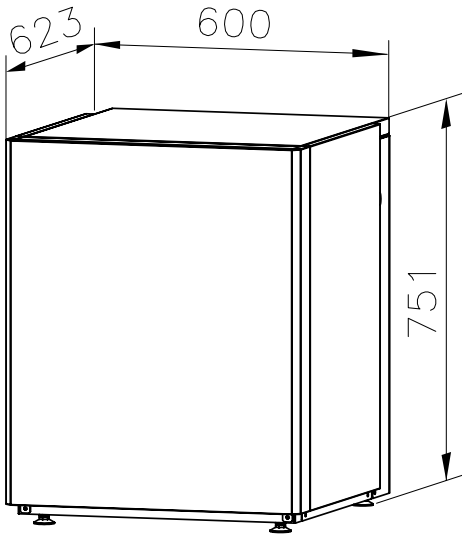
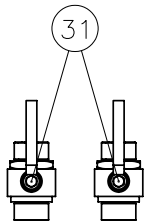
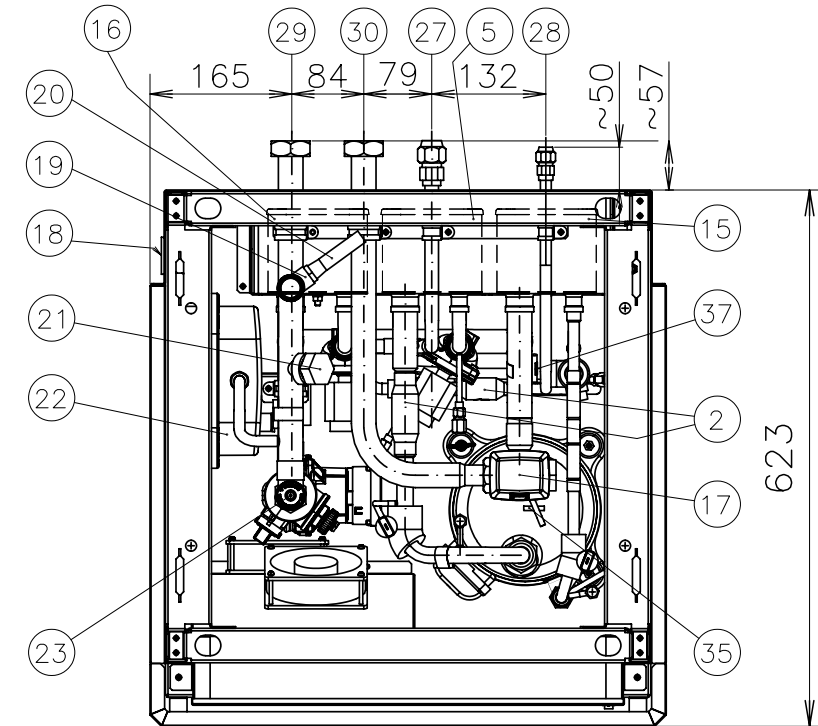
XEKS1717

- 1. Electronic expansion valve (R410A)
- 2. Refrigerant strainer (x2)
- 3. Check joint (R410A)
- 4. Check valve (R410A)
- 5. Plate heat exchanger (R410A-R134a)
- 6. Solenoid valve (1 cycle)
- 7. Solenoid valve (2 cycles)
- 8. Compressor
- 9. Low pressure sensor (Ps)
- 10. High pressure sensor (Pd)
- 11. High pressure switch (PSH)
- 12. Check joint (R134a)
- 13. Check valve (R134a)
- 14. Electronic expansion valve (R134a)
- 15. Plate heat exchanger (R134a-H2O)
- 16. Plate heat exchanger (R410A-H2O)
- 17. Water pressure port
- 18. Water pump
- 19. Safety valve
- 20. Drain pipe
- 21. Air purger
- 22. Water strainer
- 23. Expansion vessel 12L
- 24. Manometer
- 25. Refrigerant gas pipe - Ø15.88 (5/8")
- 26. Refrigerant liquid pipe - Ø9.52 (3/8")
- 27. Water inlet pipe - G 1 1/4" female
- 28. Water outlet pipe - G 1 1/4" female
- 29. Shut-off valve (Factory supplied)
- 30. Refrigerant gas pipe thermistor
- 31. Refrigerant liquid pipe thermistor
- 32. Compressor suction thermistor
- 33. Compressor discharge thermistor
- 34. Water inlet thermistor
- 35. Water outlet thermistor
- 36. Switch for DHW "emergency" operation

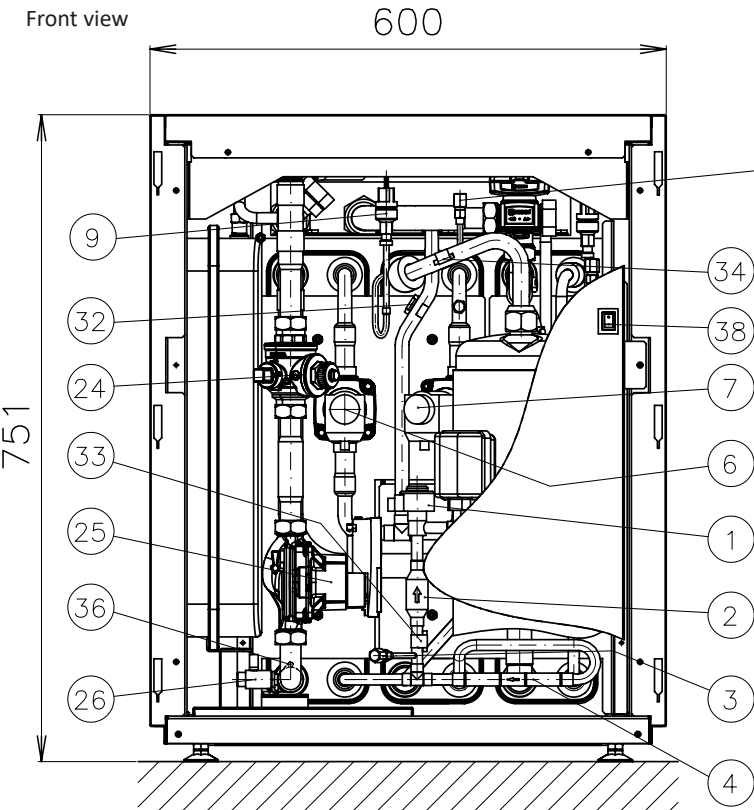
◆ TYPE 2: Version for operation with Hitachi DHW tank

RWH-(4.0-6.0)(V)NFWE

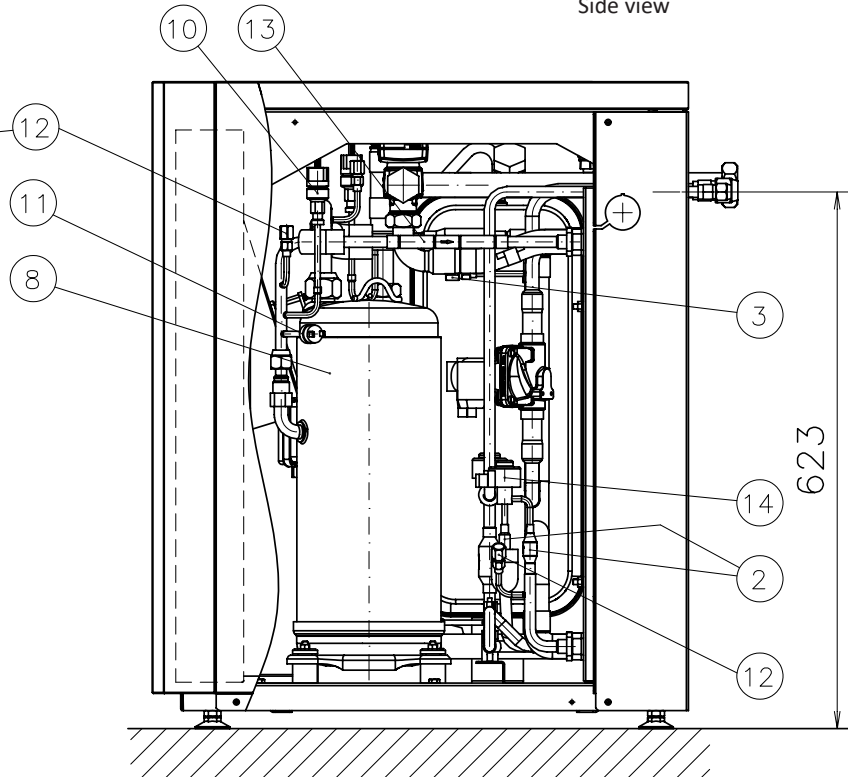
Top view



Front view



Side view



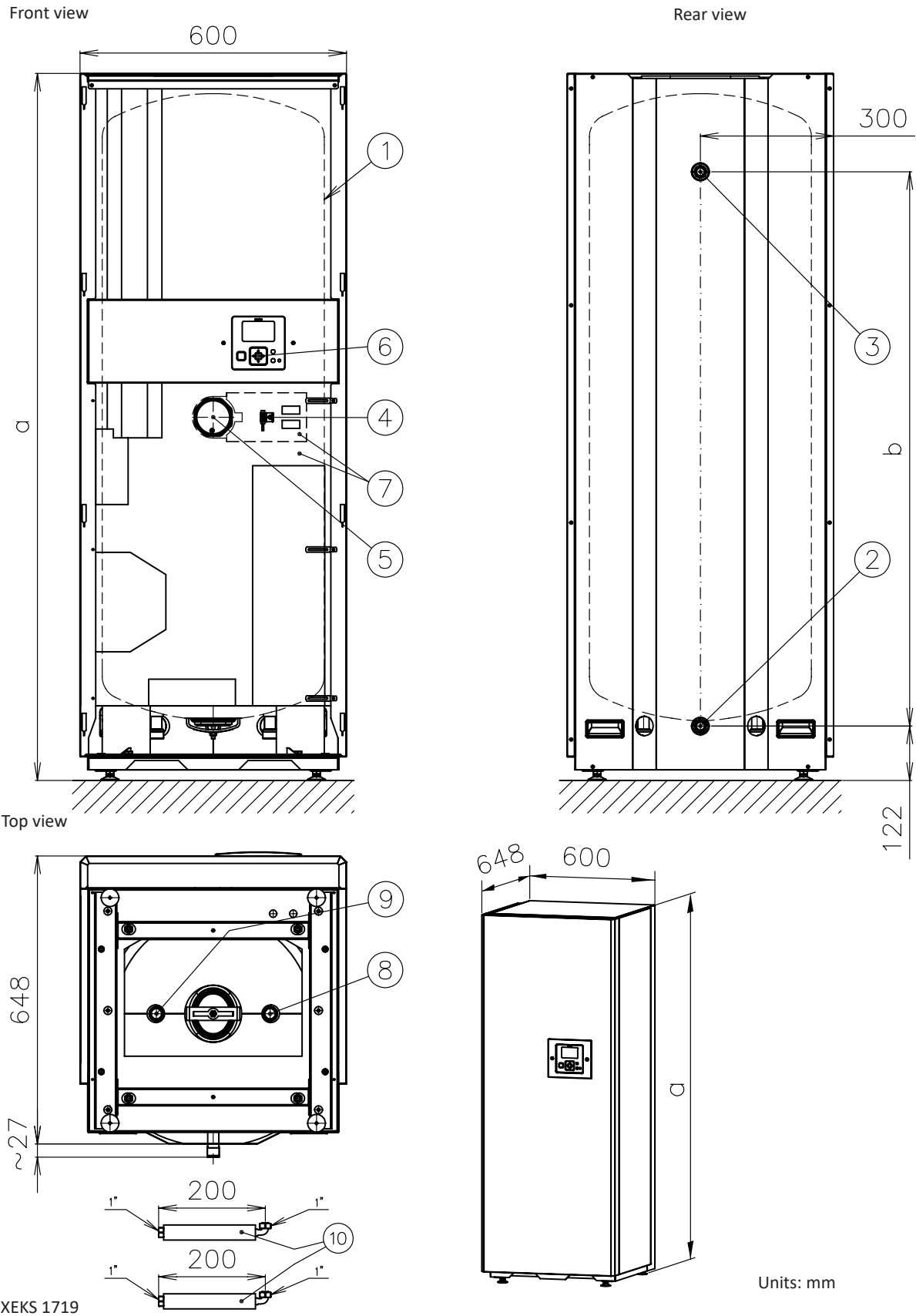
XEKS 1718

Units: mm

- 1. Electronic expansion valve (R410A)
- 2. Refrigerant strainer (x2)
- 3. Check joint (R410A)
- 4. Check valve (R410A)
- 5. Plate heat exchanger (R410A-R134a)
- 6. Solenoid valve (1 cycle)
- 7. Solenoid valve (2 cycles)
- 8. Compressor
- 9. Low pressure sensor (Ps)
- 10. High pressure sensor (Pd)
- 11. High pressure switch (PSH)
- 12. Check joint (R134a)
- 13. Check valve (R134a)
- 14. Electronic expansion valve (R134a)
- 15. Plate heat exchanger (R134a-H2O)
- 16. Plate heat exchanger (R410A-H2O)
- 17. 3 way valve
- 18. Manometer
- 19. Safety valve
- 20. Drain pipe
- 21. Connection for DHW tank outlet
- 22. Expansion vessel 12L
- 23. Air purger
- 24. Water strainer
- 25. Water pump
- 26. Drain port
- 27. Refrigerant gas pipe - $\varnothing 15.88$ (5/8")
- 28. Refrigerant liquid pipe - $\varnothing 9.52$ (3/8")
- 29. Water inlet pipe - G 1 1/4" female
- 30. Water outlet pipe - G 1 1/4" female
- 31. Shut-off valve (Factory supplied)
- 32. Refrigerant gas pipe thermistor
- 33. Refrigerant liquid pipe thermistor
- 34. Compressor suction thermistor
- 35. Compressor discharge thermistor
- 36. Water inlet thermistor
- 37. Water outlet thermistor
- 38. Switch for DHW "emergency" operation

◆ Domestic hot water tank

DHWS(200/260)S-2.0H2E(-W)



- 1. Domestic hot water tank
- 2. DHW inlet G 3/4" male
- 3. DHW outlet G 3/4" male
- 4. DHW tank thermistor
- 5. Heater+ thermostat
- 6. Unit controller (Except (-W) models)
- 7. Tank insulation
- 8. Heating coil inlet connection G 1" male
- 9. Heating coil outlet connection G 1" male
- 10. Flexible pipe (x2)

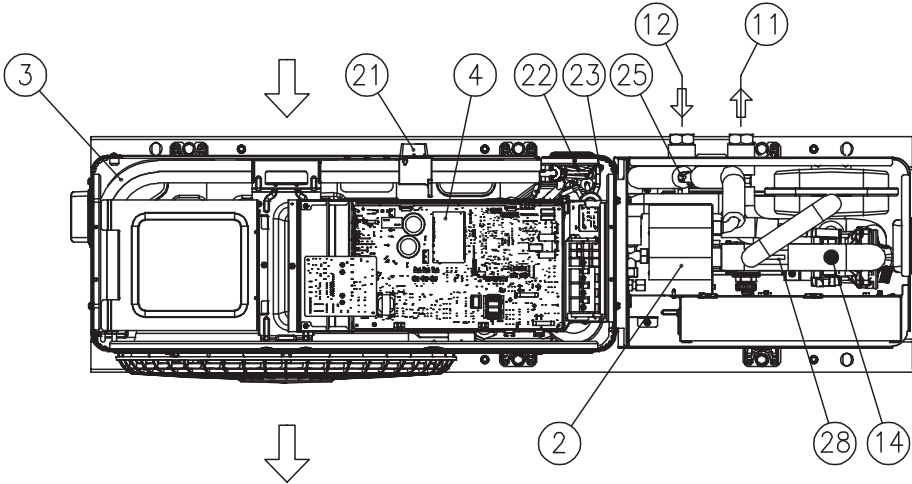
Unit/Dimension	a	b
DHWS200S-2.0H2E(-W)	1282	938.5
DHWS260S-2.0H2E(-W)	1591	1247.5

Dimensions according the unit

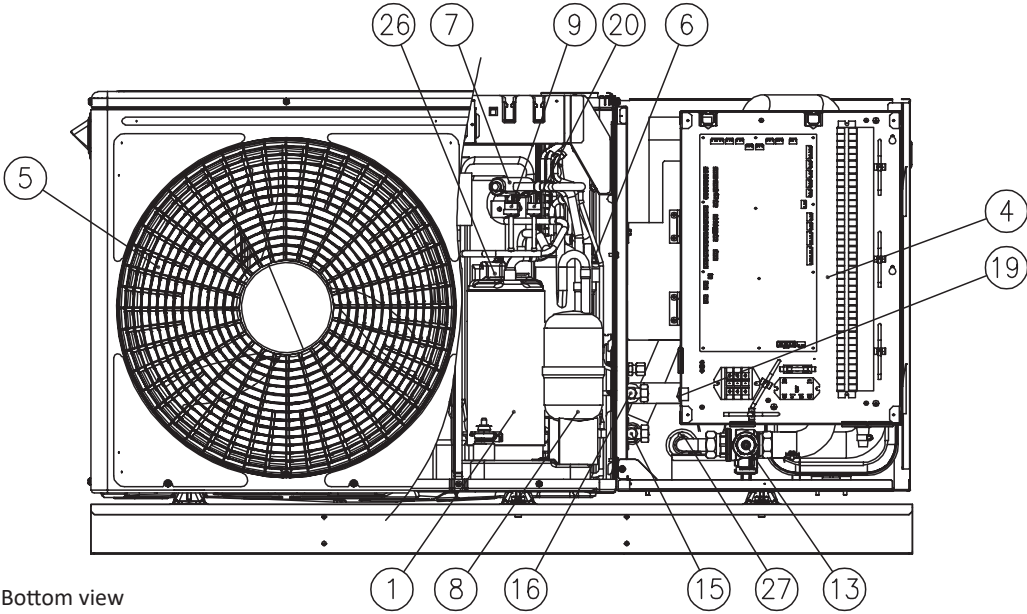
6.1.3 Monobloc system - YUTAKI M

◆ RASM-(2/3)VRE

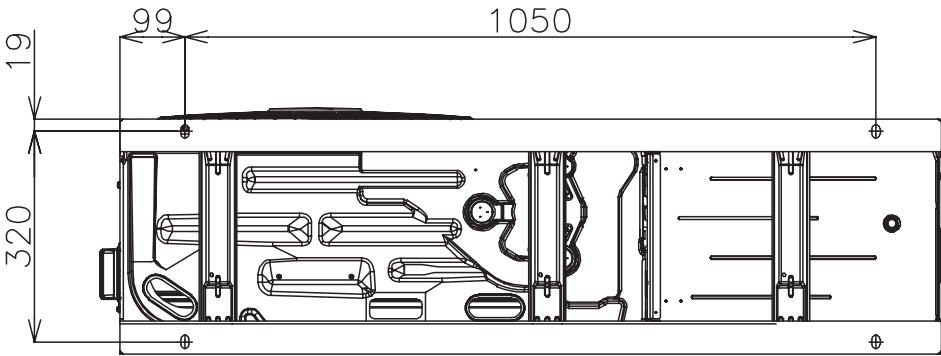
Top view



Front view

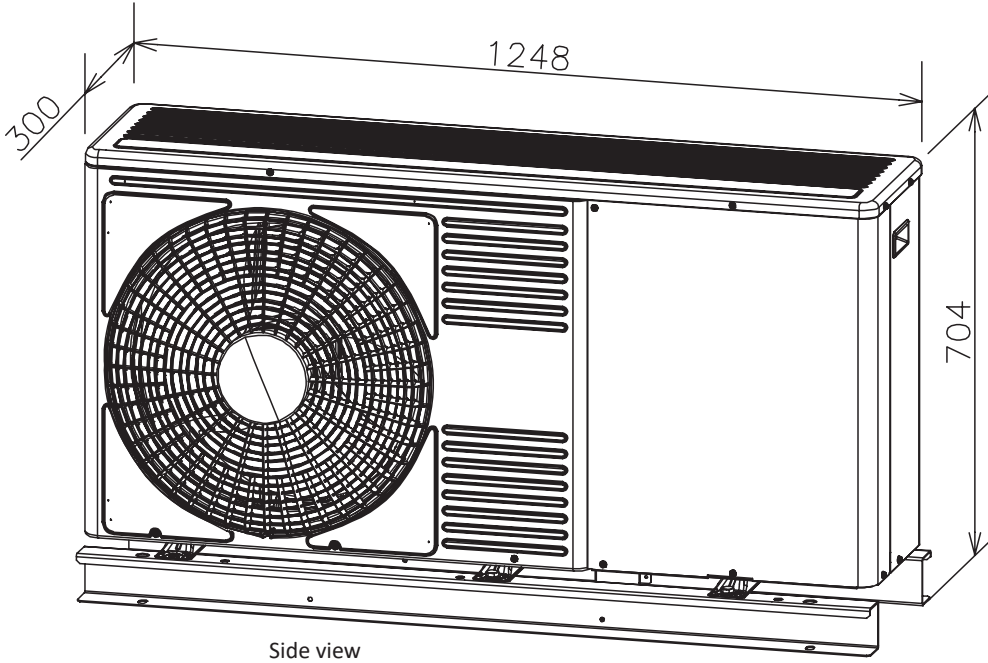


Bottom view

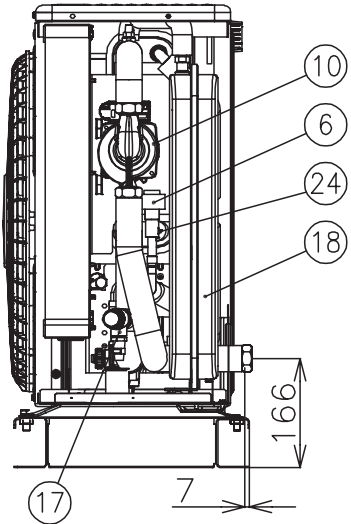


XEKS 1931

Units: mm

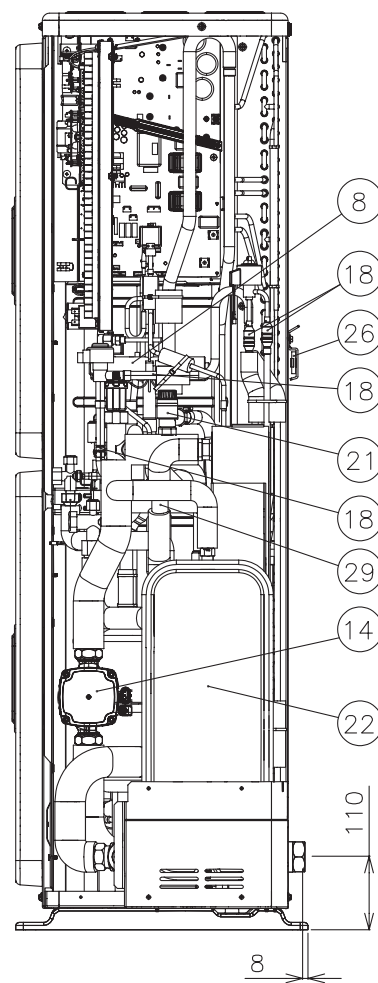
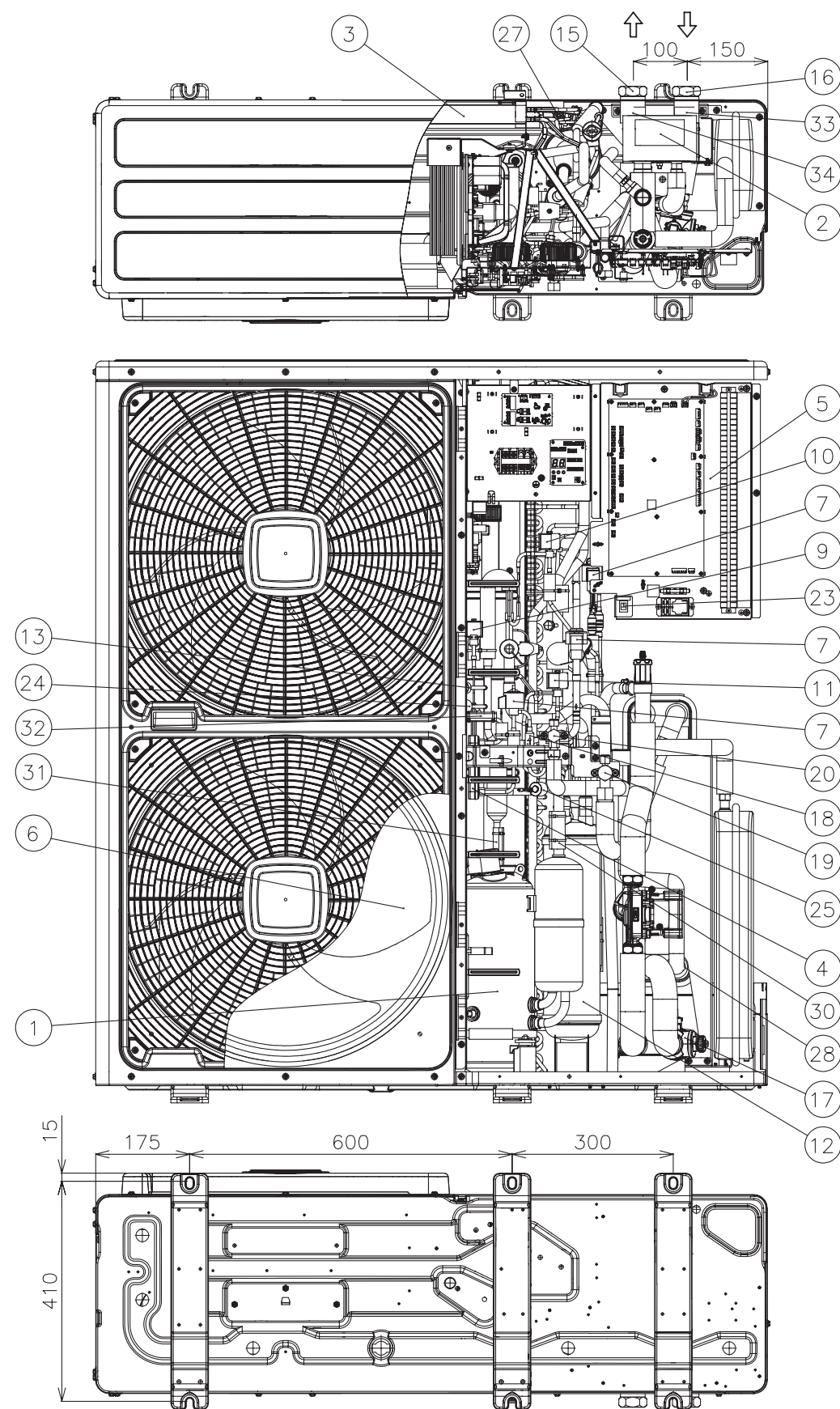


Side view

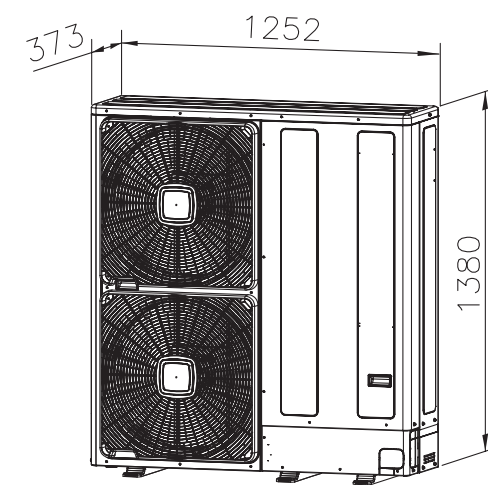


- 1. Compressor
- 2. Water side heat exchanger
- 3. Air side heat exchanger
- 4. Electrical box
- 5. Fan (x1)
- 6. Expansion valve (x2)
- 7. Reversing valve
- 8. Accumulator
- 9. High pressure switch (HPS)
- 10. Water pump
- 11. Water outlet - G 1"
- 12. Water inlet - G 1"
- 13. Water strainer
- 14. Air Purger
- 15. Stop valve for gas line - Ø15.88 (5/8")
- 16. Stop valve for liquid line - 2HP:Ø6,35(1/4") - 3HP:Ø9.52 (3/8")
- 17. Safety valve
- 18. Expansion vessel 6L
- 19. Switch for DHW "emergency" operation
- 20. Pressure switch for control (Psc)
- 21. Ambient thermistor
- 22. Liquid temperature thermistor
- 23. Liquid temperature thermistor
- 24. Refrigerant liquid pipe thermistor
- 25. Refrigerant gas pipe thermistor
- 26. Compressor discharge thermistor
- 27. Water inlet thermistor
- 28. Water outlet thermistor

◆ RASM-(4-7)(V)R1E



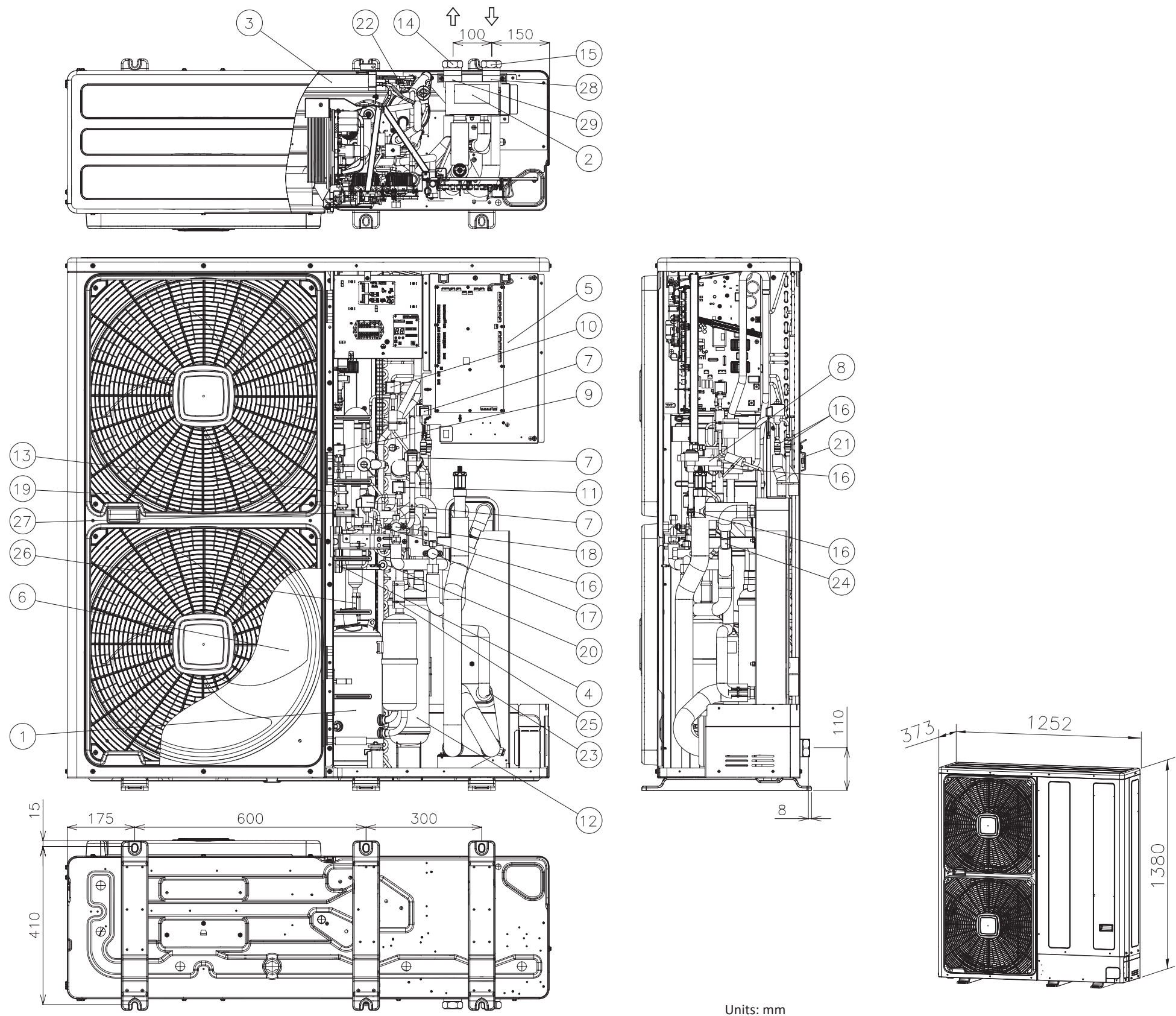
Units: mm



- 1. Compressor
- 2. Water side heat exchanger
- 3. Air side heat exchanger
- 4. Economizer
- 5. Electrical box
- 6. Fan (x2)
- 7. Expansion valve (x3)
- 8. Reversing valve
- 9. Solenoid valve (SVA)
- 10. Solenoid valve (SVC)
- 11. Solenoid valve (SVE)
- 12. Accumulator
- 13. High pressure switch (PSH)
- 14. Water pump
- 15. Water Outlet (1-1/4")
- 16. Water inlet (1-1/4")
- 17. Water strainer
- 18. Refrigerant strainer (x5)
- 19. Stop valve for gas line $\varnothing 15.88$ (5/8")
- 20. Stop valve for liquid line $\varnothing 9.52$ (3/8")
- 21. Safety valve
- 22. Expansion vessel
- 23. Switch for DHW "emergency" operation
- 24. Sensor for refrigerant pressure (Pd)
- 25. Sensor for refrigerant pressure (Ps)
- 26. Ambient Thermistor (Ta)
- 27. Evaporation Thermistor (Te)
- 28. Liquid refrigerant pipe in heating Thermistor (TI)
- 29. Gas refrigerant pipe Thermistor (Tg)
- 30. Compressor suction thermistor (Ts)
- 31. Compressor discharge Thermistor (Td)
- 32. Outlet economizer Thermistor (Teco)
- 33. Water inlet pipe Thermistor (Twi)
- 34. Water outlet pipe Thermistor (Two)

6.1.4 Hydrosplit System - Outdoor Unit

◆ RASM-(4-7)(V)RW1E

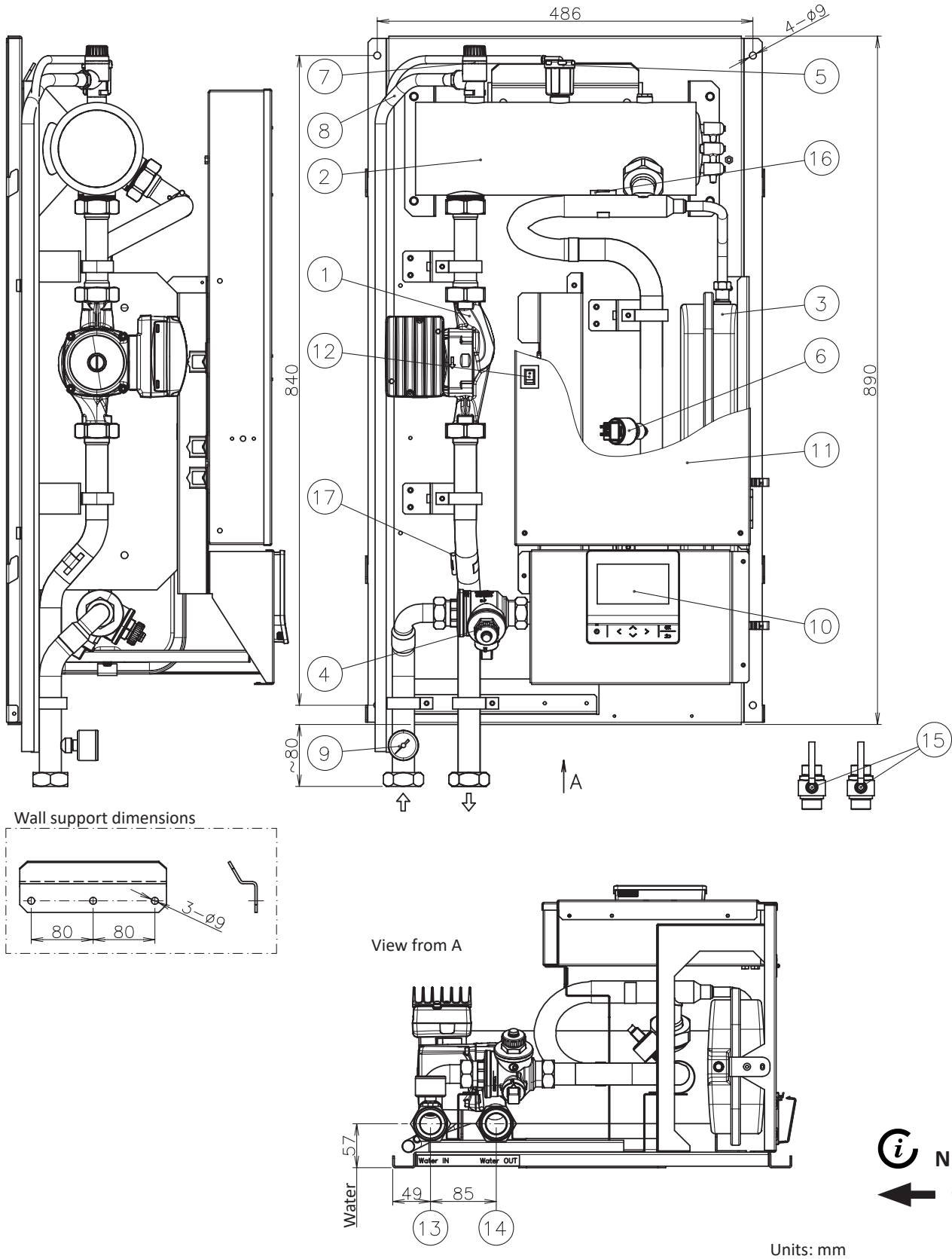


- 1. Compressor
- 2. Water side heat exchanger
- 3. Air side heat exchanger
- 4. Economizer
- 5. Electrical box
- 6. Fan (x2)
- 7. Expansion valve (x3)
- 8. Reversing valve
- 9. Solenoid valve (SVA)
- 10. Solenoid valve (SVC)
- 11. Solenoid valve (SVE)
- 12. Accumulator
- 13. High pressure switch (PSH)
- 14. Water Outlet (1-1/4")
- 15. Water inlet (1-1/4")
- 16. Refrigerant strainer (x5)
- 17. Stop valve for gas line Ø15.88 (5/8")
- 18. Stop valve for liquid line Ø9.52(3/8")
- 19. Sensor for refrigerant pressure (Pd)
- 20. Sensor for refrigerant pressure (Ps)
- 21. Ambient Thermistor (Ta)
- 22. Evaporation Thermistor (Te)
- 23. Liquid refrigerant pipe in heating Thermistor (TI)
- 24. Gas refrigerant pipe Thermistor (Tg)
- 25. Compressor suction thermistor (Ts)
- 26. Compressor discharge Thermistor (Td)
- 27. Outlet economizer Thermistor (Teco)
- 28. Water inlet pipe Thermistor (Twi)
- 29. Water outlet pipe Thermistor (Two)

6.1.5 Hydrosplit System - Indoor Unit

6.1.5.1 YUTAKI H

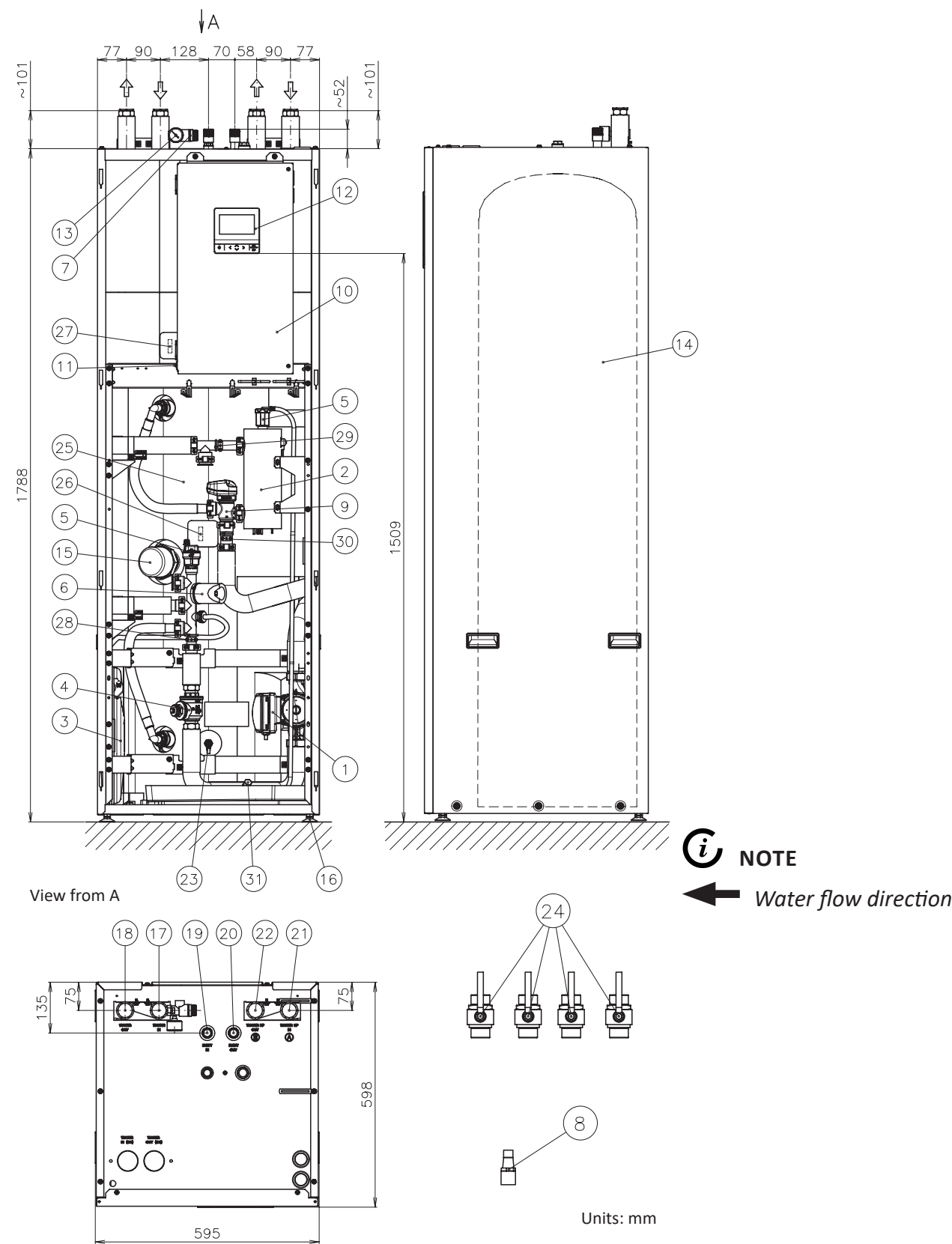
◆ HWM-WE



- 1. Water pump
- 2. Electric water heater
- 3. Expansion vessel (6 Liters)
- 4. Water strainer
- 5. Air purger
- 6. Water pressure sensor
- 7. Safety valve
- 8. Drain pipe for safety valve
- 9. Manometer
- 10. Unit controller
- 11. Electrical box
- 12. Switch for DHW emergency operation
- 13. Water inlet pipe connection (G 1-1/4" (female))
- 14. Water outlet pipe connection (G 1-1/4" (female))
- 15. Thermistor (Water inlet pipe)
- 16. Thermistor (Water outlet pipe)

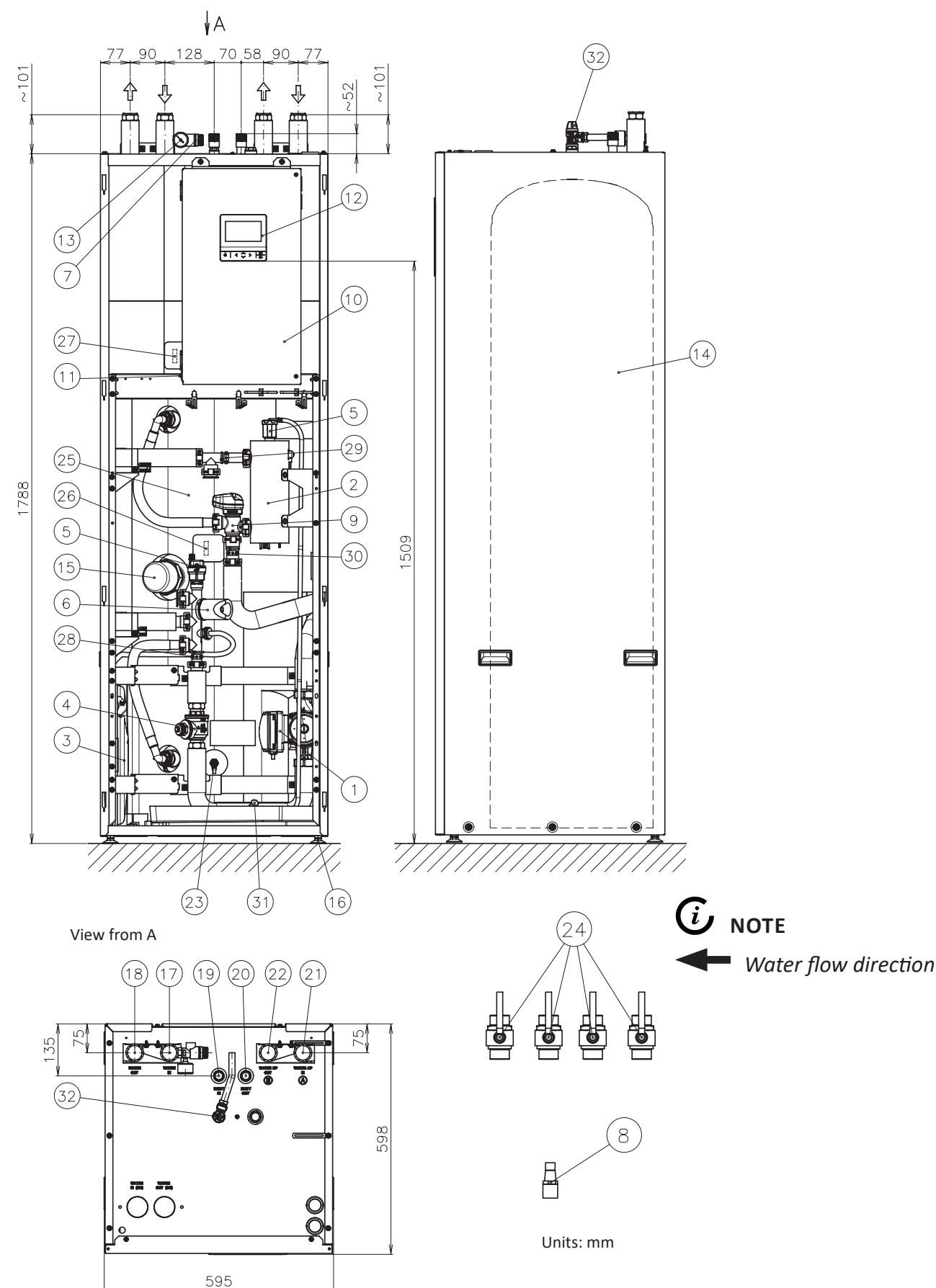
6.1.5.2 YUTAKI H Combi

◆ HWD-WE-220S



- 1. Water pump
- 2. Electric water heater
- 3. Expansion vessel (6 Liters)
- 4. Water strainer
- 5. Air purger (x2)
- 6. Water pressure sensor
- 7. Safety valve
- 8. Drain pipe for safety valve (Factory-supplied accessory)
- 9. 3-way valve (for space heating and DHW)
- 10. Electrical box
- 11. Switch for DHW "emergency operation"
- 12. LCD Controller
- 13. Manometer
- 14. DHW tank (220 litres)
- 15. DHW tank heater + thermostat
- 16. Mounting foot (x4)
- 17. Water inlet connection (G1" (female))
- 18. Water outlet connection (G1" (female))
- 19. DHW inlet connection (G3/4" (male))
- 20. DHW outlet connection (G3/4" (male))
- 21. Water HP inlet connection (G1" (female))
- 22. Water HP outlet connection (G1" (female))
- 23. Drain port (for DHW) (G3/8")
- 24. Shutdown valve (factory-supplied accessory)
- 25. Tank insulation
- 26. DHW thermistor 1 (Down)
- 27. DHW thermistor 2 (Up)
- 28. Water inlet thermistor (THMwi)
- 29. Water outlet thermistor (THMwo)
- 30. Water heat pump thermistor (THMwohp)
- 31. Drain port (for unit) (G3/8")

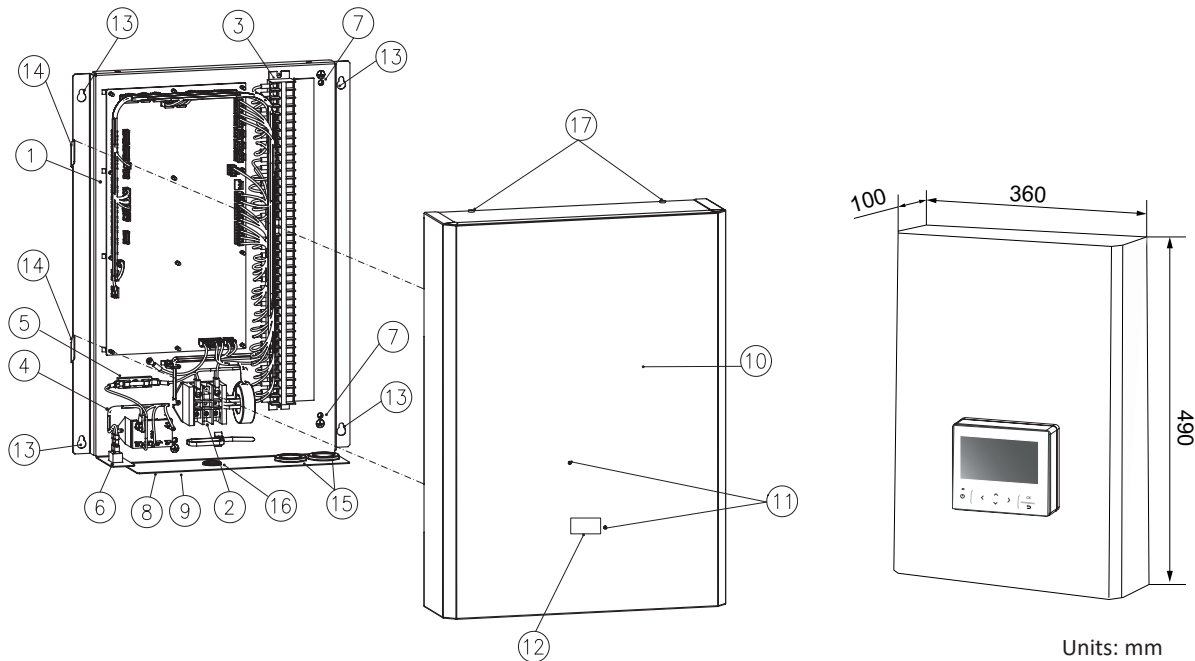
◆ HWD-WE-220S-K



- 1. Water pump
- 2. Electric water heater
- 3. Expansion vessel (6 Liters)
- 4. Water strainer
- 5. Air purger (x2)
- 6. Water pressure sensor
- 7. Safety valve
- 8. Drain pipe for safety valve (Factory-supplied accessory)
- 9. 3-way valve (for space heating and DHW)
- 10. Electrical box
- 11. Switch for DHW "emergency operation"
- 12. LCD Controller
- 13. Manometer
- 14. DHW tank (220 L)
- 15. DHW tank heater + thermostat
- 16. Mounting foot (x4)
- 17. Water inlet connection (G1" (female))
- 18. Water outlet connection (G1" (female))
- 19. DHW inlet connection (G3/4" (male))
- 20. DHW outlet connection (G3/4" (male))
- 21. Water HP inlet connection (G1" (female))
- 22. Water HP outlet connection (G1" (female))
- 23. Drain port (for DHW) (G3/8")
- 24. Shutdown valve (factory-supplied accessory)
- 25. Tank insulation
- 26. DHW thermistor 1 (Down)
- 27. DHW thermistor 2 (Up)
- 28. Water inlet thermistor (THMwi)
- 29. Water outlet thermistor (THMwo)
- 30. Water heat pump thermistor (THMwohp)
- 31. Drain port (for unit) (G3/8")
- 32. Pressure and temperature valve

6.1.6 Complementary system - YUTAKI Cascade Controller

◆ ATW-YCC-(01-03)



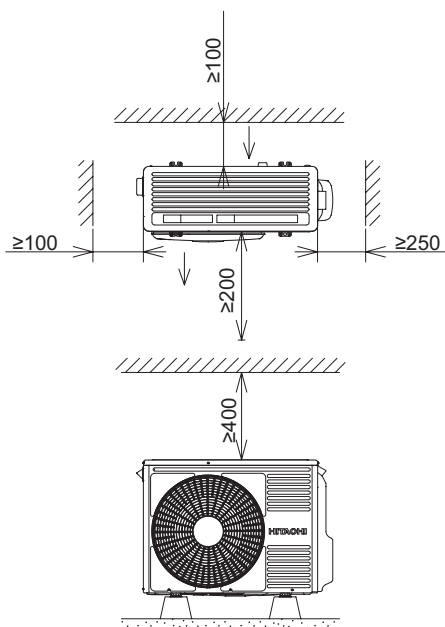
- 1.** Electrical Box
- 2.** Terminal Board (TB1)
- 3.** Terminal Board (TB2)
- 4.** Relay (AR1)
- 5.** Fuse (EF1) and Fuse holder
- 6.** Switch for DHW emergency operation
- 7.** Earth screw
- 8.** Model Label (Bottom)
- 9.** Electrical data label (Bottom)

- 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

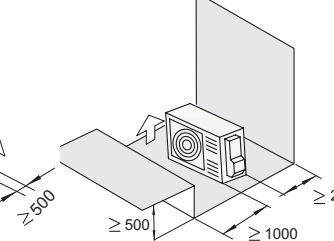
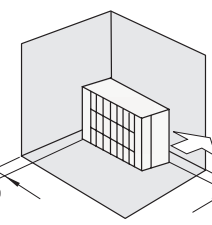
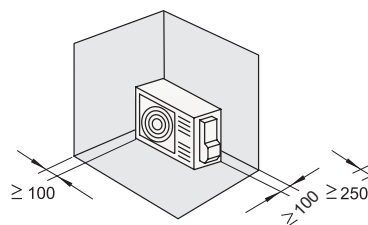
6.2.1 Split system - Outdoor unit

◆ RAS-(2-3)WHVRP1

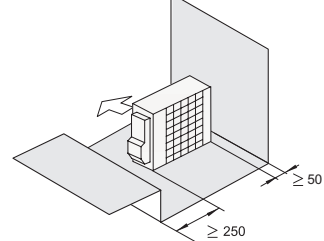


Units: mm.

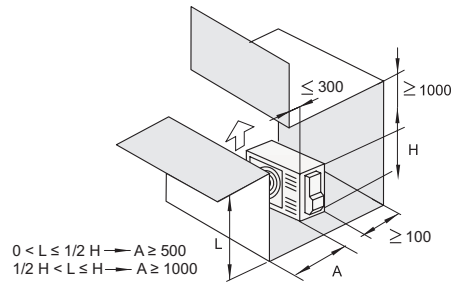
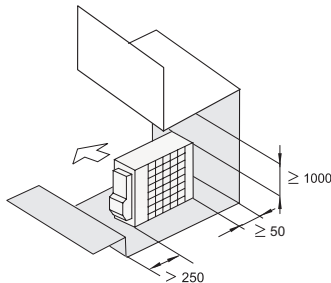
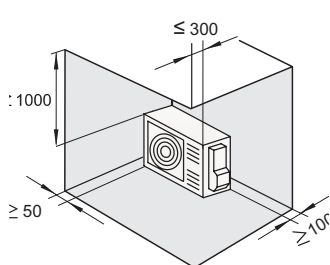
a) In case of front side and either of the sides are open (single unit)



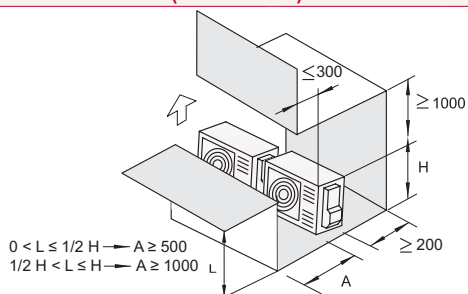
b) In case that surrounding wall exist (single unit)



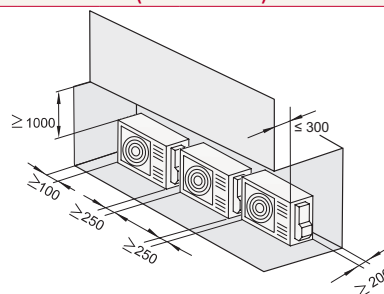
c) In case that upper side obstacles exist (single unit)



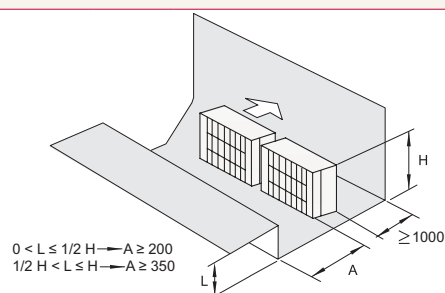
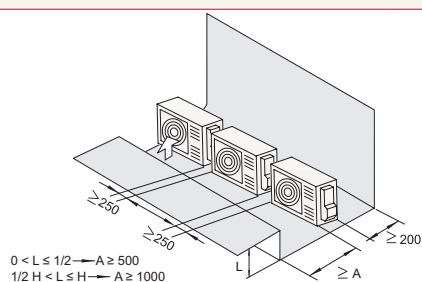
d) In case that upper side obstacles exist
(serial units)



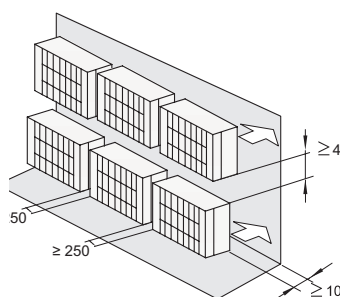
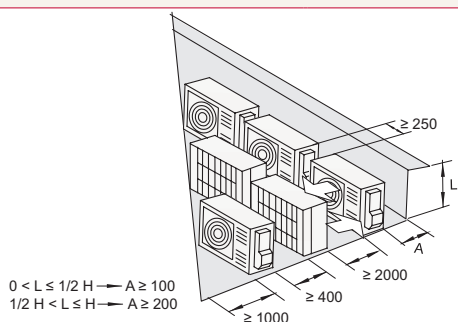
e) In case of front side and either of the sides are open
(serial units)



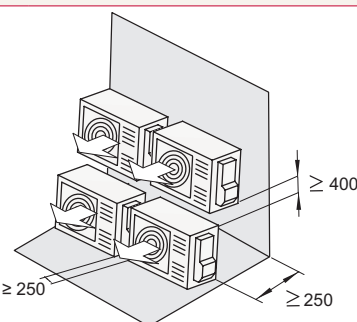
f) In case that surrounding wall exist (serial units)



g) Horizontal (multiple units)

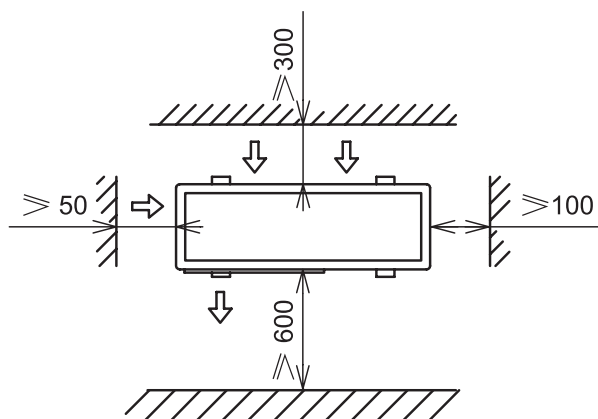
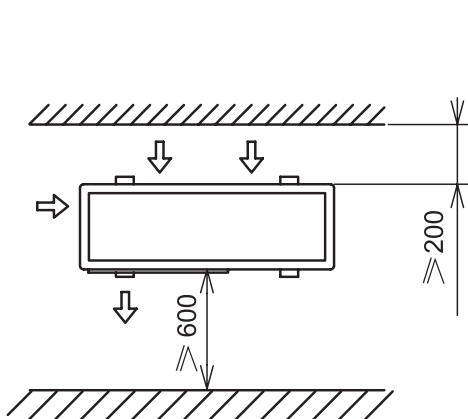


h) Vertical (multiple units)



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

◆ RAS-(4-10)WH(V)NPE



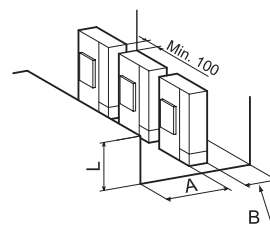
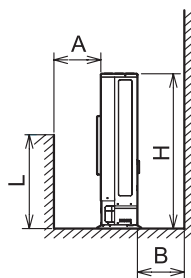
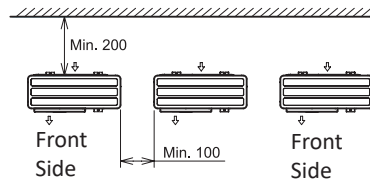
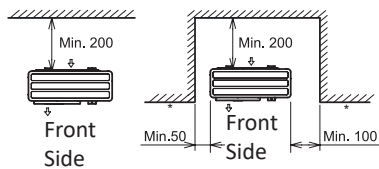
Units: mm

Blocked in Inlet Side

Upper Side Open

Single Installation

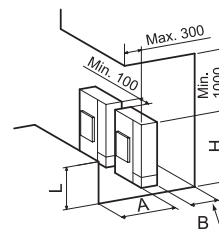
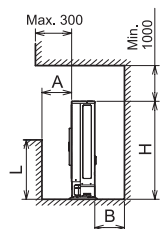
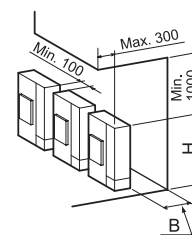
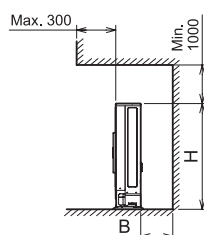
Multiple Installation (Two units or more)



Upper Side Blocked

Single Installation

Multiple Installation (Two units or more)

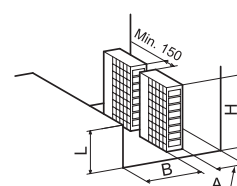
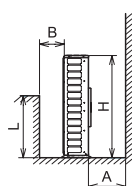
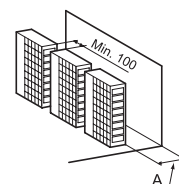
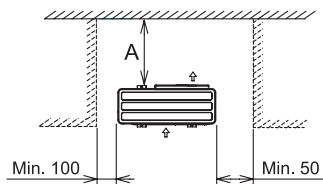


Outlet Side Blocked

Upper Side Open

Single Installation

Multiple Installation (Two units or more)

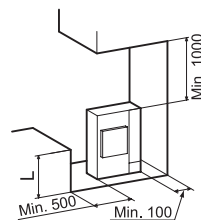
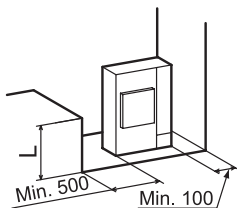
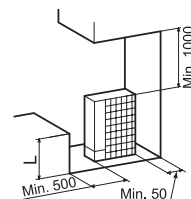
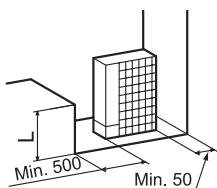


Right and Left Blocked

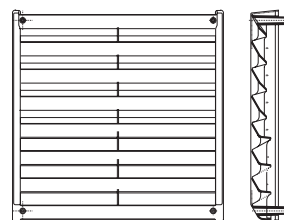
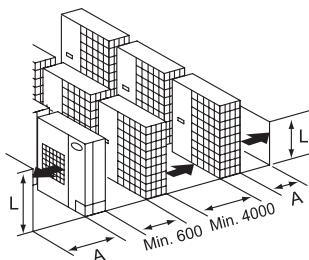
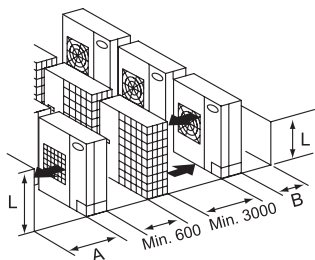
Upper Side Open

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 YUTAKI S

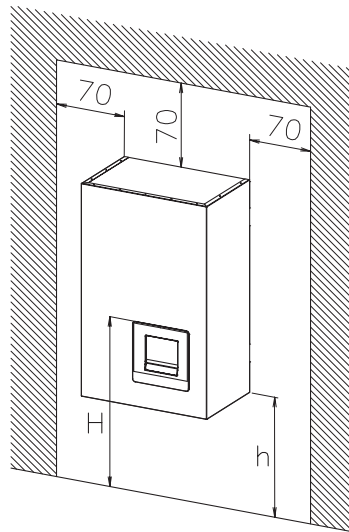
◆ RWM-(2.0-10.0)(N/R)1E

H: 1200~1500 mm

Recommended unit height for proper access to the control unit panel (Unit controller).

h: 350 mm

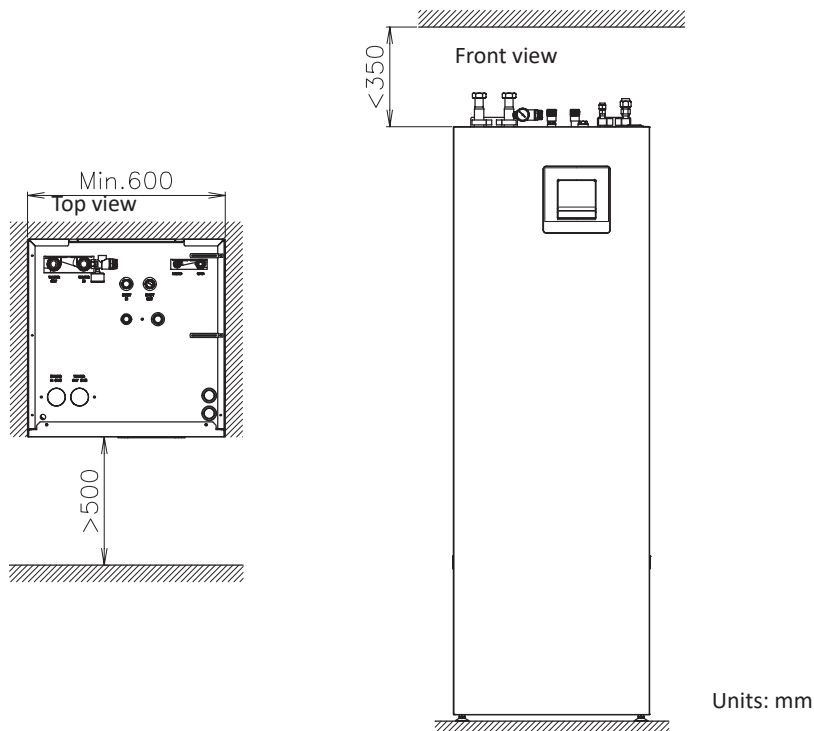
Minimum unit height for installing the shut-off valves and the first bending pipe line.



Units: mm

6.2.2.2 YUTAKI S Combi

◆ RWD-(2.0-6.0)(N/R)W1E-220S(-K)

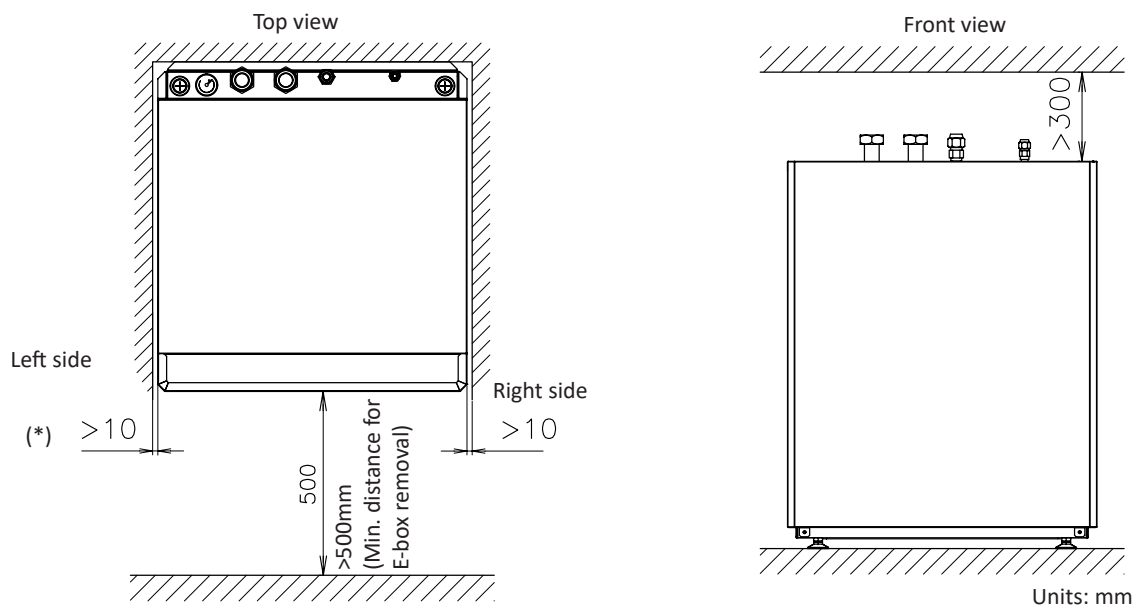


Units: mm

6.2.2.3 YUTAKI S80

◆ Type 1: Indoor unit alone

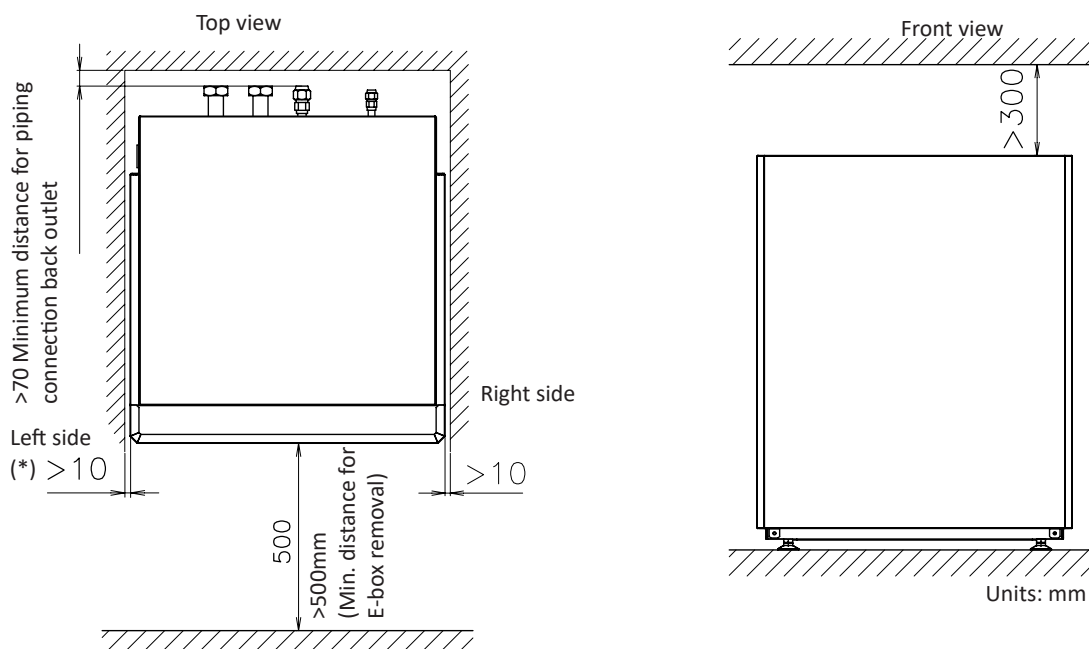
RWH-(4.0-6.0)(V)NFE



(*) Service with this space is possible but, for an easier servicing of some components it is recommended to let a space >500 mm

◆ Type 1: Indoor unit for operation with remote domestic hot water tank

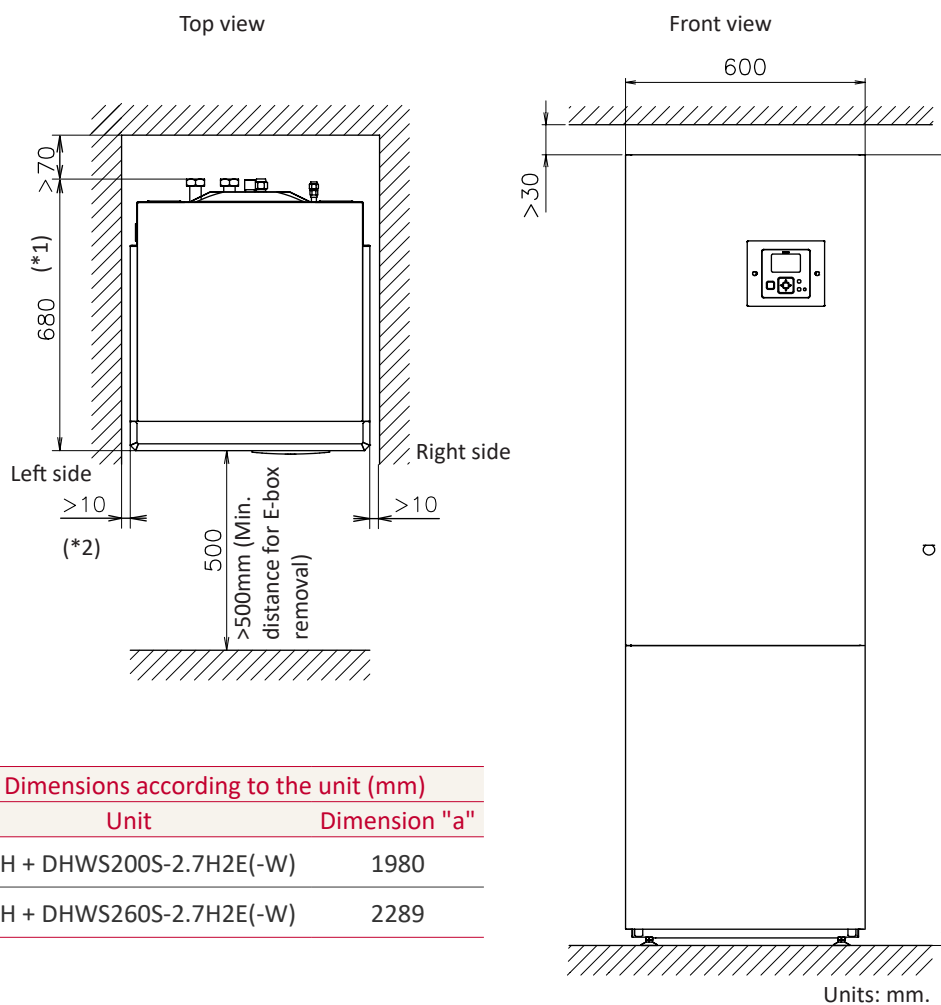
RWH-(4.0-6.0)(V)NFE



(*) Service with this space is possible but, for an easier servicing of some components it is recommended to let a space >500 mm

◆ Type 2: Indoor unit + Domestic hot water tank on top of the unit

RWH-(4.0-6.0)(V)NFW + DHWS(200/260)S-2.7H2E(-W)



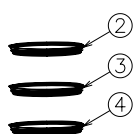
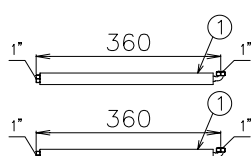
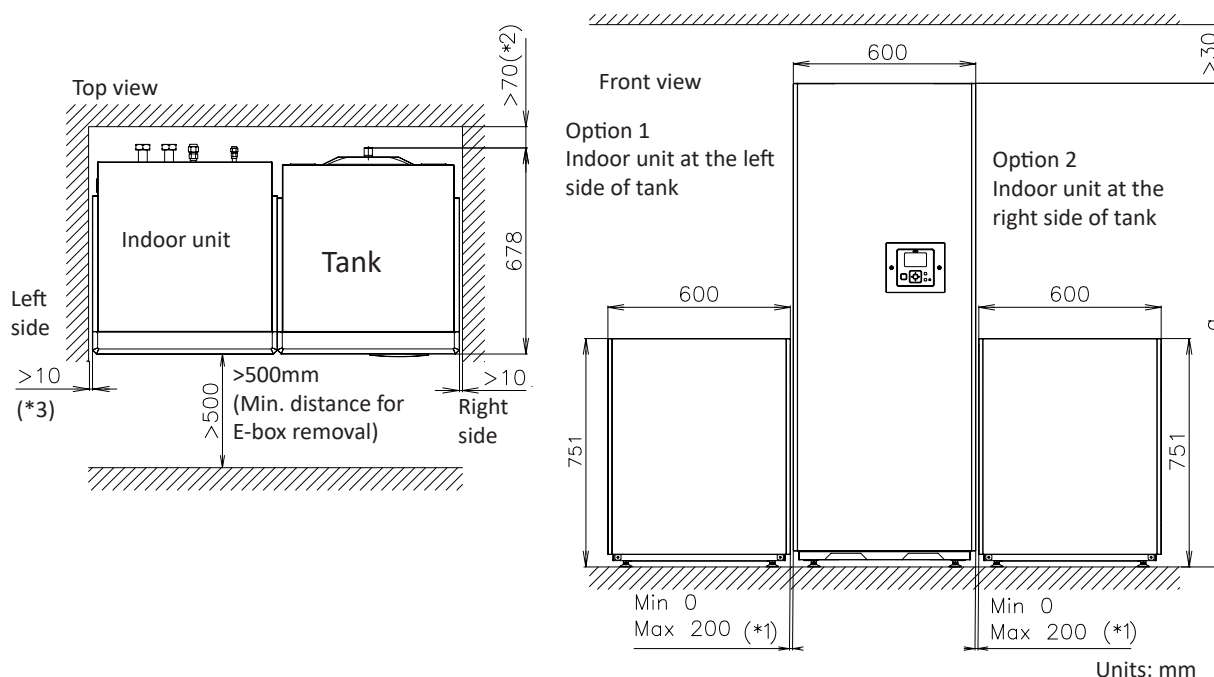
Dimensions according to the unit (mm)	
Unit	Dimension "a"
RWH + DHWS200S-2.7H2E(-W)	1980
RWH + DHWS260S-2.7H2E(-W)	2289

(*1) Minimum distance for piping connection back outlet

(*2) Service with this space is possible but, for an easier servicing of some components it is recommended to let a space >500 mm

◆ Type 2: Indoor unit + Domestic hot water tank beside the indoor unit

RWH-(4.0-6.0)(V)NFW + DHWS(200/260)S-2.7H2E(-W)



Dimensions according to the unit (mm)	
Unit	Dimension "a"
RWH + DHWS200S-2.7H2E(-W)	1980
RWH + DHWS260S-2.7H2E(-W)	2289

Mark	Part name	Remarks
1	Flexible water pipe (x4)	For heating coil inlet and outlet connections of indoor unit and DHW tank
2	Extension cables	For tank electric heater
3	Extension cables	For tank thermistor
4	Extension cables	For unit controller
5	Gasket (x5)	Gaskets (x5) for each flexible water pipe end (+1 for spare)

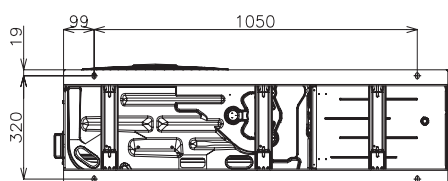
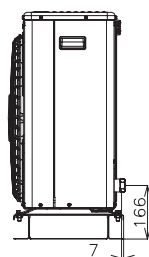
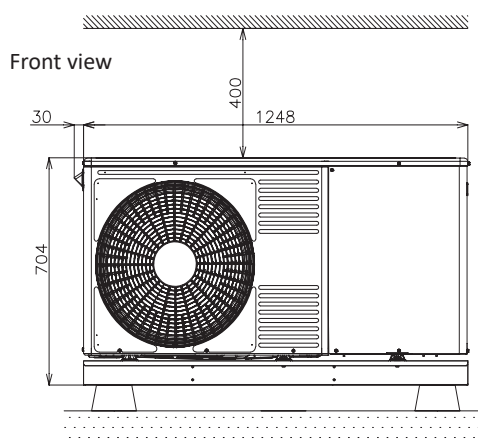
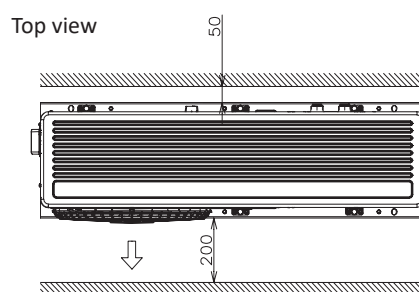
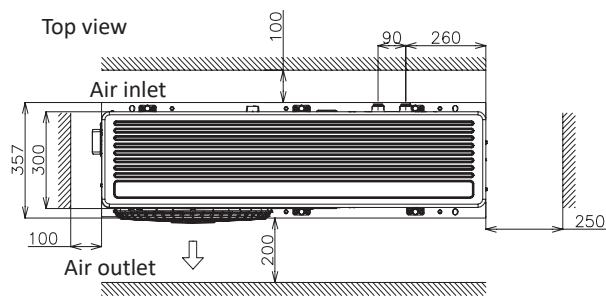
(*1) Recommended distance between indoor unit and tank may vary from 0 to 200 mm

(*2) Minimum distance for piping connection back outlet

(*3) Service with this space is possible but, for an easier servicing of some components it is recommended to let a space >500 mm

6.2.3 Monobloc system - YUTAKI M mini

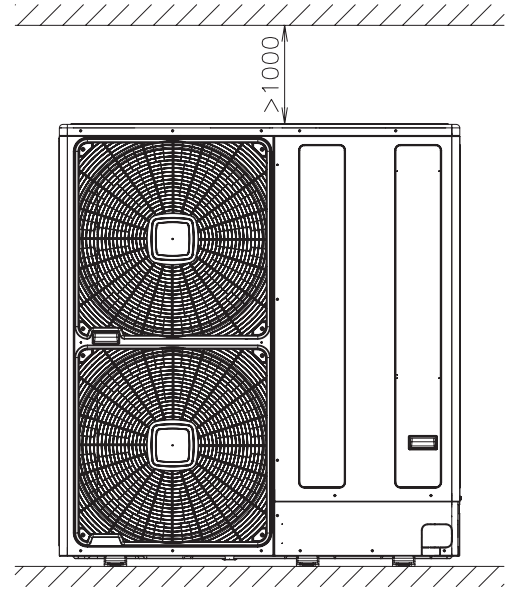
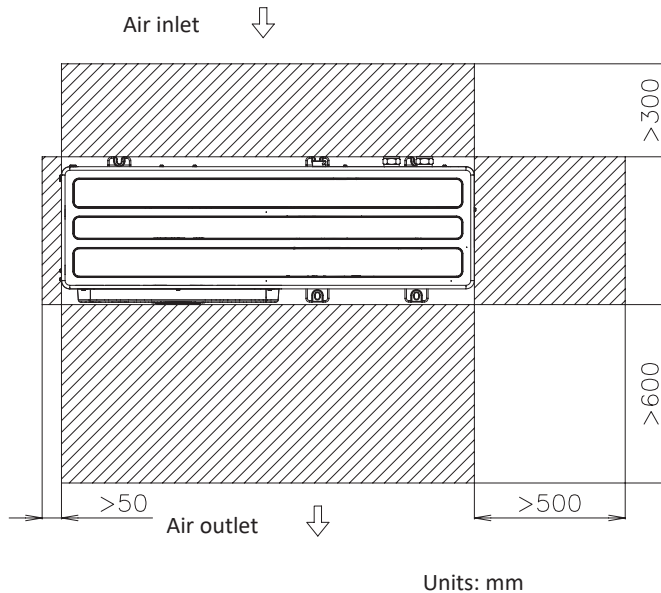
◆ RASM-(2/3)VRE



Units: mm

6.2.4 Monobloc system and Hydrosplit system - Outdoor unit

◆ RASM-(4-7)(V)R1E / RASM-(4-7)(V)RW1E



6.2.5 Hydrosplit system - Indoor unit

6.2.5.1 YUTAKI H

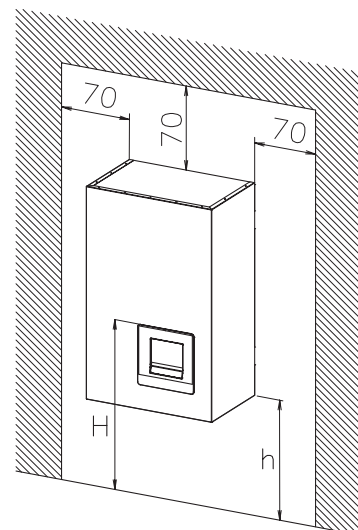
◆ HWM-WE

H: 1200~1500 mm

Recommended unit height for proper access to the control unit panel (Unit controller).

h: 350 mm

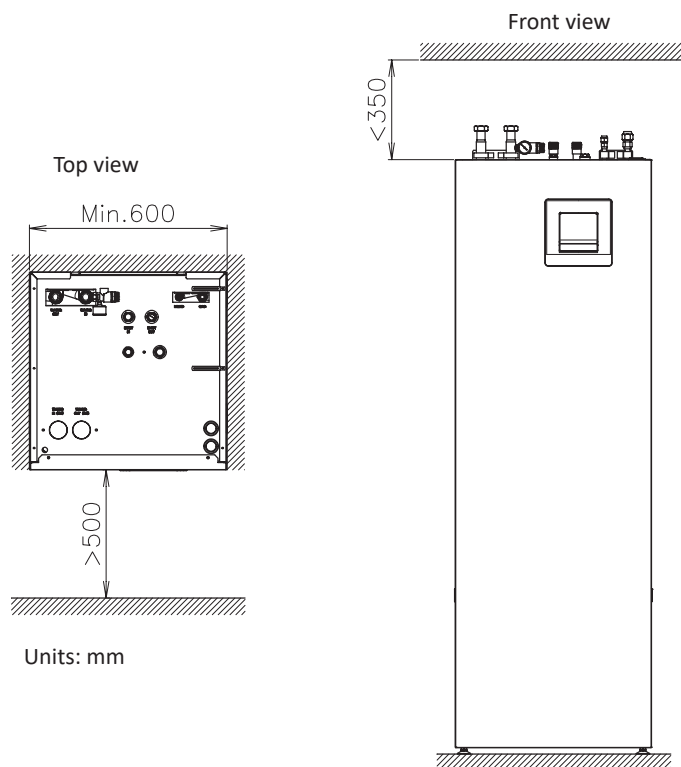
Minimum unit height for installing the shut-off valves and the first bending pipe line.



Units: mm

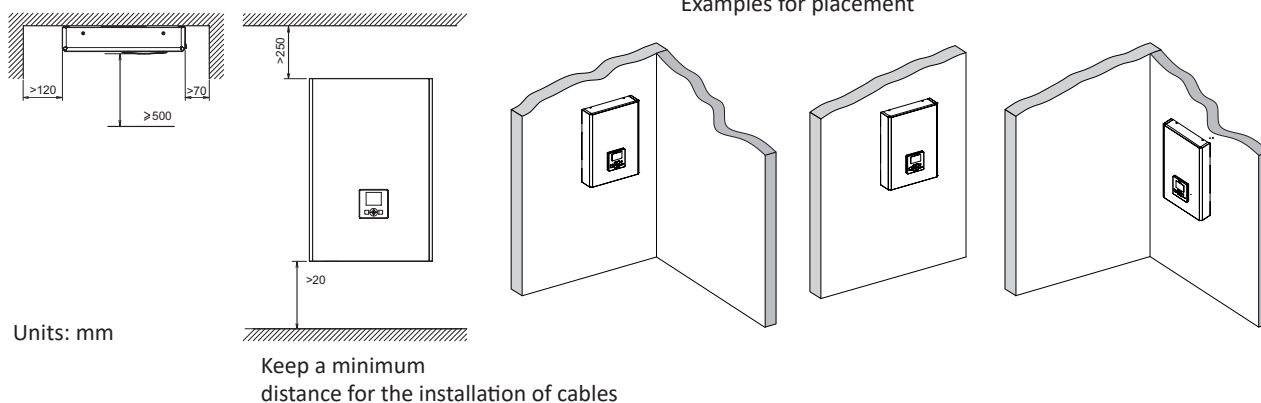
6.2.5.2 YUTAKI H Combi

◆ HWD-WE-220S



6.2.6 Complementary system - YUTAKI Cascade Controller

◆ ATW-YCC-(01-03)

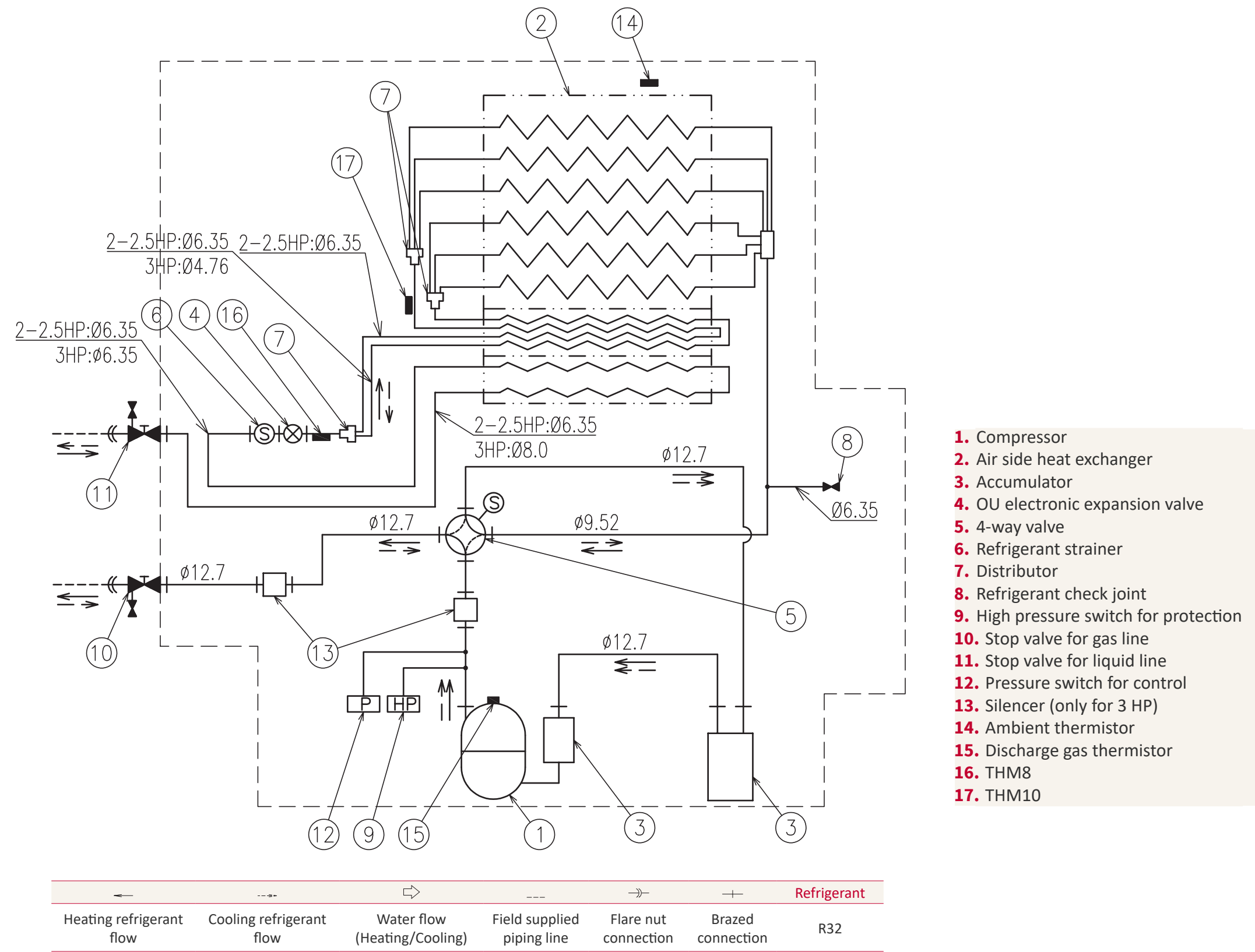


Refrigerant cycle and hydraulic circuit

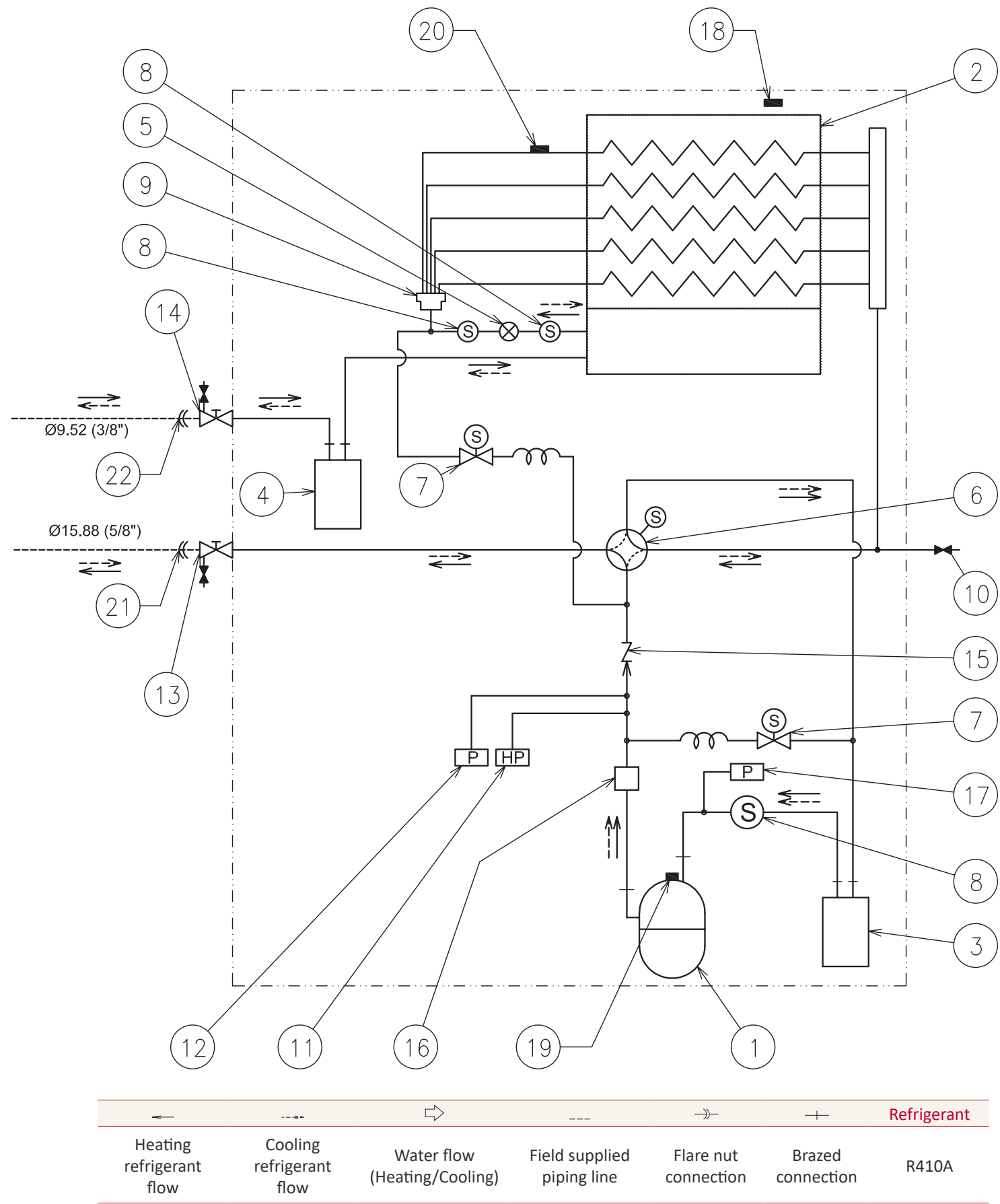
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7.1 Split system - Outdoor unit

◆ RAS-(2-3)WHVRP1



◆ RAS-(4-10)WH(V)NPE

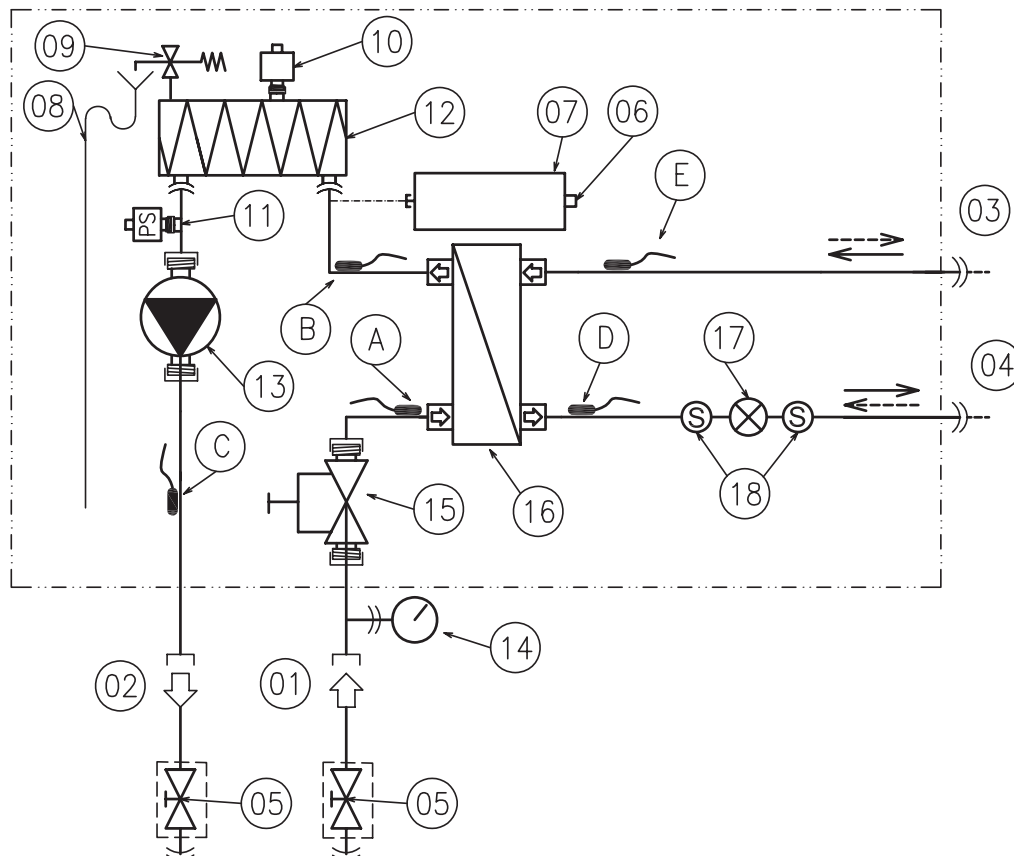


- 1. Compressor
- 2. Air side heat exchanger
- 3. Accumulator
- 4. Receiver
- 5. OU electronic expansion valve
- 6. 4-way valve
- 7. Solenoid gas for by-pass
- 8. OU refrigerant strainer
- 9. Distributor
- 10. Refrigerant check joint
- 11. High pressure switch for protection
- 12. Sensor for refrigerant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

7.2 Split system - Indoor unit

7.2.1 YUTAKI S

◆ RWM-(2.0-3.0)R1E

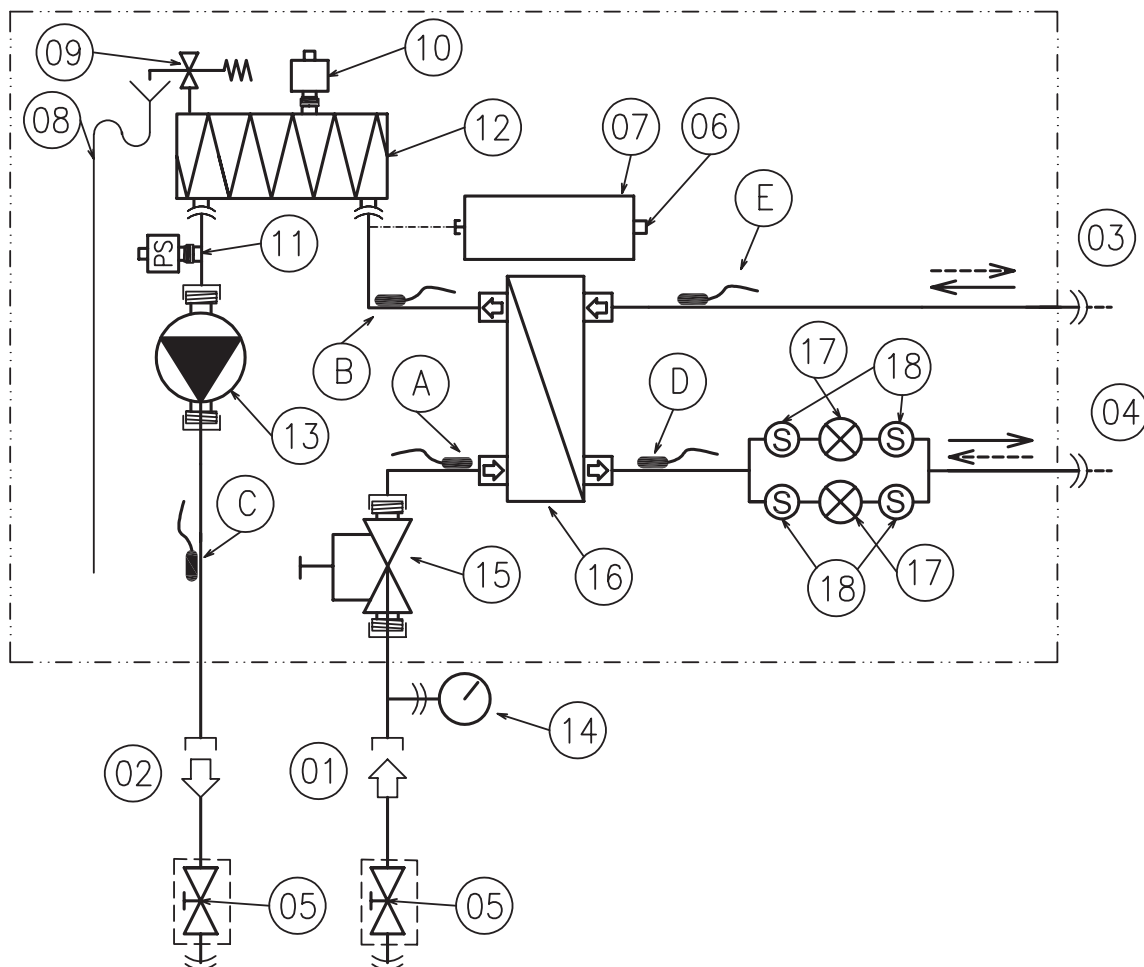


- 1.** Water inlet connection (1-1/4")
- 2.** Water outlet connection (1-1/4")
- 3.** IU refrigerant gas connection
- 4.** IU refrigerant liquid connection
- 5.** Shut-off valve (1-1/4")
- 6.** Drain for expansion vessel
- 7.** Expansion vessel
- 8.** Drain pipe (field supplied)
- 9.** Safety valve
- 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)

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

◆ RWM-(4.0-10.0)N1E



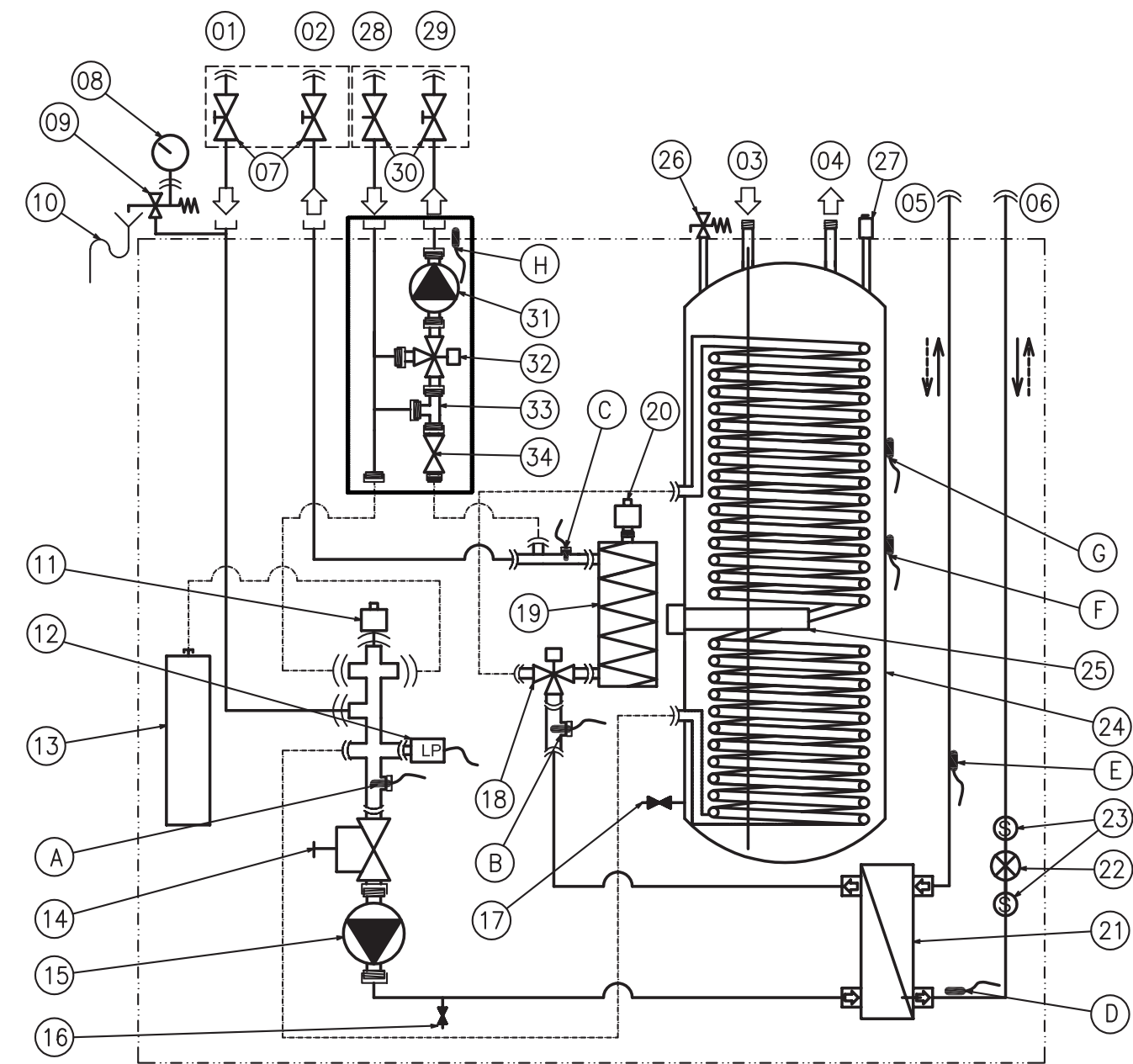
- 1.** Water inlet connection (1")
- 2.** Water outlet connection (1")
- 3.** IU refrigerant gas connection
- 4.** IU refrigerant liquid connection
- 5.** Shut-off valve (1")
- 6.** Drain for Expansion vessel
- 7.** Expansion vessel
- 8.** Drain pipe (field supplied)
- 9.** Safety valve
- 10.** Air purger
- 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)

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

7.2.2 YUTAKI S Combi

◆ RWD-(2.0-6.0)(N/R)W1E-220S(-K)



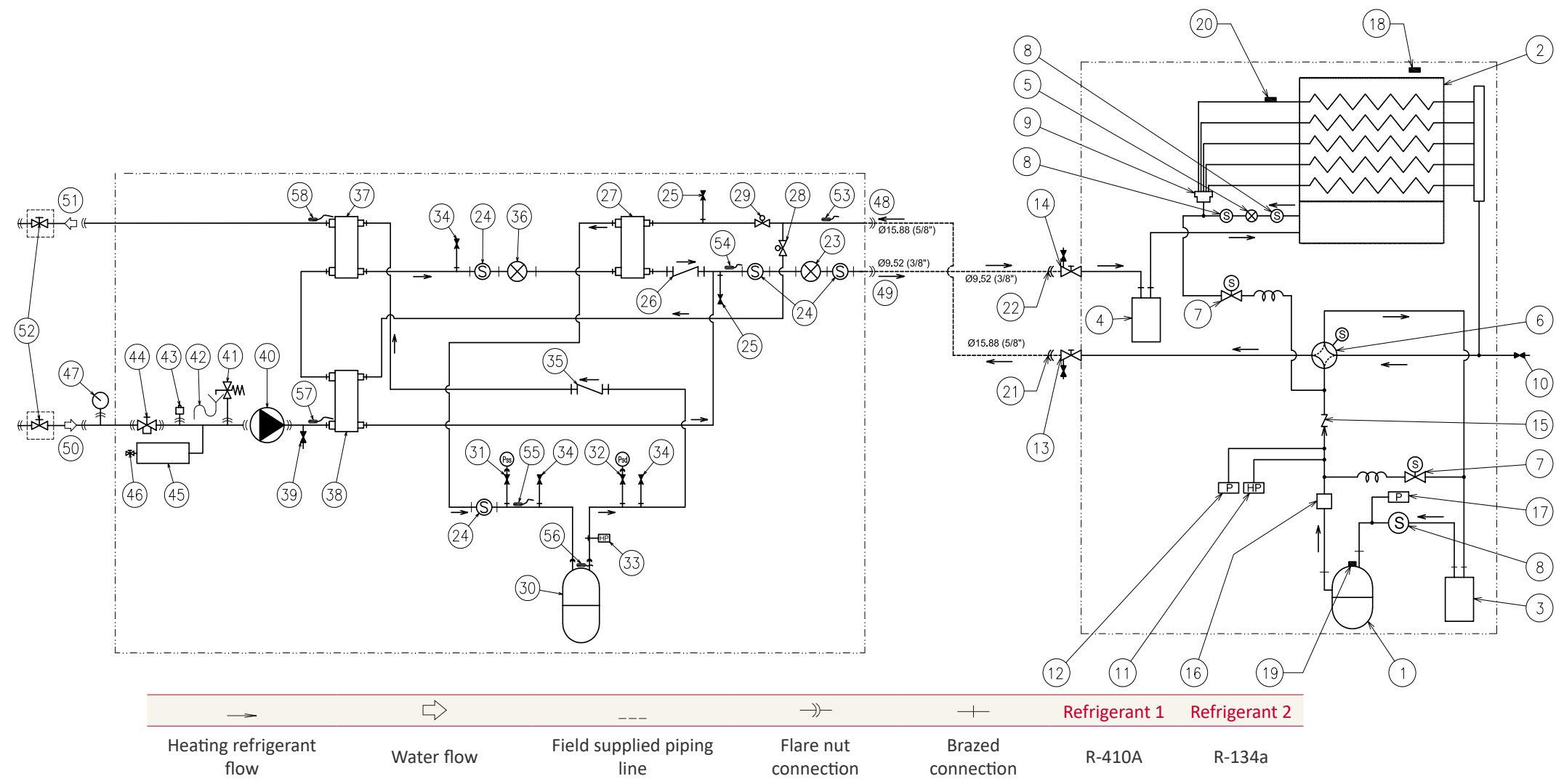
←	→	⇄	---	→	+	Refrigerant
Heating refrigerant flow	Cooling refrigerant flow	Water flow (Heating/Cooling)	Field supplied piping line	Flare nut connection	Brazed connection	R32 R410A

- 1. Water inlet connection (1")
- 2. Water outlet connection (1")
- 3. Water inlet (DHW)
- 4. Water outlet (DHW)
- 5. IU refrigerant gas connection
- 6. IU 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 IU 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)
- 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)
- F. DHW thermistor 1 (Bottom)
- G. DHW thermistor 2 (Top)
- H. Water outlet 2nd Zone thermistor (THMwo2) (accessory)

7.2.3 YUTAKI S80

◆ Indoor unit standalone version

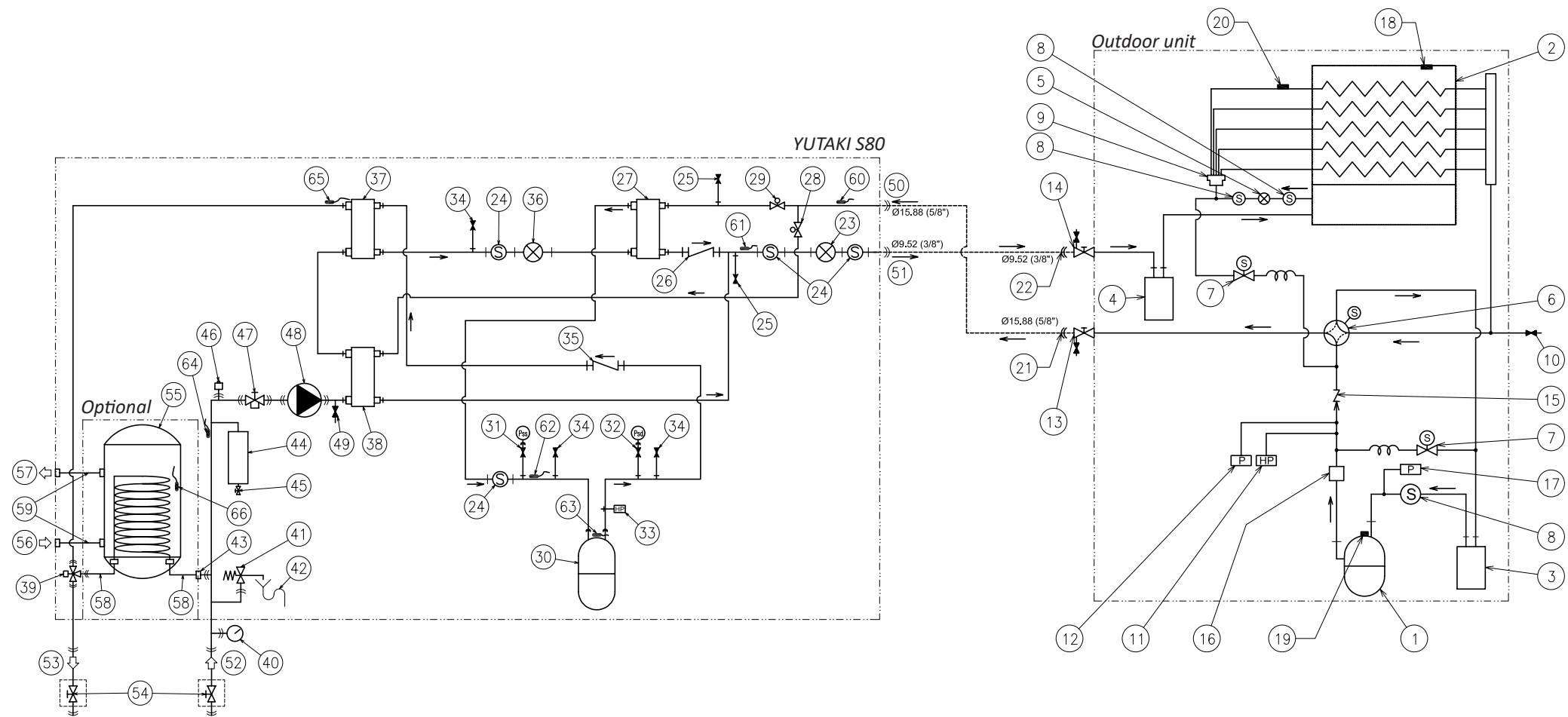
RAS-(4-6)WHVNP + RWH-(4.0-6.0)(V)NFE



- | | | | |
|--|--|--|--|
| <ul style="list-style-type: none">1. OU compressor2. Air side heat exchanger3. Accumulator4. Receiver5. OU electronic expansion valve6. 4-way valve7. Solenoid gas for by-pass8. OU refrigerant strainer9. Distributor10. OU R-410A check joint11. High pressure switch for protection12. Sensor for refrigerant pressure13. Stop valve for gas line14. Stop valve for liquid line15. OU check valve | <ul style="list-style-type: none">16. Silencer17. Pressure switch for control18. Ambient thermistor19. OU comp. discharge gas thermistor20. OU pipe thermistor21. OU refrigerant gas connection22. OU refrigerant liquid connection23. IU electronic expansion valve (R-410A)24. IU refrigerant strainer25. IU R-410A check joint26. Check valve for R-410A27. IU heat exchanger (R410A-R134a)28. Solenoid valve 1 (For 1 cycle)29. Solenoid valve 2 (For 2 cycles)30. IU compressor | <ul style="list-style-type: none">31. Low pressure sensor (Ps)32. High pressure sensor (Pd)33. IU high pressure switch (protection)34. R-134a check joint35. Check valve for R-134a36. IU electronic expansion valve (R-134a)37. IU heat exchanger (R134a-H2O)38. IU heat exchanger (R410A-H2O)39. Water pressure port40. Water pump41. Safety valve42. Drain pipe43. Air purger44. Water strainer45. Expansion vessel | <ul style="list-style-type: none">46. Air valve for pressure regulation of expansion vessel47. Manometer48. IU refrigerant gas connection49. IU refrigerant liquid connection50. Water inlet connection51. Water outlet connection52. Shut-off valve (Accessory)53. IU gas pipe thermistor54. IU liquid pipe thermistor55. IU comp. suction gas thermistor56. IU comp. discharge gas thermistor57. Water inlet thermistor58. Water outlet thermistor |
|--|--|--|--|

◆ Indoor unit for integrated tank version

RAS-(4-6)WHVNP + RWH-(4.0-6.0)(V)NFWE

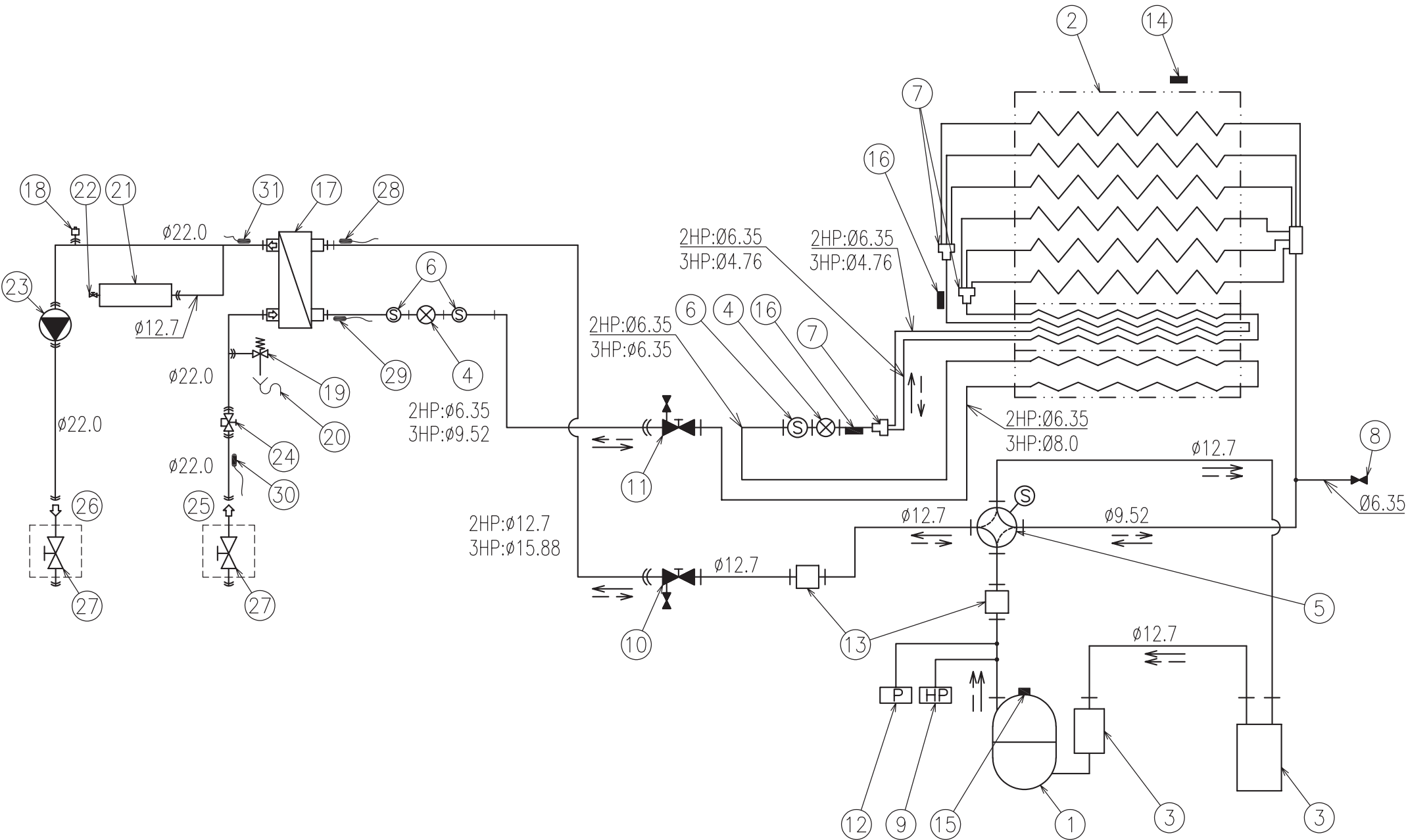


→	⇨	---	— —	— —	Refrigerant 1	Refrigerant 2
Heating refrigerant flow	Water flow	Field supplied piping line	Flare nut connection	Brazed connection	R-410A	R-134a

- | | | | | |
|--|---|---|--|--|
| 1. OU compressor | 16. Silencer | 30. IU compressor | 44. Expansion vessel | 58. Flexible pipe for space heating |
| 2. Air side heat exchanger | 17. Pressure switch for control | 31. Low pressure sensor (Ps) | 45. Air valve for pressure regulation of expansion vessel | 59. Flexible pipe for DHW |
| 3. Accumulator | 18. Ambient thermistor | 32. High pressure sensor (Pd) | 46. Air purger | 60. IU gas pipe thermistor |
| 4. Receiver | 19. OU comp. discharge gas thermistor | 33. IU high pressure switch (protection) | 47. Water strainer | 61. IU liquid pipe thermistor |
| 5. OU electronic expansion valve | 20. OU pipe thermistor | 34. R-134a check joint | 48. Water pump | 62. IU comp. suction gas thermistor |
| 6. 4-way valve | 21. OU refrigerant gas connection | 35. Check valve for R-134a | 49. Water pressure port | 63. IU comp. discharge gas thermistor |
| 7. Solenoid gas for by-pass | 22. OU refrigerant liquid connection | 36. IU electronic expansion valve (R-134a) | 50. IU refrigerant gas connection | 64. Water inlet thermistor |
| 8. OU refrigerant strainer | 23. IU electronic expansion valve (R-410A) | 37. IU heat exchanger (R134a-H ₂ O) | 51. IU refrigerant liquid connection | 65. Water outlet thermistor |
| 9. Distributor | 24. IU refrigerant strainer | 38. IU heat exchanger (R410A-H ₂ O) | 52. Water inlet connection | 66. DHW tank thermistor |
| 10. OU R-410A check joint | 25. IU R-410A check joint | 39. 3-way valve | 53. Water outlet connection | |
| 11. High pressure switch for protection | 26. Check valve for R-410A | 40. Manometer | 54. Shut-off valve (Accessory) | |
| 12. Sensor for refrigerant pressure | 27. IU heat exchanger (R410A-R134a) | 41. Safety valve | 55. Domestic hot water tank | |
| 13. Stop valve for gas line | 28. Solenoid valve 1 (For 1 cycle) | 42. Drain pipe | 56. DHW inlet | |
| 14. Stop valve for liquid line | 29. Solenoid valve 2 (For 2 cycles) | 43. Connection for DHW tank (outlet) | 57. DHW outlet | |

7.3 Monobloc system - YUTAKI M

◆ RASM-(2/3)VRE



- 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 (only for 3 HP)
- 14. Ambient thermistor
- 15. Discharge gas thermistor
- 16. Pipe thermistor
- 17. Water side heat exchanger
- 18. Air purger
- 19. Safety valve
- 20. Drain pipe
- 21. Expansion vessel
- 22. Air valve for pressure regulation of expansion vessel
- 23. Water pump
- 24. Water strainer
- 25. Water inlet connection
- 26. Water outlet connection
- 27. Shut-off valve (Field supplied)
- 28. Gas pipe thermistor (Heating)
- 29. Liquide pipe thermistor (Heating)
- 30. Water inlet thermistor
- 31. Water outlet thermistor
- 32. Water outlet thermistor

(*): Use refrigerant pipe adapters factory supplied.

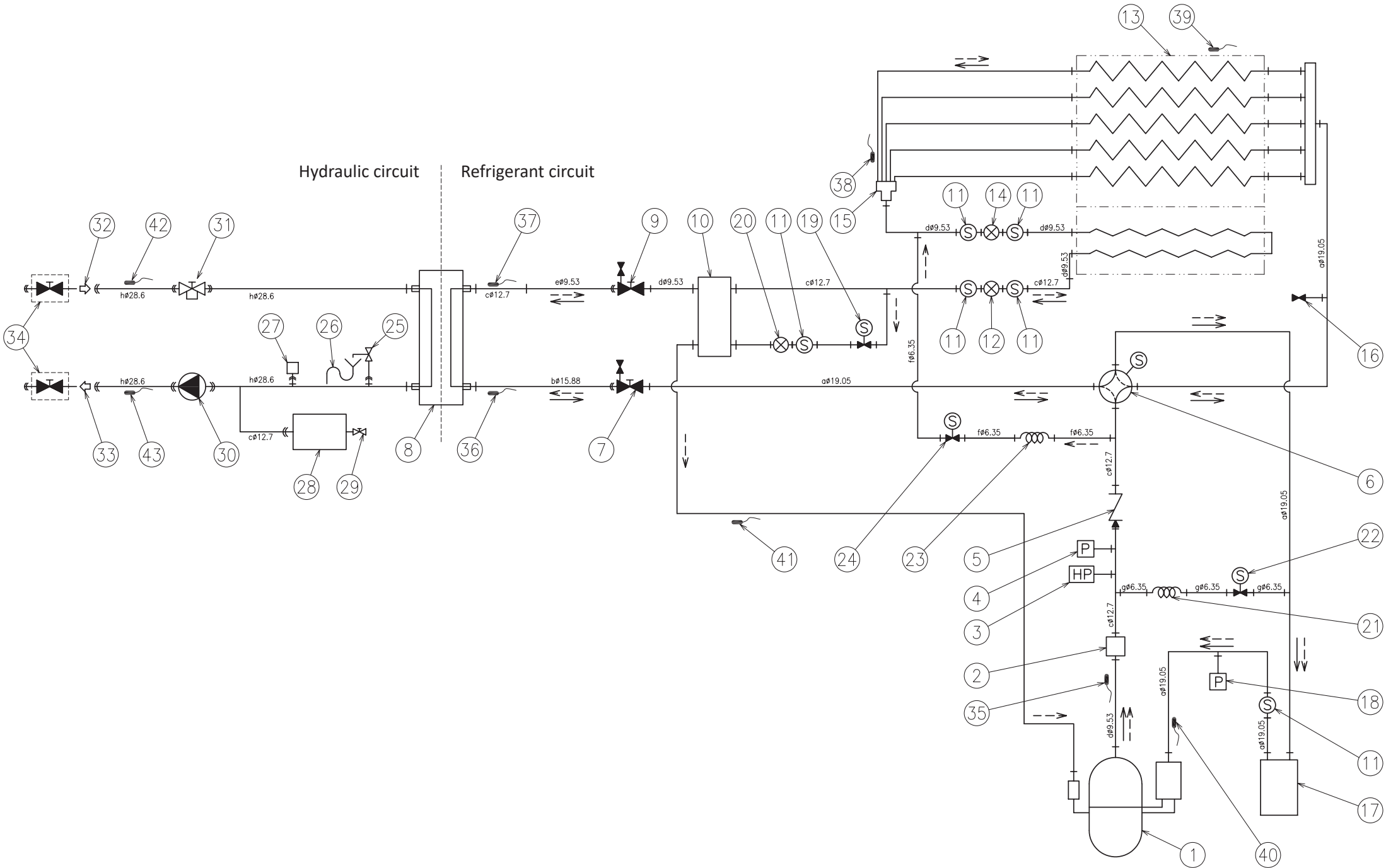
						Refrigerant
Heating refrigerant flow	Cooling refrigerant flow	Water flow (Heating/Cooling)	Field supplied piping line	Flare nut connection	Brazed connection	R32

◆ RASM-(4-7)(V)R1E

— Flare Connection
— Solder Connection
← Refrigerant flow for cooling
← Refrigerant flow for heating
↺ Water flow (Heating/Cooling)
R32 Refrigerant
4.15 MPa Leakage test pressure

MARK	ODxT	MATERIAL
a	19.05Dx1.2T	C1220T-0
b	15.88Dx1.2T	
c	12.7Dx1.0T	
d	9.53Dx0.8T	
e	9.53Dx1.2T	
f	6.35Dx0.7T	
g	6.35Dx1.07T	
h	28.6Dx0.8T	

OD: Outer Diameter (mm)
T: Thickness (mm)



- 1. Compressor
- 2. Silencer
- 3. High pressure switch
- 4. Pressure sensor (discharge)
- 5. Check valve
- 6. 4-Way valve
- 7. Stop valve (gas line)
- 8. Water side heat exchanger
- 9. Stop valve
- 10. Economizer
- 11. Strainer
- 12. Cooling expansion valve

- 13. Air heat exchanger
- 14. Heating expansion valve
- 15. Distributor
- 16. Check joint
- 17. Accumulator
- 18. Pressure sensor (suction)
- 19. Economizer solenoid valve (SVE)
- 20. Economizer expansion valve
- 21. Capillary (Gas bypass circuit for startup)

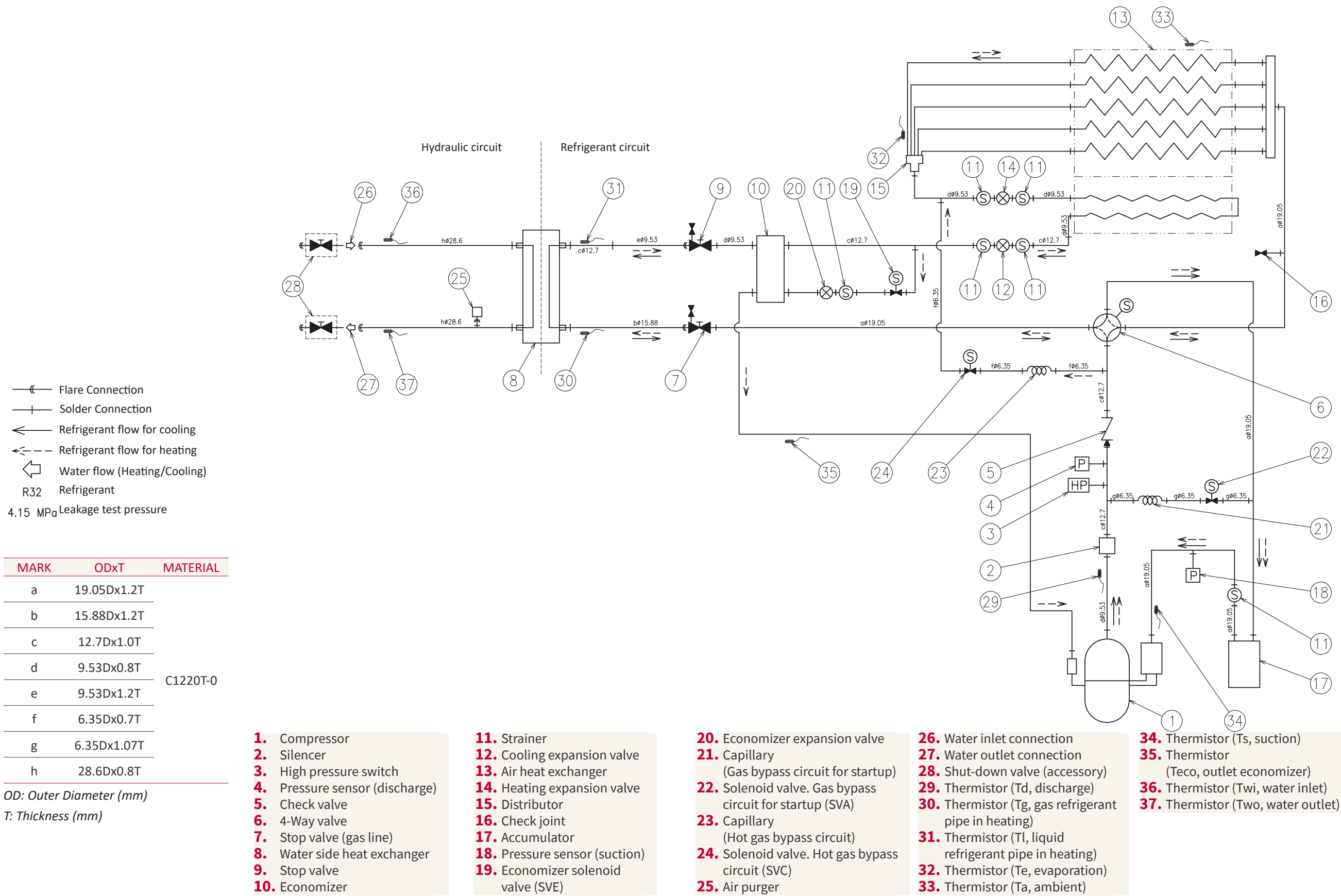
- 22. Solenoid valve. Gas bypass circuit for startup (SVA)
- 23. Capillary (Hot gas bypass circuit)
- 24. Solenoid valve. Hot gas bypass circuit (SVC)
- 25. Safety valve
- 26. Drain Pipe
- 27. Air purger
- 28. Expansion vessel
- 29. Air valve for pressure regulation of expansion vessel

- 30. Water pump
- 31. Water strainer
- 32. Water inlet connection
- 33. Water outlet connection
- 34. Shut-down valve (accessory)
- 35. Thermistor (Td, discharge)
- 36. Thermistor (Tg, gas refrigerant pipe in heating)
- 37. Thermistor (Tl, liquid refrigerant pipe in heating)
- 38. Thermistor (Te, evaporation)
- 39. Thermistor (Ta, ambient)

- 40. Thermistor (Ts, suction)
- 41. Thermistor (Teco, outlet economizer)
- 42. Thermistor (Twi, water inlet)
- 43. Thermistor (Two, water outlet)

7.4 Hydrosplit System - Outdoor unit

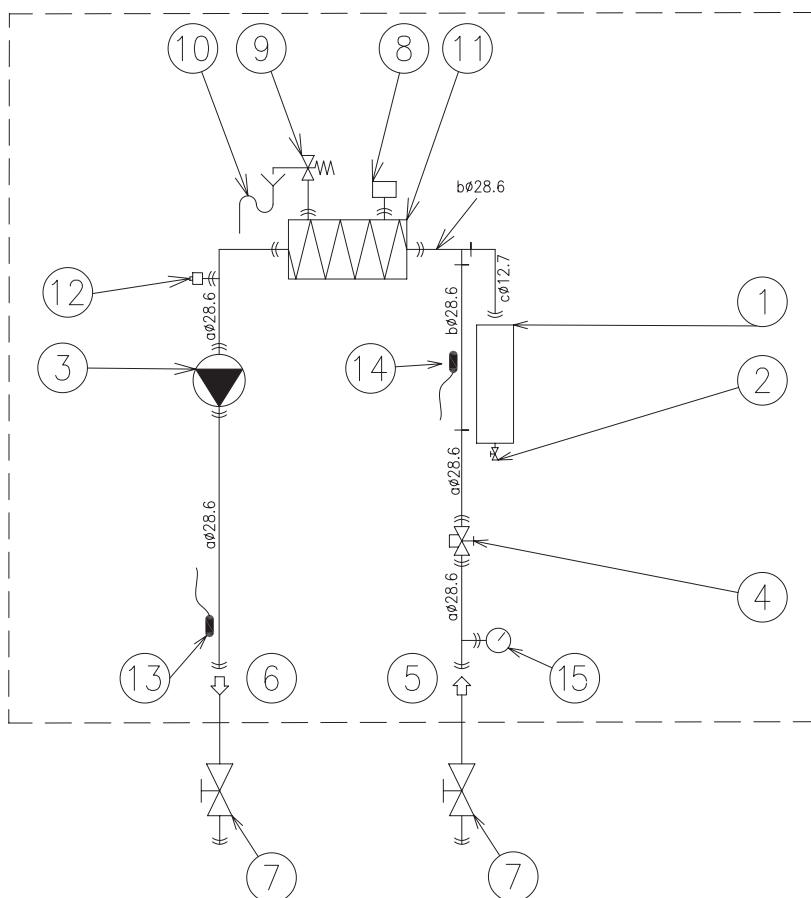
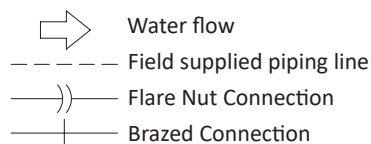
◆ RASM-(4-7)(V)RW1E



7.5 Hydrosplit System - Indoor unit

7.5.1 YUTAKI H

◆ HWM-WE



1. Expansion vessel
2. Air valve for pressure regulation of expansion vessel
3. Water pump
4. Water strainer
5. Water inlet connection
6. Water outlet connection
7. Shut-off valve
8. Air purger
9. Safety valve
10. Drain pipe
11. Water electric heater
12. Pressure sensor
13. Water outlet thermistor
14. Water outlet HP thermistor
15. Manometer

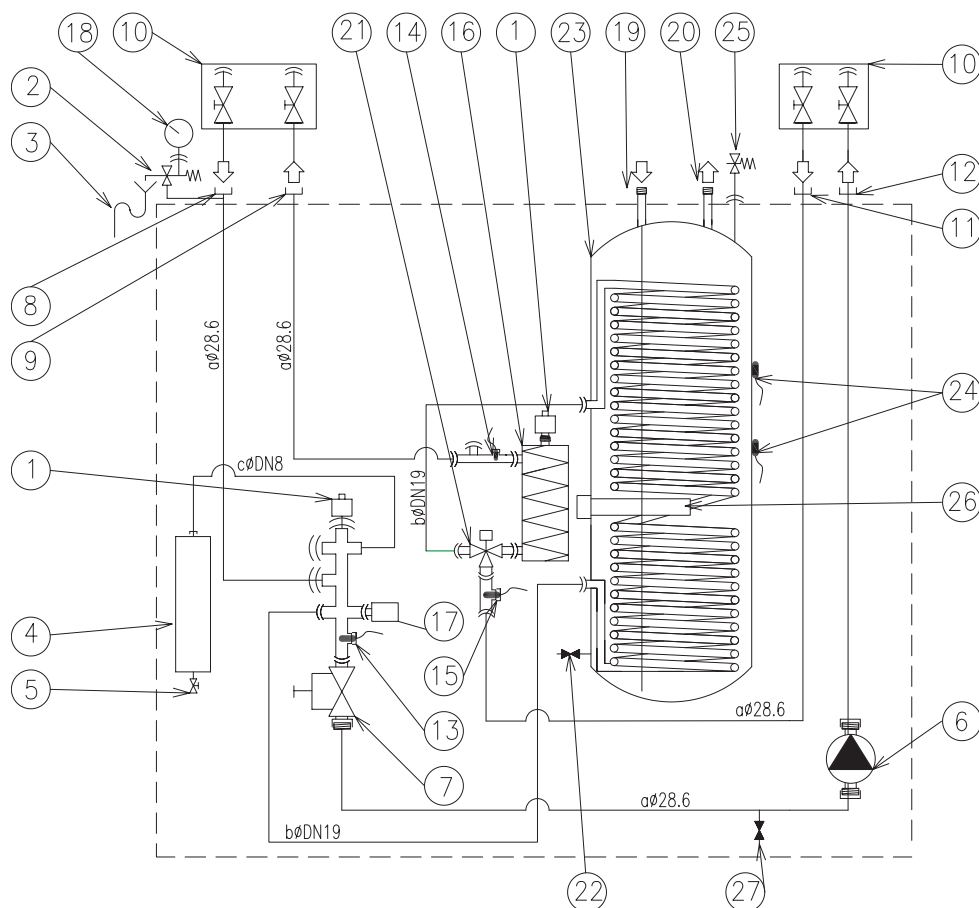
MARK	EDxT	MATERIAL
a	28.6Dx0.8T	
b	28.6Dx1.0T	C1220T-0
c	12.7Dx1.0T	

ED: External Diameter (mm)

T: Thickness (mm)

7.5.2 YUTAKI H Combi

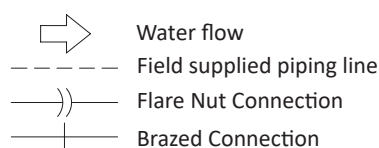
◆ HWD-WE-220S(-K)



MARK	EDxT	MATERIAL
a	28.6Dx0.8T	C1220T-0
b	DN19 - Flexible	Others
c	DN19 - Flexible	

ED: External Diameter (mm)

T: Thickness (mm)



- | | | |
|---|---------------------------------------|--|
| 1. Air purger (x2) | 10. Shut-off valve (x4) | 20. Water outlet (DHW) |
| 2. Safety valve | 11. Water HP inlet connection | 21. 3-Way valve |
| 3. Drain pipe | 12. Water HP outlet connection | 22. Drain valve (for DHW) |
| 4. Expansion vessel | 13. Water inlet thermistor | 23. Domestic hot water tank |
| 5. Air valve for pressure regulation of expansion vessel | 14. Water outlet thermistor | 24. DHW thermistor (x2) |
| 6. Water pump | 15. Water outlet HP thermistor | 25. P&T relief valve (for UK model) |
| 7. Water strainer | 16. Water electric heater | 26. Electric heater & thermostat |
| 8. Water inlet connection | 17. Pressure sensor | 27. Drain port |
| 9. Water outlet connection | 18. Manometer | |
| | 19. Water inlet (DHW) | |

Refrigerant and water piping

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8.1 General notes before performing piping work

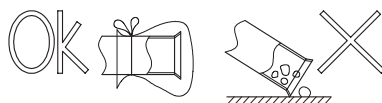
8.1.1 Piping work

- 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 lifecycle compared to that of a poorly prepared system. Take particular care to ensure that all copper piping is clean and dry internally.

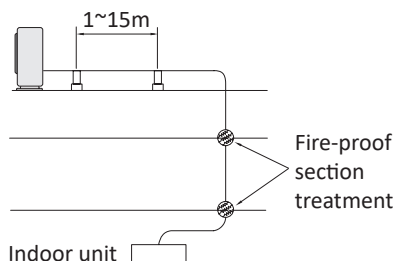
- Cap the end of the pipe when pipe is to be inserted through a wall hole.
- Do not put pipes on the ground directly without a cap or vinyl tape at the end of the pipe.



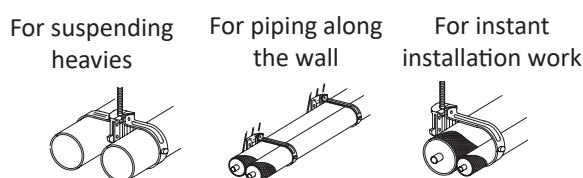
- If piping installation is not completed until next day or over a longer period of time, braze off the ends of the piping and charge with oxygen free nitrogen through a Schrader valve type access fitting to prevent moisture and particle contamination.
- It is advisable to insulate the water pipes, joints 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

RAS-(2-3)WHVRP1 and RASM 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.

Make sure that unit installation and refrigerant piping installation comply with applicable legislation in each country and must be complied the applicable standard EN378.

Due to R32 refrigerant and depending on final refrigerant charge amount, a minimum floor area for installation must be considered for RAS-(2-3)WHVRP1 models installation.

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

8.2.2 Minimum area requirements

In case of total refrigerant amount ≥ 1.84 kg, the unit should be installed, operated and stored in a room with a floor area larger than the minimum criteria. Use following formula and table to determine these minimum criteria:

$$A_{min} = (m_c / (2.5 \times (LFL)^{(5/4)} \times h_o))^2 \quad \text{not less than} \quad A_{min} = m_c / (SF \times LFL \times h_o)$$

- A_{min} : Minimum installation area of an Indoor unit for a given refrigerant charge m_c (kg) and considering the installation height h_o (m2)
- h_o : Installation height of the bottom side of the indoor unit + distance from the indoor unit bottom side to the lowest part for which a refrigerant leak may release to the indoor area (m)
- m_c : total system refrigerant charge that could be released to the indoor area in case of undetected refrigerant leak (kg)
- LFL: Lower Flammability Limit for R32, 0,307 kg/m³ as established by EN 378-1:2016 and ISO 817
- SF: safety factor with a value of 0.75

Refrigerant Amount (kg)	Minimum Area (m ²) (h_o :0.6m)	Minimum Area (m ²) (h_o :1.0m)	Minimum Area (m ²) (h_o :1.8m)	Minimum Area (m ²) (h_o :2.2m)	Minimum Area (m ²) (h_o :2.5m)
1.84	28.88	10.40	4.44	3.64	3.20
1.9	30.72	11.06	4.58	3.75	3.30
2	34.04	12.26	4.83	3.95	3.47
2.1	37.53	13.51	5.07	4.15	3.65
2.2	41.19	14.83	5.31	4.34	3.82
2.3	45.02	16.21	5.55	4.54	4.00
2.4	49.02	17.65	5.79	4.74	4.17
2.5	53.19	19.15	6.03	4.94	4.34
2.6	57.53	20.71	6.39	5.13	4.52
2.7	62.04	22.34	6.89	5.33	4.69
2.8	66.72	24.02	7.41	5.53	4.86
2.9	71.58	25.77	7.95	5.73	5.04
3	76.60	27.58	8.51	5.92	5.21
3.1	81.79	29.44	9.09	6.12	5.39
3.2	87.15	31.37	9.68	6.48	5.56
3.3	92.68	33.37	10.30	6.89	5.73
3.4	98.39	35.42	10.93	7.32	5.91
3.5	104.26	37.53	11.58	7.75	6.08

NOTE

- 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 60335-2-40:2018 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 EN378-1 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)
YUTAKI (S / S Combi)	4 HP	7.5
	5/6 HP	7.8
YUTAKI S	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:

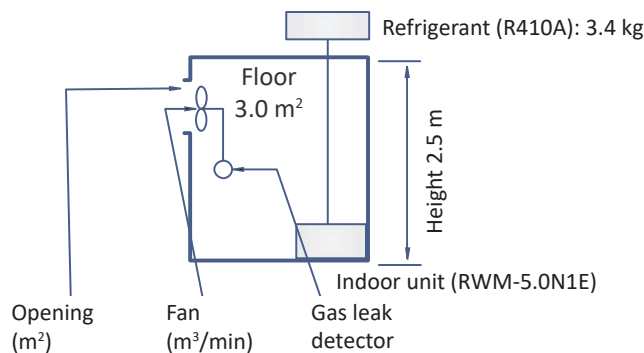
- 1 Provide a shutterless opening which will allow fresh air to circulate into the room.
- 2 Provide a doorless opening of 0.15% or more size to the floor area.
- 3 There must be a ventilator fan connected to a gas leak detector, with a ventilator capacity of 0.4 m³/min or higher per Japanese refrigeration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

Model	Tonnes
RAS-(4-6)WH(V)NPE	2.27
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:

Outdoor unit (RAS-5WHVNPE)



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 R134a refrigerant is factory charged in the YUTAKI S80 indoor 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 & indoor unit

Model (HP)	Piping length	Outdoor unit		Refrigerant pipe (Between Outdoor unit and Indoor unit)		Indoor Unit	
		Pipe Connection size				Pipe Connection size	
		Gas pipe	Liquid pipe	Gas pipe	Liquid pipe	Gas pipe	Liquid pipe
2	3~50m	Ø 12.7 (1/2")	Ø 6.35 (1/4")	Ø 12.7 (1/2")	Ø 6.35 (1/4")	Ø 15.88 (5/8") (*)	Ø 6.35 (1/4")
2.5	3~50m						Ø 9.52 (3/8") (*)
3	3~27m	Ø 15.88 (5/8") (*)	Ø 9.52 (3/8") (*)	Ø 15.88 (5/8")	Ø 6.35 (1/4")	Ø 15.88 (5/8")	Ø 9.52 (3/8") (*)
	27~40m	Ø 15.88 (5/8")	Ø 9.52 (3/8")	Ø 15.88 (5/8")	Ø 9.52 (3/8")	Ø 15.88 (5/8")	Ø 9.52 (3/8") (*)
(4-6)	5~75m	Ø 15.88 (5/8")	Ø 9.52 (3/8")	Ø 15.88 (5/8")	Ø 9.52 (3/8")	Ø 15.88 (5/8")	Ø 9.52 (3/8")
8	5~70m	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")

(*): The refrigerant gas and liquid piping size for 2/2.5/3HP are different between outdoor and indoor unit, so refrigerant pipe adapters are required. These pipe adapters are factory supplied with the outdoor unit:

Model	Pipe adapter	
	Gas pipe	Liquid pipe
2 HP	Ø15.88→Ø12.7	-
2.5 HP	Ø15.88→Ø12.7	Ø9.52→Ø6.35
3 HP	-	Ø9.52→Ø6.35 (x2)

- 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

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

8.5.2.1 RAS-(2-3)WHVRP1

Due to low refrigerant charge amount and due to low additional charge needed, unit installation can achieve up to 30m piping length (*27m for 3HP) without any minimum floor area requirement.

		2HP	2.5HP	3HP
Refrigerant charge before shipment (W_0)	kg	1.20	1.30	1.30
Charge-less piping length	m	10	10	10
Additional Charge needed	g/m	15	15	30
Maximum piping	m	30	30	27
Maximum total refrigerant charge	kg	1.50	1.60	1.81
Minimum room area requirement (A_{min})	m ²	No requirement is needed		
Minimum piping length between outdoor unit and indoor unit (L_{min})	m	3		
Maximum height difference between indoor and outdoor unit (H)	Outdoor unit higher than indoor unit	m	30 (2/2.5HP) 27 (3HP)	
	Indoor unit higher than outdoor unit	m	20	

In case of increasing more than 30m (27m for 3HP) a minimum floor area requirement must be considered.

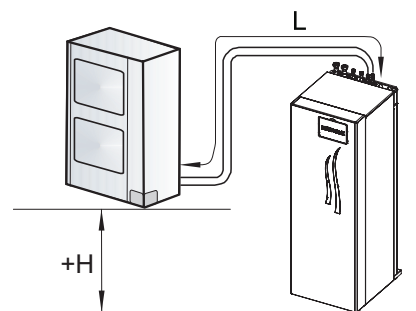
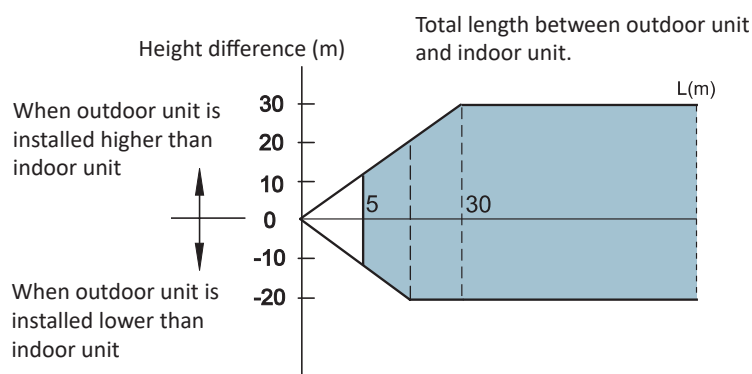
		2HP	2.5HP	3HP (*)
Factory Charge	kg	1.20	1.30	1.30
Charge-less piping length	m	10	10	10
Additional Charge needed	g/m	15	15	30
Maximum piping	m	50	50	40
Maximum total refrigerant charge	kg	1.80	1.90	2.20
Minimum room area requirement (A_{min})	m ²	No requirement is needed		Minimum area is required
Minimum piping length between outdoor unit and indoor unit (L_{min})	m	3		
Maximum height difference between indoor and outdoor unit (H)	Outdoor unit higher than indoor unit	m	30	
	Indoor unit higher than outdoor unit	m	20	

(*) In case of 3HP with piping length >27m, refrigerant piping diameter and additional charge quantity must be considered.

8.5.2.2 RAS-(4-6)WH(V)NPE

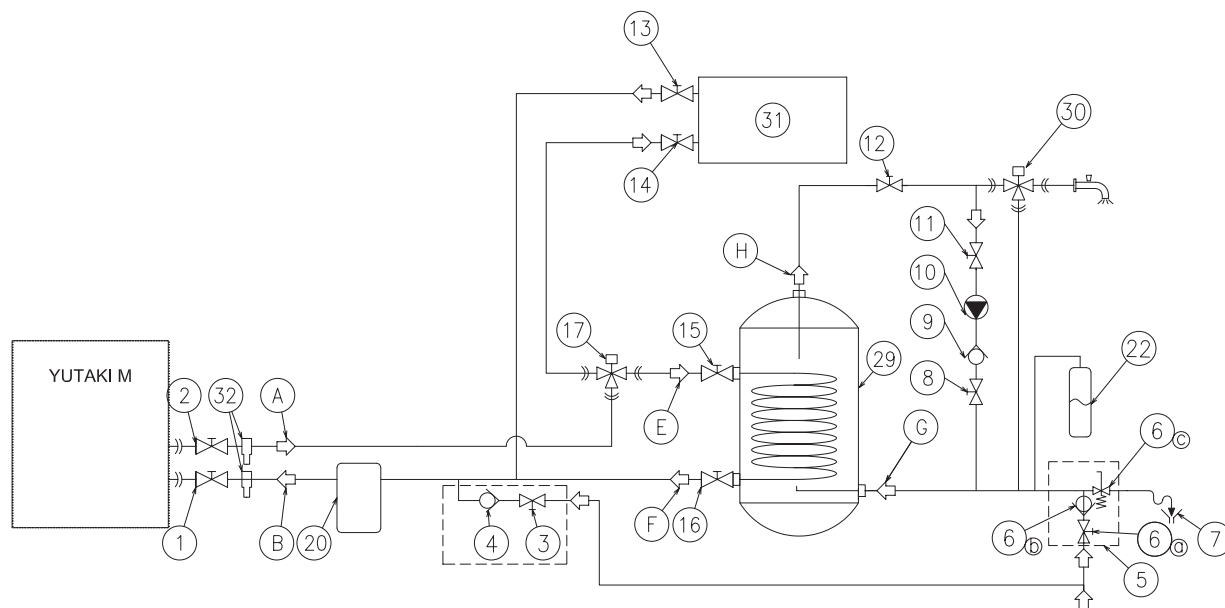
The refrigerant piping length between indoor unit and outdoor unit should be designed using the following chart.

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



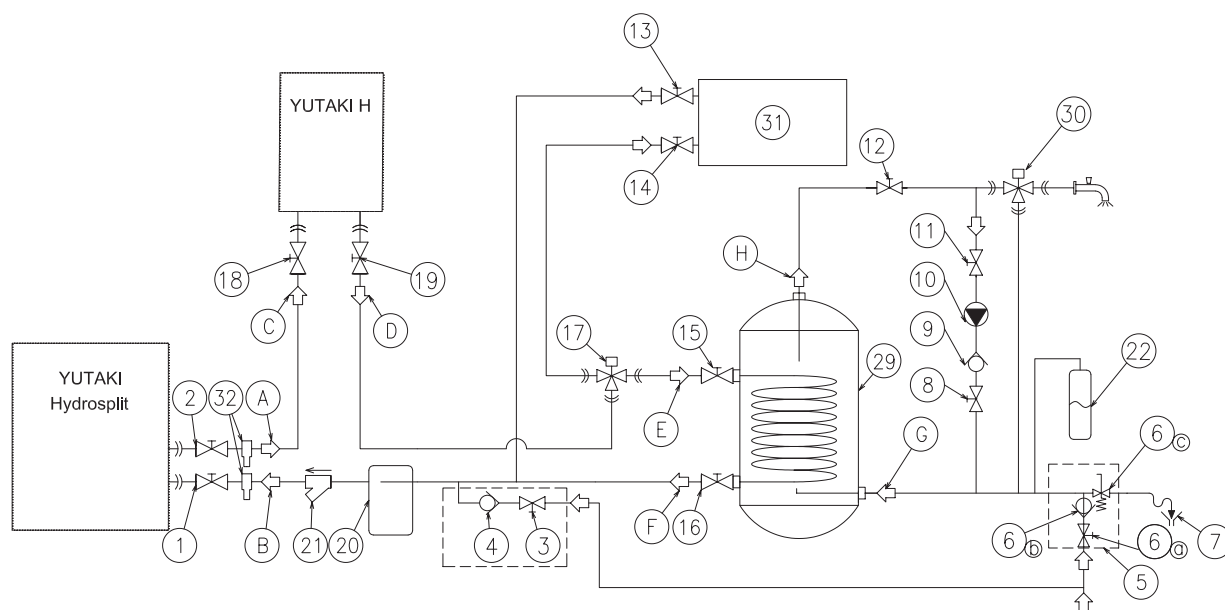
Outdoor Unit (HP)		4	5	6	8	10
Maximum piping length between outdoor unit and indoor unit (Lmax)	Actual piping length (L)	75 m	75 m	75 m	70 m	70 m
	Equivalent piping length	95 m	95 m	95 m	90 m	90 m
Minimum piping length between outdoor unit and indoor unit (Lmin)	Actual piping length (L)	5 m	5 m	5 m	5 m	5 m
Maximum height difference between indoor and outdoor unit (H)	Outdoor unit higher than indoor unit	30 m	30 m	30 m	30 m	30 m
	Indoor unit higher than outdoor unit	20 m	20 m	20 m	20 m	20 m

8.6 Hydraulic connections for Monobloc system - YUTAKI M

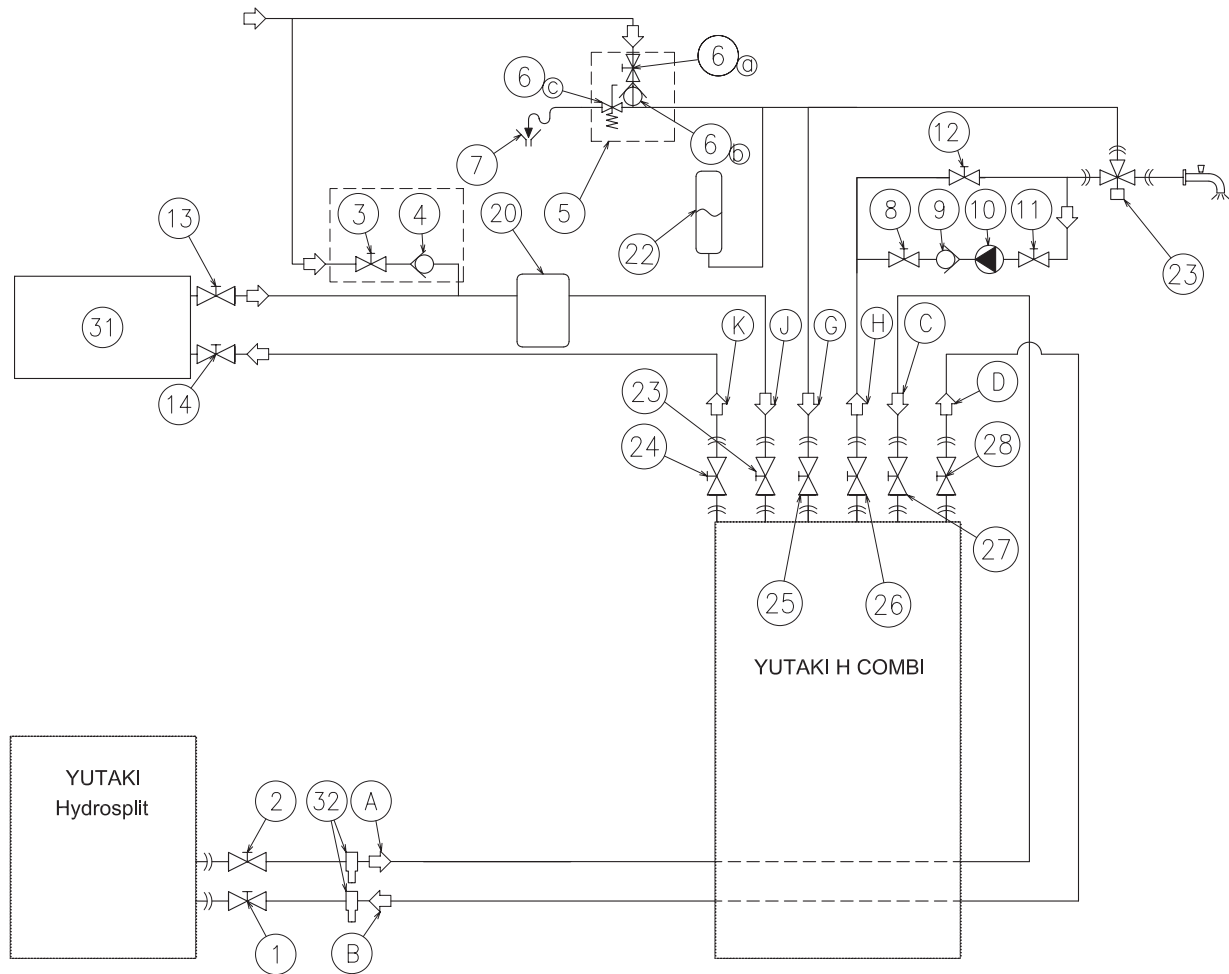


8.7 Hydraulic connections for Hydrosplit system

8.7.1 Hydrosplit system - YUTAKI H



8.7.2 Hydrosplit system - YUTAKI H Combi



8.7.3 Parts name list

Item	Nature	Part Name
A	Piping connections	Outdoor Heat pump water outlet
B	Piping connections	Outdoor Heat pump water inlet
C	Piping connections	Hydrosplit water inlet
D	Piping connections	Hydrosplit water outlet
E	Piping connections	DHW coil inlet
F	Piping connections	DHW coil outlet
G	Piping connections	Water inlet (DHW)
H	Piping connections	Water outlet (DHW)
J	Piping connections	Water inlet (Space Heating/Cooling)
K	Piping connections	Water outlet (Space Heating/Cooling)
1	Field supplied	Shut-off valve

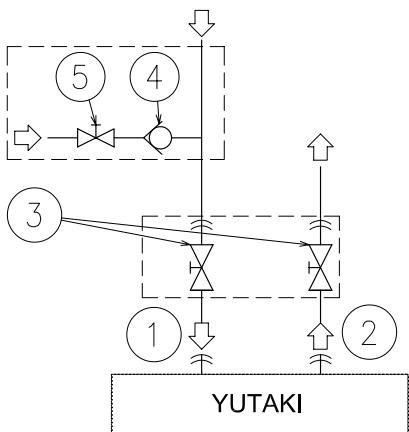
Item	Nature	Part Name
2	Field supplied	Shut-off valve
3	Accessories	Shut-off valve (field supplied)
4	Accessories	Water check valve (ATW-WCV-01 accessory)
5	Accessories	Pressure and check valve (field supplied)
6	Field supplied	6a Shut-off valve
6	Field supplied	6b Water check valve
6	Field supplied	6c Pressure relief valve
7	Field supplied	Draining
8	Field supplied	Shut-off valve
9	Accessories	Water check valve (ATW-WCV-01 accessory)
10	Field supplied	Water pump
11	Field supplied	Shut-off valve
12	Field supplied	Shut-off valve
13	Field supplied	Shut-off valve
14	Field supplied	Shut-off valve
15	Field supplied	Shut-off valve
16	Field supplied	Shut-off valve
17	Accessories	3-way valve (ATW-3WV-01 accessory)
18	Unit supplied	Shut-off valve
19	Unit supplied	Shut-off valve
20	Field supplied	Buffer tank
21	Field supplied	Water strainer
22	Field supplied	Expansion vessel
23	Unit supplied	Shut-off valve
24	Unit supplied	Shut-off valve
25	Unit supplied	Shut-off valve
26	Unit supplied	Shut-off valve
27	Field supplied	Shut-off valve
28	Field supplied	Shut-off valve
29	Accessories	Domestic hot water tank (DHWT-(200/300)S-3.0H2E accessory)
30	Field supplied	Thermostatic mixing valve
31	-	Space Heating/Cooling Distribution
32	Field supplied	Antifreeze valve

8.8 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.

8.8.1 Additional hydraulic necessary elements for space heating



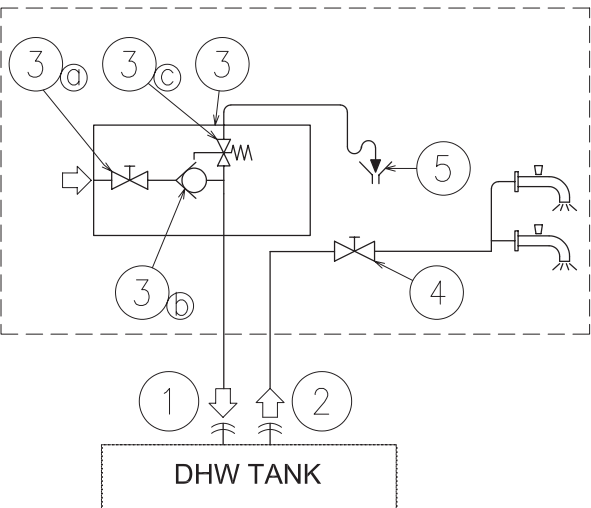
Type	Nº	Part name
Piping connections	1	Water inlet (Space heating)
	2	Water outlet (Space heating)
Factory supplied	3	Shut-off valve (factory-supplied) (Field-supplied for YUTAKI M series)
Accessories	4	Water check valve (ATW-WCV-01 accessory)
Field supplied	5	Shut-off valve

8.8.2 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 YUTAKI units.

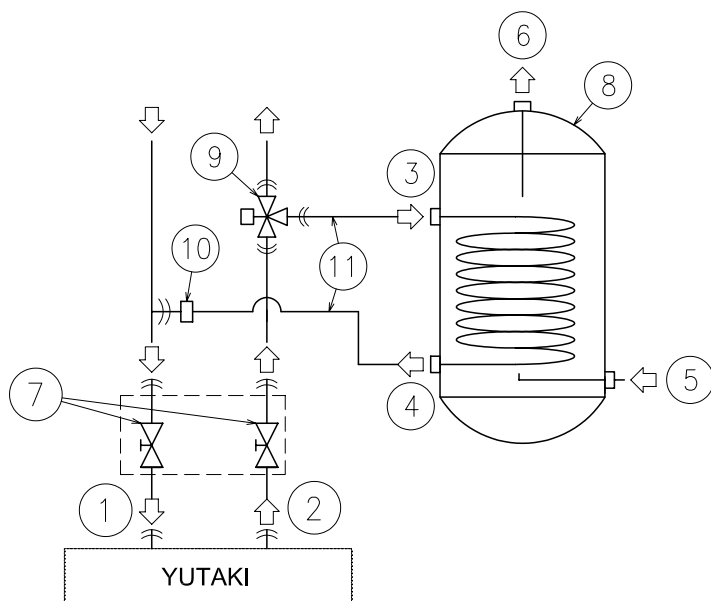


Type	Nº	Part name
Piping connections	1	Water inlet (DHW)
	2	Water outlet (DHW)
Field supplied	Pressure and temperature relief valve	
	3	3a Shut-off valve
		3b Water check valve
		3c Pressure relief valve
	4	Shut-off valve
	5	Draining

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.

◆ YUTAKI S / YUTAKI M / YUTAKI H / YUTAKI S80 Type 1 (Version with remote tank)



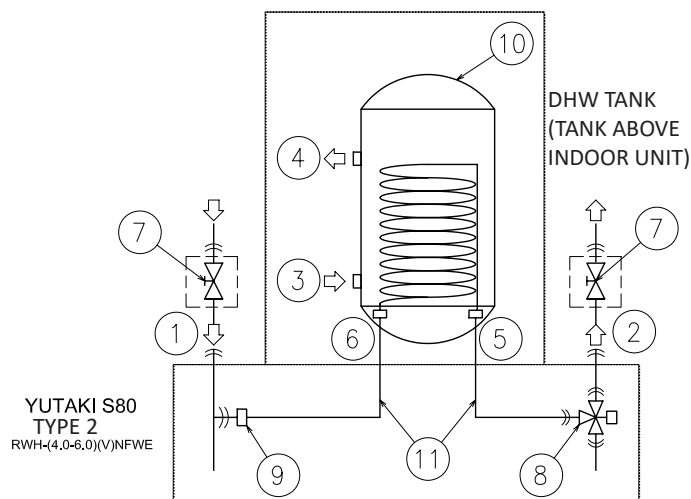
Type	Nº	Part name
Piping connections	1	Water inlet (Space heating)
	2	Water outlet (Space heating)
	3	Heating coil inlet
	4	Heating coil outlet
	5	Water inlet (DHW)
	6	Water outlet (DHW)
Factory supplied	7	Shut-off valve (factory-supplied)(Field-supplied for YUTAKI M series)
	8	Domestic hot water tank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

◆ YUTAKI S Combi / YUTAKI H Combi

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

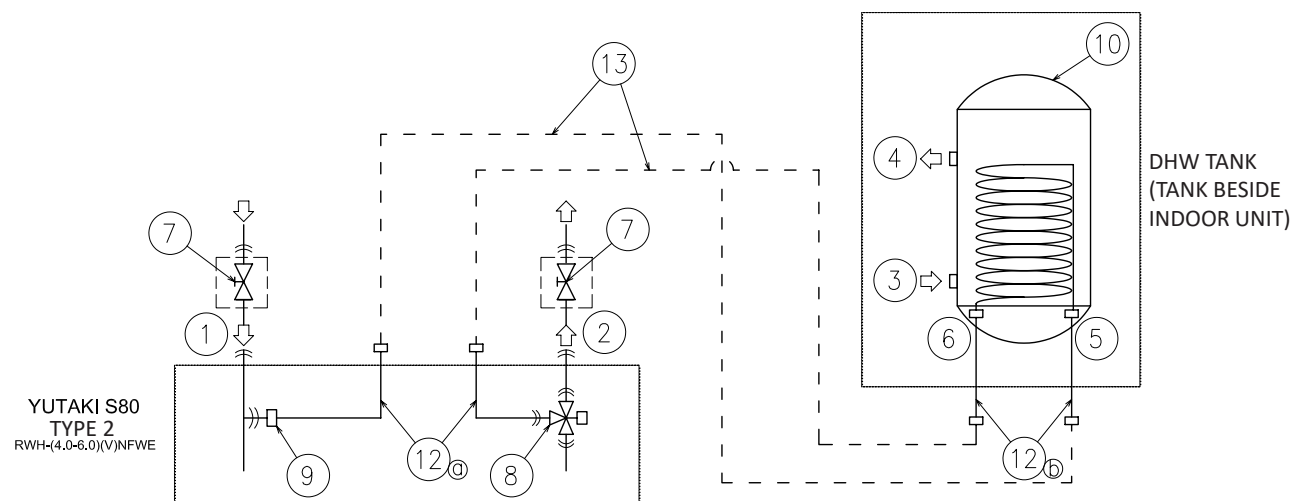
◆ YUTAKI S80 TYPE 2 (Version with Hitachi DHW tank)

DHW tank integrated above the indoor unit



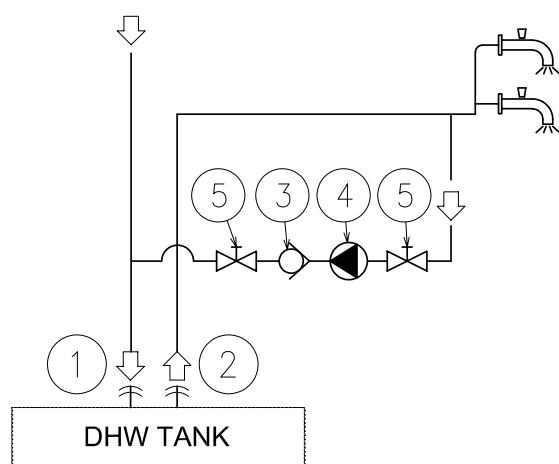
Type	Nº	Part name
Piping connections	1	Water inlet (Space heating)
	2	Water outlet (Space heating)
	3	Water inlet (DHW)
	4	Water outlet (DHW)
	5	Heating coil inlet
	6	Heating coil outlet
Factory supplied	7	Shut-off valve (factory-supplied)
	8	3-way valve
	9	T-branch
Accessories	10	Domestic hot water tank (DHWS(200/260)S-2.7H2E accessory)
	11	Heating coil pipes
	12	Flexible water pipe kit (ATW-FWP-02 accessory)
	12a	Indoor unit pipes
	12b	DHW tank pipes
Field supplied	13	Water pipes between indoor unit and DHW tank

DHW tank beside the indoor unit



8.8.3 Additional hydraulic optional elements for DHW

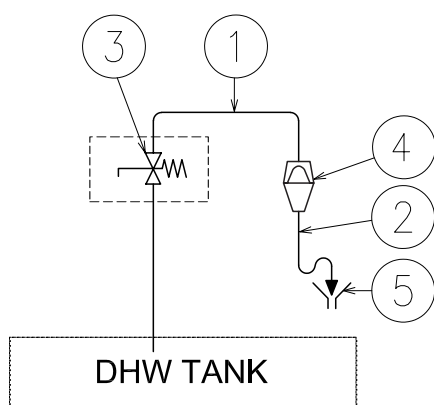
In case of a recirculation circuit for the DHW circuit:



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

8.8.4 Additional hydraulic necessary elements for DHW (UK market)

Only for those models designed for the UK market.



Type	Nº	Part name
Piping connections	1	T&P relief valve outlet pipe Ø15 (factory supplied)
	2	Tundish outlet pipe (Field supplied)
Accessories	3	Pressure and Temperature relief valve (Factory supplied)
Field supplied	4	Tundish (Field supplied)
	5	Drain (Field supplied)

8.8.5 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 6 litres/minute for 2.0/2.5/3.0HP units, 12 litres/minute for 4.0/5.0/6.0 units or 20 litres/minute for 8.0/10.0 HP, 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.
- YUTAKI 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).
- Do not add any type of glycol to the water circuit (Except for YUTAKI M and YUTAKI Hydrosplit units).
- Drain taps must be provided at all low points of the installation to permit complete drainage of the circuit during servicing.

8.8.6 Anti-freezing protection for water circuit

This chapter is only applicable to the corresponding models of Monobloc system - YUTAKI M and Hydrosplit system.

Frost can damage the system. To prevent components from freezing, software has been designed with special frost protection functions, that include the activation of pump & heater in case of low temperatures (see Service Manual Water pump control).

In case of a power supply failure, functions above cannot guarantee protection, allowing freezing and possible breakage of pipes and / or components. Due to that, an anti-freezing system (independent of power supply) is required:

- Adding glycol into the water circuit to lower the freezing point of water.
- Adding anti-freeze valves (field supplied)

⚠ CAUTION

Both methods cannot be used simultaneously since glycol can leak out from valves to environment.

◆ Glycol as anti-freezing protection for Monobloc systems and Hydrosplit systems

Adding glycol into the water circuit to lower the freezing point of water.

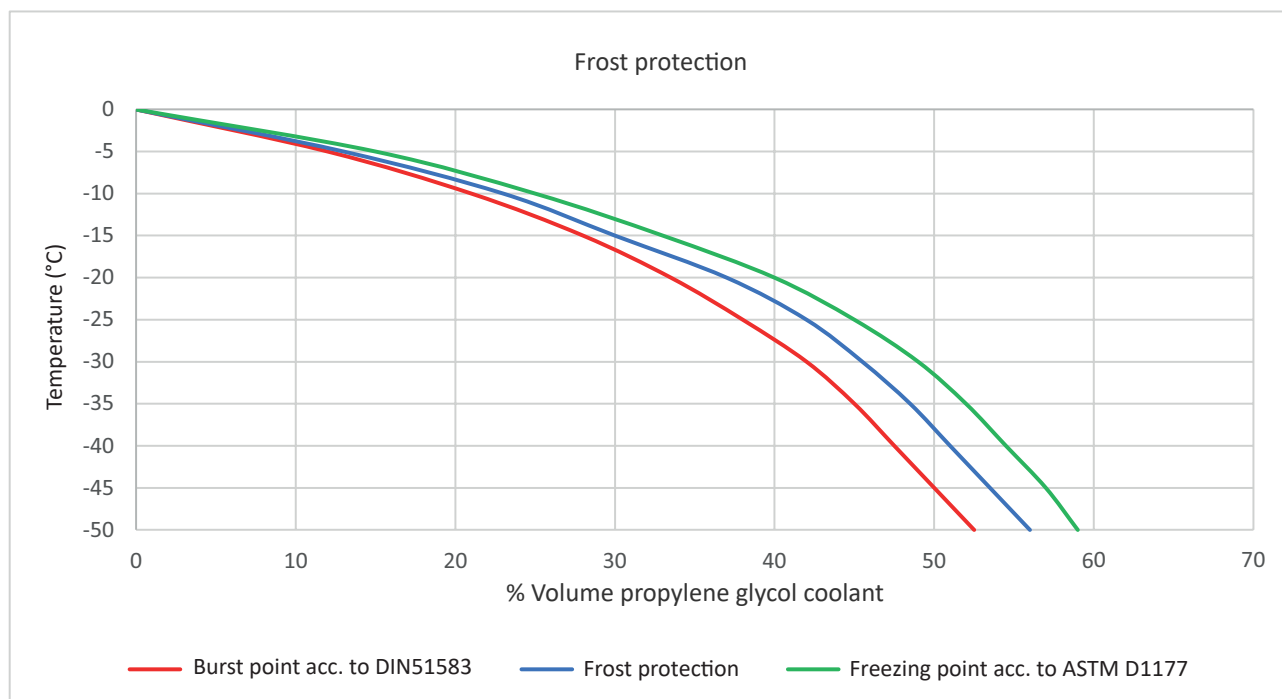
For YUTAKI systems, 2 types of glycols can be used: ethylene glycol & propylene glycol.

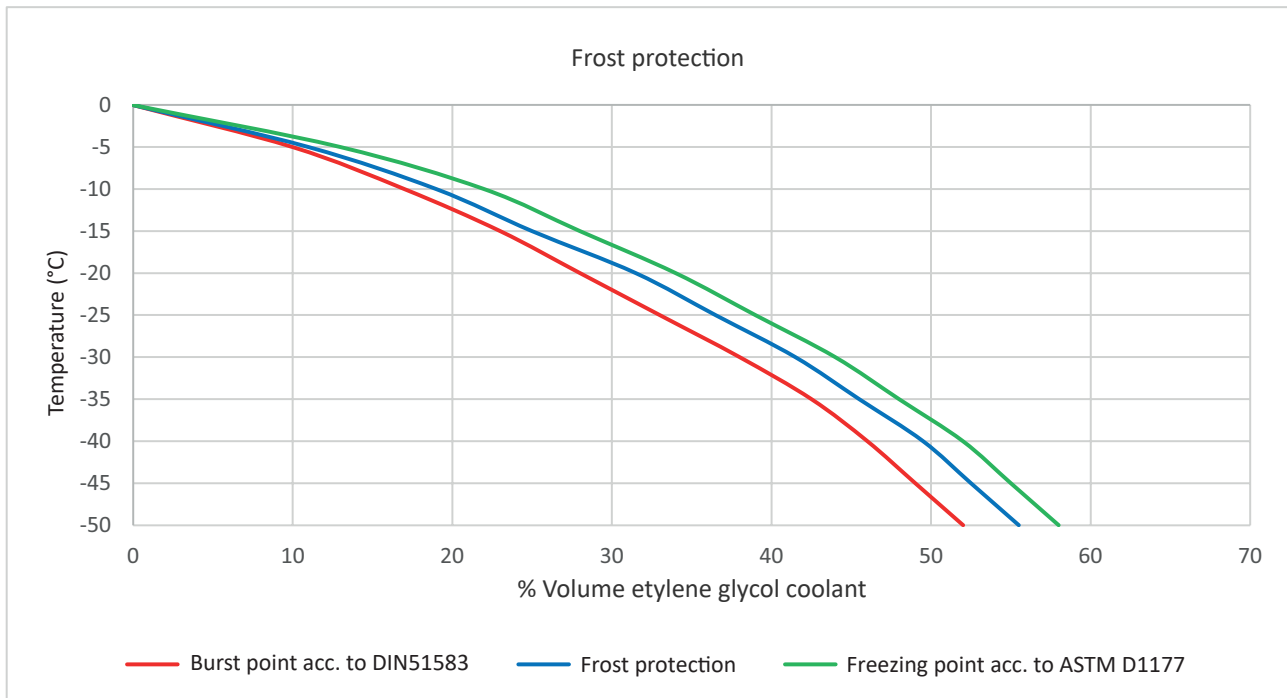
- Ethylene glycol is toxic. Consequently, its use is forbidden in systems that includes a domestic hot water tank.
- Propylene glycol (including necessary inhibitors, classified as Category III acc. To EN1717) can be used in all systems.

Required concentration depends on:

- The lowest expected outdoor temperature.
- Protection against bursting or freezing.

On graphic below, required concentration depending on outside temperature is shown.





NOTE

- Freezing point according to ASTM D 1177 is the temperature for the first ice crystal formation.
- The requirements of table must be always compared with glycol manufacturer specifications.
- Maximum concentration of glycol is 45%.
- If system is only prevented against bursting, pump must not be turned on (the liquid inside might be still frozen)

CAUTION

- Do not add glycol that has been exposed to air as glycol absorbs water to the environment. Final glycol concentration can be lower than expected, allowing system to freeze up.
- Corrosion, that can damage gravely the system, is possible when glycol is added. Uninhibited glycol with oxygen can become acidic & attack metal surfaces, forming galvanic corrosion cells. The responsible installer must be a qualified water specialist & should decide which anti-freeze solution is necessary for each site's conditions. Corrosion inhibitors must be selected to counteract acids formed by glycol oxidation. Inhibitors with limited lifetime or containing silicates are forbidden. Galvanized pipes must be avoided since they can precipitate inhibitors. When using inhibitors, always follow manufacturer's instructions and ensure that the product is appropriate for materials used in water circuit.
- Adding glycol to water circuit reduces the maximum allowed water volume of the system and also capacity.

8.8.7 Insulation

Water circuit piping must be insulated to prevent condensation and to reduce heat loss.

For outdoor water piping, recommended insulation thickness depends on piping length. Recommended thickness values for an insulation of $\lambda=0.039\text{W/mK}$ are shown in table below.

Check to ensure that installation (thickness, insulating material, etc) already complies with the national and local regulations.

Piping length (mm)	Minimum insulation thickness (mm)
<20	19
20 - 30	32
30 - 40	40
40-50	50

8.8.8 Water piping

8.8.8.1 Water piping length

Consider the following guidelines when designing the water circuit.

Item	YUTAKI S	YUTAKI S Combi	YUTAKI S80		
			DHW tank above the indoor unit	DWH tank beside the indoor unit	
				Type 1	Type 2
Maximum water piping length between indoor unit and domestic hot water (DHW) tank	10 m	--	--	10 m	10 m
Maximum water piping length between indoor unit and 3-Way Valve	3 m	--	--	3 m	-
Maximum water piping length between 3-Way Valve and domestic hot water (DHW) tank	10 m	--	--	10 m	10 m

Item	YUTAKI M
Maximum water piping length between outdoor unit and domestic hot water (DHW) tank	10 m
Maximum water piping length between outdoor unit and 3-way valve	10 m
Maximum total piping combination	10 m

Item	Hydrosplit system R32	
	YUTAKI H	YUTAKI H 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	-
Minimum water piping length between outdoor unit and indoor unit	5 m	5m



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.

8.8.8.2 Water piping size

YUTAKI S / YUTAKI H

(inches)

Model	Space heating pipes connection		
	Inlet connection	Outlet connection	Shut-off valves
(2.0-3.0)HP	G 1" (female)	G 1" (female)	G 1" (male) - G 1" (male)
(4.0-10.0)HP	G 1-1/4" (female)	G 1-1/4" (female)	G 1-1/4" (male) - G 1-1/4" (male)

YUTAKI S Combi / YUTAKI H Combi

(inches)

Model	Space heating connection			DHW connection		P & T relief valve (*)
	Inlet connection	Outlet connection	Shut-off valves	Inlet connection	Outlet connection	
(2.0-3.0)HP	G 1" (female)	G 1" (female)	G 1" (male) - G 1" (male)	G 3/4" (female)	G 3/4" (female)	Ø15 mm
(4.0-6.0)HP	G 1" (female)	G 1" (female)	G 1" (male) - G 1" (male)	G 3/4" (female)	G 3/4" (female)	Ø15 mm

(*): Only for models for UK market.

YUTAKI M / YUTAKI Hydrosplit

(inches)

Model	Space heating pipes connection		
	Inlet connection	Outlet connection	Shut-off valves (Field-supplied)
(2.0-3.0)HP	G 1" (female)	G 1" (female)	G 1" (male) - G 1" (male)
(4.0-7.0)HP	G 1-1/4" (female)	G 1-1/4" (female)	G 1-1/4" (male) - G 1-1/4" (male)

YUTAKI S80 indoor unit

Version for indoor unit alone (RWH-(4.0-6.0)(V)NFE)

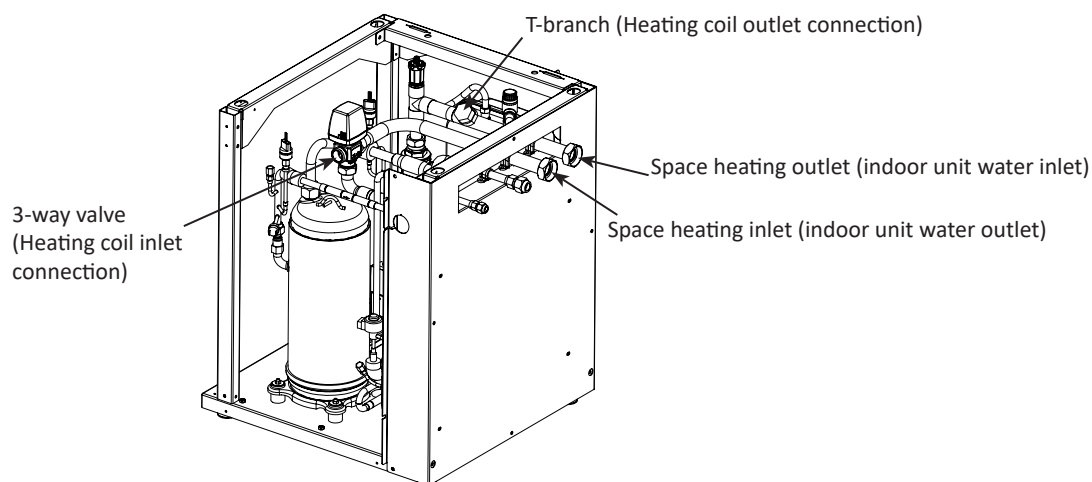
(inches)

Model	Space heating connection		
	Inlet connection	Outlet connection	Shut-off valves
(4.0-6.0)HP	G 1-1/4" (female)	G 1-1/4" (female)	G 1-1/4" (male) - G 1-1/4" (male)

Version for combination with DHW tank (RWH-(4.0-6.0)(V)NFEW)

(inches)

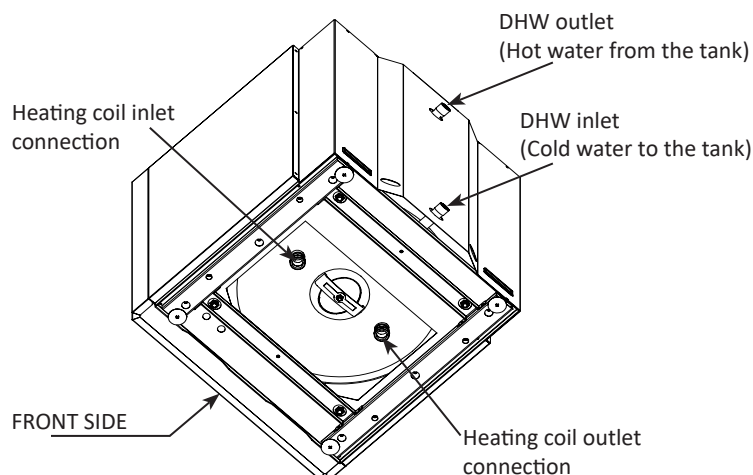
Model	Space heating connection			Heating coil connection	
	Inlet connection	Outlet connection	Shut-off valves	Inlet connection (3-way valve)	Outlet connection (T-branch)
(4.0-6.0)HP	G 1-1/4" (female)	G 1-1/4" (female)	G 1-1/4" (male) - G 1-1/4" (male)	G 1" (female)	G 1" (female)



YUTAKI S80 Domestic hot water tank accessory (DHWS(200/260)S-2.7H2E(-W))

(inches)

Model	Heating coil connection		DHW connection	
	Inlet connection	Outlet connection	Inlet connection	Outlet connection
DHWS(200/260)S-2.7H2E(-W)	G 1" (male)	G 1" (male)	G 3/4" (male)	G 3/4" (male)



Heating coil pipes

(Factory-supplied with the DHW tank accessory (DHWS(200/260)S-2.7H2E(-W))

When the DHW tank is installed integrated above the indoor unit, domestic hot water tank accessory for combination with YUTAKI S80 indoor unit is factory-supplied with two flexible water pipes for the connection between the indoor unit and the heating coil of the domestic hot water tank.

Heating coil pipes	
Item	Connection
	One pipe for the connection between 3-way valve connection and heating coil inlet connection of the tank. The other one for the connection between T-branch connection and heating coil outlet connection of the tank.

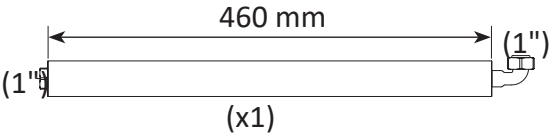
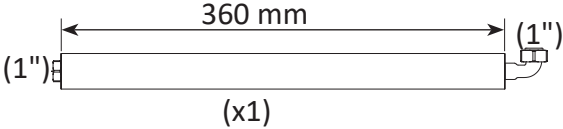
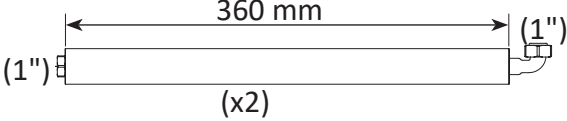
Flexible water pipe kit (ATW-FWP-02) - For domestic hot water tank installed beside the indoor unit

For DHW tank beside the indoor unit (both right or left side), the heating coil pipes factory-supplied with the DHW tank accessory are not required. In this case, the dedicated Hitachi flexible water pipe kit (ATW-FWP-02 accessory) is needed. This kit is provided with the following items:

- ✓ 4 flexible water pipes:
 - 2 pipes to connect to the indoor unit (3-way valve and T-branch).
 - 2 pipes to connect to the heating coil inlet/outlet connections of the DHW tank accessory (DHWS(200/260)S-2.7H2E(-W)).
- ✓ 9 gaskets (2 gaskets for each flexible water pipe end and 1 spare gasket).
- ✓ 3 extension cables (1 for the tank’s electric heater, 1 for the tank’s thermistor and 1 for the unit controller).



It is necessary to identify the function of each water pipe.

Heating coil pipes for the indoor unit		
Item		Connection
		To connect to the 3-way valve heating coil inlet connection.
		To connect to the T-branch heating coil outlet connection.
Heating coil pipes for the DHW tank accessory		
Item		Connection
		One pipe to connect to the heating coil inlet connection of the tank accessory. The other one to connect to the heating coil outlet connection of the tank accessory.

8.8.9 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 YUTAKI 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	$^\circ\text{f H}$
	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 YUTAKI H 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 YUTAKI H 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 YUTAKI 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	$Z_{\max}$ (Ω)
RAS-2WHVRP1	~ 230V 50Hz	-
RAS-2.5WHVRP1		-
RAS-3WHVRP1		0.43
RAS-4WHVNPE		0.25
RAS-5WHVNPE		0.25
RAS-6WHVNPE		0.25
RAS-4WHNPE	3N~ 400V 50Hz	-
RAS-5WHNPE		-
RAS-6WHNPE		-
RAS-8WHNPE		-
RAS-10WHNPE		-

9.1.2 Split system - Indoor unit

9.1.2.1 YUTAKI S

Model	Power supply	Operation mode	$Z_{\max}$ (Ω)
RWM-(2.0-3.0)R1E	~ 230V 50Hz	Without electric heaters	-
		With electric heater	-
		With DHW tank heater	-
		With electric and DHW tank heaters	0.28
	3N~ 400V 50Hz	Without electric heaters	-
		With electric heater	-
		With DHW tank heater	-
		With electric and DHW tank heaters	-

Model	Power supply	Operation mode	$Z_{\max}$ (Ω)
RWM-(4.0-6.0)N1E	~ 230V 50Hz	Without electric heaters	-
		With electric heater	0.28
		With DHW tank heater	-
		With electric and DHW tank heaters	0.19
	3N~ 400V 50Hz	Without electric heaters	-
		With electric heater	-
		With DHW tank heater	-
		With electric and DHW tank heaters	-
RWM-(8.0-10.0)N1E	3N~ 400V 50Hz	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 YUTAKI S Combi

Model	Power supply	Operation mode	$Z_{\max}$ (Ω)
RWD-(2.0-3.0)RW1E-220S(-K)	~ 230V 50Hz	Without electric heaters	-
		With electric heater	-
		With DHW tank heater	-
		With electric and DHW tank heaters	0.29
	3N~ 400V 50Hz	Without electric heaters	-
		With electric heater	-
		With DHW tank heater	-
		With electric and DHW tank heaters	-
RWD-(4.0-6.0)NW1E-220S(-K)	~ 230V 50Hz	Without electric heaters	-
		With electric heater	0.28
		With DHW tank heater	-
		With electric and DHW tank heaters	0.19
	3N~ 400V 50Hz	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".

9.1.2.3 YUTAKI S80

Indoor unit alone

Model	Power supply	Operation mode	Z _{max} (Ω)
RWH-4.0VNFE	~ 230V 50Hz	Without DHW tank heater	0.31
		With DHW tank heater	0.20
RWH-5.0VNFE		Without DHW tank heater	0.27
		With DHW tank heater	0.18
RWH-6.0VNFE		Without DHW tank heater	0.24
		With DHW tank heater	0.17
RWH-4.0NFE	3N~ 400V 50Hz	Without DHW tank heater	-
		With DHW tank heater	0.38
RWH-5.0NFE		Without DHW tank heater	-
		With DHW tank heater	0.38
RWH-6.0NFE		Without DHW tank heater	-
		With DHW tank heater	0.38

Indoor unit in combination with DHW tank

Model	Power supply	Operation mode	Z _{max} (Ω)
RWH-4.0VNFWE	~ 230V 50Hz	Without DHW tank heater	0.31
		With DHW tank heater	0.21
RWH-5.0VNFWE		Without DHW tank heater	0.27
		With DHW tank heater	0.19
RWH-6.0VNFWE		Without DHW tank heater	0.24
		With DHW tank heater	0.17
RWH-4.0NFWE	3N~ 400V 50Hz	Without DHW tank heater	-
		With DHW tank heater	0.41
RWH-5.0NFWE		Without DHW tank heater	-
		With DHW tank heater	0.41
RWH-6.0NFWE		Without DHW tank heater	-
		With DHW tank heater	0.41

NOTE

The data corresponding to DHW tank heater is calculated in combination with the YUTAKI S80 domestic hot water tank accessory "DHWS(200/260)S-2.7H2E(-W)".

9.1.3 Monobloc system - YUTAKI M

Model	Power supply	Operation mode	$Z_{\max}$ (Ω)
RASM-2VRE	~ 230V 50Hz	-	-
		With DHW tank heater	0.30
RASM-3VRE		-	0.43
		With DHW tank heater	0.24
RASM-4VR1E		-	0.26
		With DHW tank heater	0.17
RASM-5VR1E		-	0.26
		With DHW tank heater	0.17
RASM-6VR1E		-	0.26
		With DHW tank heater	0.17
RASM-4R1E	3~ 400V 50Hz	-	-
		With DHW tank heater	0.28
RASM-5R1E		-	-
		With DHW tank heater	0.28
RASM-6R1E		-	-
		With DHW tank heater	0.28
RASM-7R1E		-	-
		With DHW tank heater	0.28

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".

9.1.4 Hydrosplit system - Outdoor unit

Model	Power supply	Z_{max} (Ω)
RASM-4VRW1E	~ 230V 50Hz	0.26
RASM-5VRW1E		0.26
RASM-6VRW1E		0.26
RASM-4RW1E	3~ 400V 50Hz	-
RASM-5RW1E		-
RASM-6RW1E		-
RASM-7RW1E		-

9.1.5 Hydrosplit system - Indoor unit

9.1.5.1 YUTAKI H

Model	Power supply	Operation mode	Z_{max} (Ω)
HWM-WE	~ 230V 50Hz	Without electric heater	-
		With electric heater	0.27
		With DHW tank heater	-
		With DHW tank and electric heaters	0.17
	3~ 400V 50Hz	Without electric heater	-
		With electric heater	-
		With DHW tank heater	-
		With DHW tank and electric 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".

9.1.5.2 YUTAKI H Combi

Model	Power supply	Operation mode	Z_{max} (Ω)
HWD-WE-220S(-K)	~ 230V 50Hz	Without electric heater	-
		With electric heater	0.27
		With DHW tank heater	-
		With DHW tank and electric heaters	0.19
	3~ 400V 50Hz	Without electric heater	-
		With electric heater	-
		With DHW tank heater	-
		With DHW tank and electric heaters	-

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:

Status regarding compliance with EN 61000-3-2 and EN 61000-3-12	Models				
	Split system				
	Outdoor unit	Indoor unit			
		YUTAKI S	YUTAKI S Combi	YUTAKI S80	YUTAKI Hydrosplit
Equipment complying with EN 61000-3-2 NOTE: (*) Professional use	RAS-2WHVRP1(*) RAS-2.5WHVRP1(*) RAS-3WHVRP1 (*) RAS-4WHNPE (*) RAS-5WHNPE (*) RAS-6WHNPE (*)	RWM-2.0R1E (~, 3N~) RWM-2.5R1E (~, 3N~) RWM-3.0R1E (~, 3N~) RWM-4.0N1E (3N~) RWM-5.0N1E (3N~) RWM-6.0N1E (3N~) RWM-8.0N1E RWM-10.0N1E	-	RWH-4.0NFE RWH-5.0NFE RWH-6.0NFE	RASM-(4-7) RW1E
Equipment complying with EN 61000-3-12	RAS-4WH(V)NPE RAS-5WH(V)NPE RAS-6WH(V)NPE	RWM-4.0N1E (~) RWM-5.0N1E (~) RWM-6.0N1E (~)	RWD-2.0R1WE-220S(-K) RWD-2.5R1WE-220S(-K) RWD-3.0R1WE-220S(-K) RWD-4.0NW1E-220S(-K) RWD-5.0NW1E-220S(-K) RWD-6.0NW1E-220S(-K)	RWH-4.0VNFE RWH-5.0VNFE RWH-6.0VNFE RWH-4.0VNFWE RWH-5.0VNFWE RWH-6.0VNFWE RWH-4.0NFWE RWH-5.0NFWE RWH-6.0NFWE	RASM-(4-6) VRW1E
Installation restrictions may be applied by supply authorities in relation to harmonics	RAS-8WHNPE RAS-10WHNPE	-	-	-	-

Status regarding compliance with EN 61000-3-2 and EN 61000-3-12	Models		
	Monobloc system		
	YUTAKI M R32		
Equipment complying with EN 61000-3-2 NOTE: (*)Professional use	RASM-2VRE (*) RASM-3VRE(*)		
Equipment complying with EN 61000-3-12	RASM-(4-6)VR1E		
Equipment complying with EN 61000-3-12 provided that the short-circuit power Ssc is greater than or equal to xx (see Ssc column) at the interface point between the user's supply and the public system. It is the responsibility of the installer or user of the equipment to ensure, by consultation with the distribution network operator if necessary, that the equipment is connected only to a supply with a short-circuit power Ssc greater than or equal to xx (see Ssc column)	RASM-(4-7)R1E	Ssc "xx"	
		Cool	1012
		Heat	974
Installation restrictions may be applied by supply authorities in relation to harmonics	-		

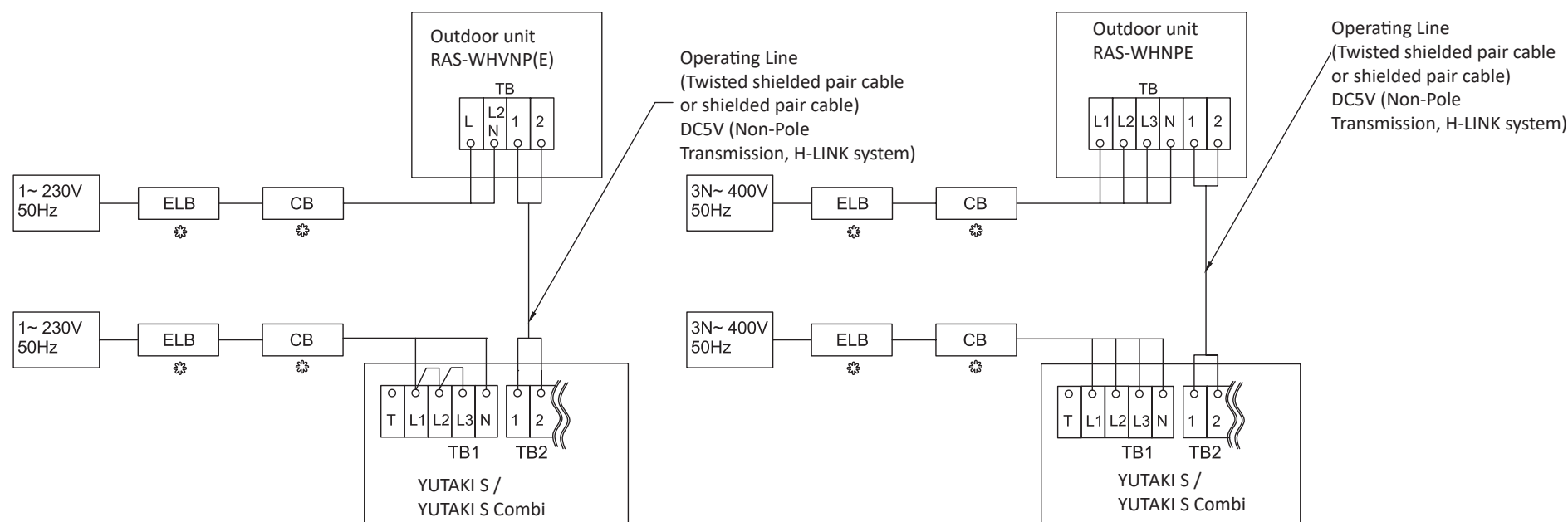
- Check to ensure that existing installation (mains power switches, circuit breakers, wires, connectors and wire terminals) already complies with the national and local regulations.
- The use of the DHW tank heater is disabled as factory setting. If it is desired to enable the DHW tank heater operation 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

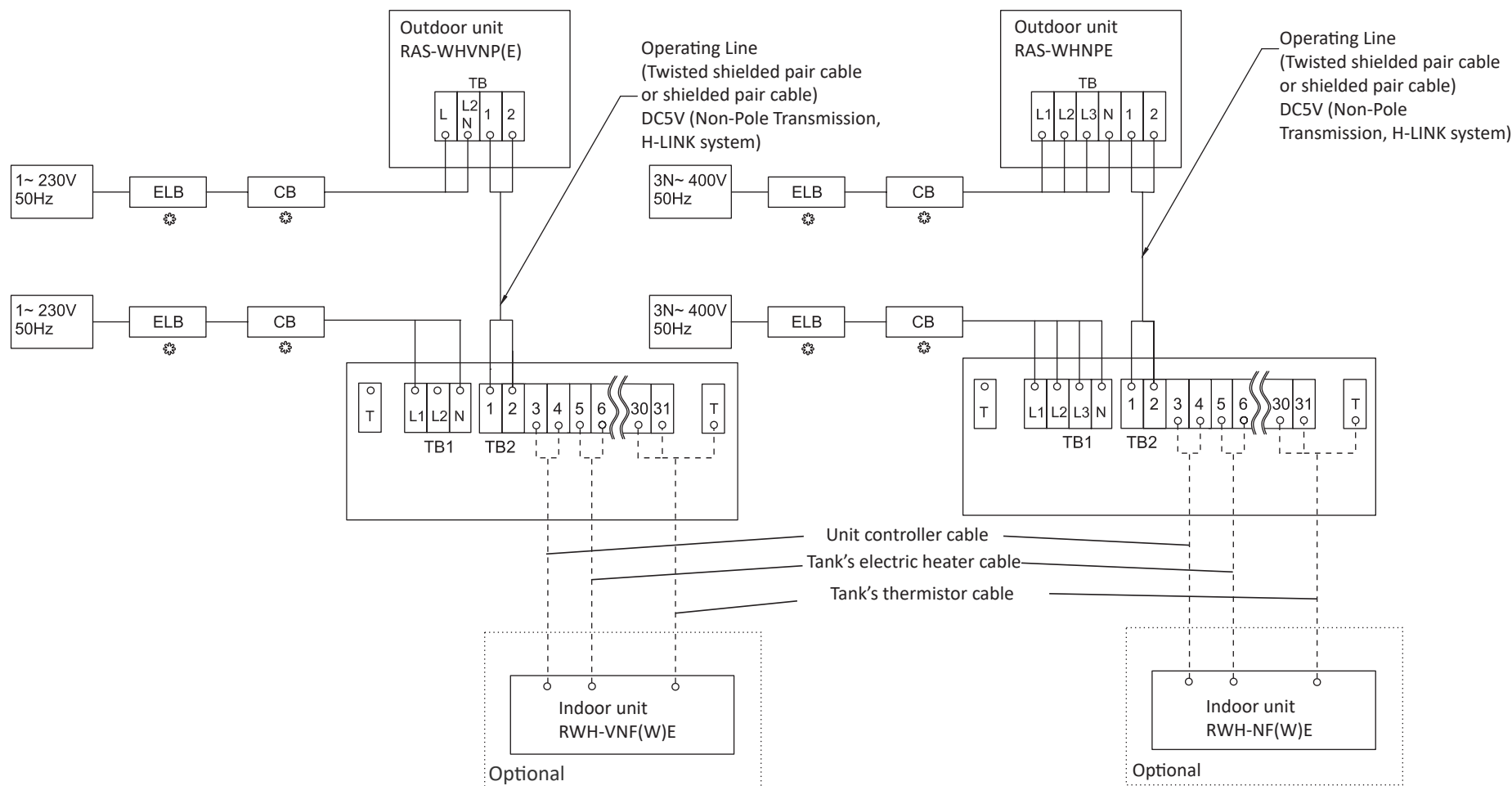
Connect the units according to the following electric diagram:

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

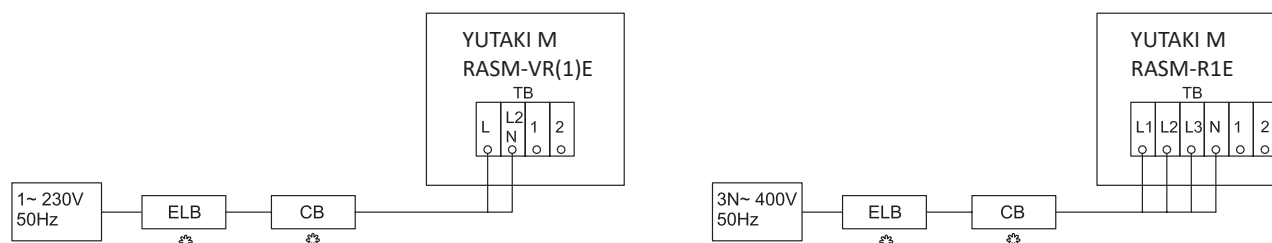
9.3.1 Split system - YUTAKI S and YUTAKI S Combi



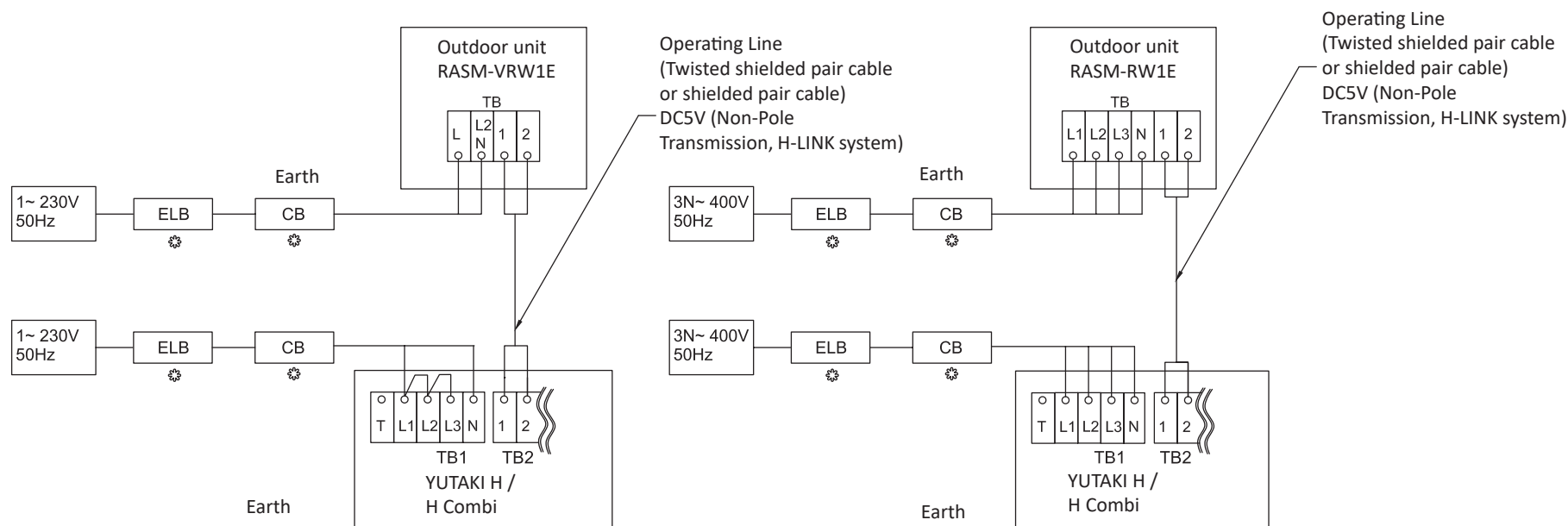
9.3.2 Split system - YUTAKI S80



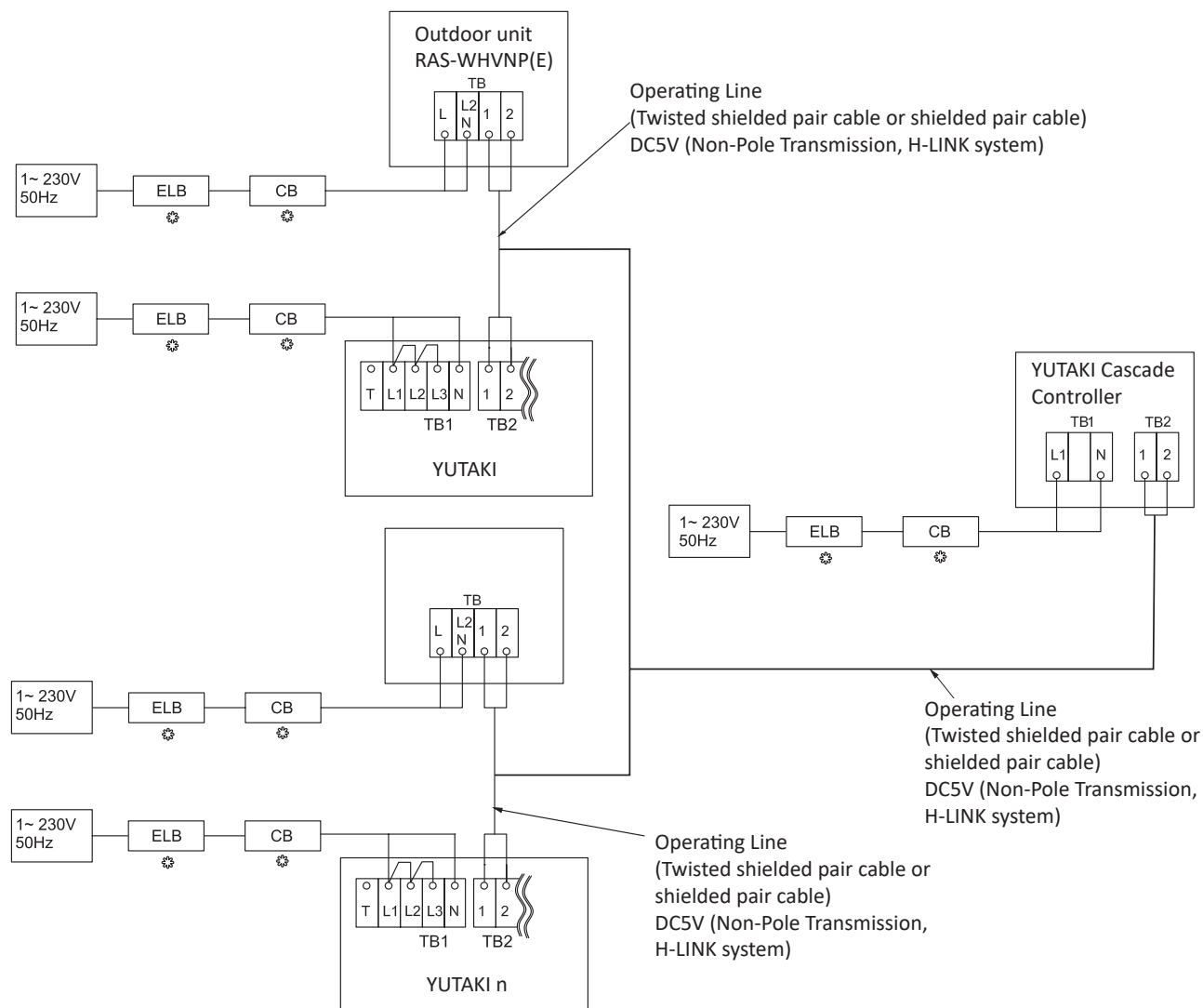
9.3.3 Monobloc system - YUTAKI M



9.3.4 Hydrosplit system - YUTAKI H and YUTAKI H Combi



9.3.5 Complementari system - YUTAKI Cascade Controller



9.4 Electrical connection

Common additional information:

Applicable voltage		
Power supply	U max. (V)	U min. (V)
~ 230V 50Hz	253	207
3N~ 400V 50Hz	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 (n° of poles/A/mA)
		MC	EN 60335-1		
RAS-2WHVRP1	~ 230V 50Hz	14	2 x 2.5 mm ² + GND	16	2/40/30
RAS-2.5WHVRP1		16	2 x 2.5 mm ² + GND	16	2/40/30
RAS-3WHVRP1		18	2 x 4.0 mm ² + GND	20	2/40/30
RAS-4WHVNPE		30	2 x 6.0 mm ² + GND	32	2/40/30
RAS-5WHVNPE		30	2 x 6.0 mm ² + GND	32	2/40/30
RAS-6WHVNPE		30	2 x 6.0 mm ² + GND	32	2/40/30
RAS-4WHNPE	3N~ 400V 50Hz	14	4 x 2.5 mm ² + GND	15	4/40/30
RAS-5WHNPE		14	4 x 2.5 mm ² + GND	15	4/40/30
RAS-6WHNPE		16	4 x 4.0 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

◆ YUTAKI S

Model	Power supply	Operation mode	Max current (A)	Power supply cables	CB (A)	ELB (n° of poles/A/mA)
			MC	EN 60335-1		
RWM-(2.0-3.0)R1E	~ 230V 50Hz	Without electric heaters	0.6	2 x 0.75 mm ² + GND	5	2/40/30
		With electric heater	14	2 x 2.5 mm ² + GND	16	2/40/30
		With DHW tank heater	14	2 x 2.5 mm ² + GND	16	2/40/30
		With electric and DHW tank heaters	27	2 x 6.0 mm ² + GND	32	2/40/30
	3N~ 400V 50Hz	Without electric heaters	0.6	4 x 0.75mm ² + GND	5	4/40/30
		With electric heater	5.0	4 x 2.5 mm ² + GND	10	4/40/30
		With DHW tank heater	14	4 x 2.5 mm ² + GND	15	4/40/30
		With electric and DHW tank heaters	18	4 x 6.0 mm ² + GND	25	4/40/30

Model	Power supply	Operation mode	Max current (A)	Power supply cables	CB (A)	ELB (n° of poles/A/mA)
			MC	EN 60335-1		
RWM-(4.0-6.0)N1E	~ 230V 50Hz	Without electric heaters	0.7	2 x 0.75 mm ² + GND	5	2/40/30
		With electric heater	27	2 x 6.0 mm ² + GND	32	2/40/30
		With DHW tank heater	14	2 x 2.5 mm ² + GND	16	2/40/30
		With electric and DHW tank heaters	40	2 x 10.0 mm ² + GND	50	2/63/30
	3N~ 400V 50Hz	Without electric heaters	0.7	4 x 0.75 mm ² + GND	5	4/40/30
		With electric heater	9.0	4 x 2.5 mm ² + GND	15	4/40/30
		With DHW tank heater	14	4 x 2.5 mm ² + GND	15	4/40/30
		With electric and DHW tank heaters	22	4 x 6.0 mm ² + GND	25	4/40/30
RWM-(8.0-10.0)N1E	3N~ 400V 50Hz	Without electric heaters	0.7	4 x 0.75 mm ² + GND	5	4/40/30
		With electric heater	14	4 x 4.0 mm ² + GND	20	4/40/30
		With DHW tank heater	14	4 x 4.0 mm ² + GND	20	4/40/30
		With electric and DHW tank heaters	27	4 x 10.0 mm ² + GND	30	4/40/30

◆ YUTAKI S 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-(2.0-3.0) RW1E-220S(-K)	~ 230V 50Hz	Without electric heaters	0.6	2 x 0.75 mm ² + GND	5	2/40/30
		With electric heater	14	2 x 2.5 mm ² + GND	16	2/40/30
		With DHW tank heater	13	2 x 2.5 mm ² + GND	16	2/40/30
		With electric and DHW tank heaters	26	2 x 6.0 mm ² + GND	32	2/40/30
	3N~ 400V 50Hz	Without electric heaters	0.6	4 x 0.75 mm ² + GND	5	4/40/30
		With electric heater	9.3	4 x 2.5 mm ² + GND	15	4/40/30
		With DHW tank heater	13	4 x 2.5 mm ² + GND	15	4/40/30
		With electric and DHW tank heaters	13	4 x 2.5 mm ² + GND	15	4/40/30

Model	Power supply	Operation mode	Max current (A)	Power supply cables	CB (A)	ELB (n° of poles/A/mA)
			MC	EN 60335-1		
RWD-(4.0-6.0) NW1E-220S(-K)	~ 230V 50Hz	Without electric heaters	0.7	2 x 0.75 mm ² + GND	5	2/40/30
		With electric heater	27	2 x 6.0 mm ² + GND	32	2/40/30
		With DHW tank heater	13	2 x 2.5 mm ² + GND	16	2/40/30
		With electric and DHW tank heaters	39	2 x 10.0 mm ² + GND	50	2/63/30
	3N~ 400V 50Hz	Without electric heaters	0.7	4 x 0.75 mm ² + GND	5	4/40/30
		With electric heater	18.0	4 x 6.0 mm ² + GND	25	4/40/30
		With DHW tank heater	13	4 x 2.5 mm ² + GND	15	4/40/30
		With electric and DHW tank heaters	18	4 x 6.0 mm ² + GND	25	4/40/30

◆ YUTAKI S80

Indoor unit alone

Model	Power supply	Operation mode	Max. current (A)	Power supply cables	CB (A)	ELB (nº of poles/A/mA)	
			MC	EN60335-1			
RWH-4.0VNFE	~ 230V 50Hz	Without DHW tank heater	24	2 x 6.0 mm ² + GND	32	2/40/30	
		With DHW tank heater	38	2 x 10.0 mm ² + GND	40	2/40/30	
RWH-5.0VNFE		Without DHW tank heater	28	2 x 6.0 mm ² + GND	32	2/40/30	
		With DHW tank heater	42	2 x 10.0 mm ² + GND	50	2/63/30	
RWH-6.0VNFE		Without DHW tank heater	31	2 x 6.0 mm ² + GND	32	2/40/30	
		With DHW tank heater	45	2 x 10.0 mm ² + GND	50	2/63/30	
RWH-4.0NFE		3N~ 400V 50Hz	Without DHW tank heater	10	4 x 2.5 mm ² + GND	15	4/40/30
			With DHW tank heater	24	4 x 4.0 mm ² + GND	25	4/40/30
RWH-5.0NFE	Without DHW tank heater		10	4 x 2.5 mm ² + GND	15	4/40/30	
	With DHW tank heater		24	4 x 4.0 mm ² + GND	25	4/40/30	
RWH-6.0NFE	Without DHW tank heater		10	4 x 2.5 mm ² + GND	15	4/40/30	
	With DHW tank heater		24	4 x 4.0 mm ² + GND	25	4/40/30	

Indoor unit in combination with DHW tank

Model	Power supply	Operation mode	Maximum current (A)	Power supply cables	CB (A)	ELB (n° of poles/A/mA)	
				EN60335-1			
RWH-4.0VNFWE	~ 230V 50Hz	Without DHW tank heater	24	2 x 6.0 mm ² + GND	32	2/40/30	
		With DHW tank heater	36	2 x 10.0 mm ² + GND	40	2/40/30	
RWH-5.0VNFWE		Without DHW tank heater	28	2 x 6.0 mm ² + GND	32	2/40/30	
		With DHW tank heater	40	2 x 10.0 mm ² + GND	50	2/63/30	
RWH-6.0VNFWE		Without DHW tank heater	31	2 x 6.0 mm ² + GND	32	2/40/30	
		With DHW tank heater	43	2 x 10.0 mm ² + GND	50	2/63/30	
RWH-4.0NFWE		3N~ 400V 50Hz	Without DHW tank heater	10	4 x 2.5 mm ² + GND	15	4/40/30
			With DHW tank heater	22	4 x 4.0 mm ² + GND	25	4/40/30
RWH-5.0NFWE	Without DHW tank heater		10	4 x 2.5 mm ² + GND	15	4/40/30	
	With DHW tank heater		22	4 x 4.0 mm ² + GND	25	4/40/30	
RWH-6.0NFWE	Without DHW tank heater		10	4 x 2.5 mm ² + GND	15	4/40/30	
	With DHW tank heater		22	4 x 4.0 mm ² + GND	25	4/40/30	

NOTE

The data corresponding to DHW tank heater is calculated in combination with the YUTAKI S80 domestic hot water tank accessory "DHWS(200/260)S-2.7H2E(-W)".

9.4.1.3 Monobloc system

◆ YUTAKI M R32

Model	Power supply	Operation mode	Max. current (A)	Power supply cables	CB (A)	ELB (n° of poles/A/mA)
				EN60335-1		
RASM-2VRE	~ 230V 50Hz	Without DHW tank heater	11	2 x 2.5 mm² + GND	16	2/40/30
		With DHW tank heater	23	2 x 6.0 mm² + GND	32	2/40/30
RASM-3VRE		Without DHW tank heater	16	2 x 4.0 mm² + GND	20	2/40/30
		With DHW tank heater	29	2 x 6.0 mm² + GND	32	2/40/30
RASM-(4-6)VR1E	~ 230 V 50 Hz	Without DHW tank heater	29	2 x 6.0 mm² + GND	32	2/40/30
		With DHW tank heater	41	2 x 10.0 mm² + GND	50	2/63/30
RASM-(4-7)R1E	3N~ 400V 50Hz	Without DHW tank heater	16	4 x 4.0 mm² + GND	20	4/40/30
		With DHW tank heater	29	4 x 6.0 mm² + GND	32	

9.4.1.4 Hydrosplit system

◆ YUTAKI Hydrosplit R32

Model	Power supply	Operation mode	Max current (A)	Power supply cables	CB (A)	ELB (no. of poles/A/mA)
RASM-(4-6)VRW1E	~ 230 V 50 HzV 50Hz	-	29	2 x 6.0 mm ² + GND	32	2/40/30
RASM-(4-7)RW1E	3N~ 400V 50Hz	-	16	4 x 4.0 mm ² + GND	20	4/40/30

◆ YUTAKI H

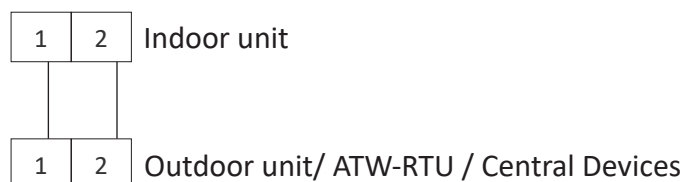
Model	Power supply	Operation mode	Max current (A)	Power supply cables	CB (A)	ELB (nº of poles/A/mA)
HWM-WE	~ 230V 50Hz	Without electric heaters	1.5	2 x 0.75 mm ² + GND	5	2/40/30
		With electric heater	28	2 x 6.0 mm ² + GND	32	2/40/30
		With DHW tank heater	15	2 x 4.0 mm ² + GND	20	2/40/30
		With electric and DHW tank heaters	41	2 x 10.0 mm ² + GND	50	2/63/30
	3N~ 400V 50Hz	Without electric heaters	1.5	4 x 0.75 mm ² + GND	5	4/40/30
		With electric heater	10	4 x 2.5 mm ² + GND	15	4/40/30
		With DHW tank heater	15	4 x 2.5 mm ² + GND	20	4/40/30
		With electric and DHW tank heaters	23	4 x 6.0 mm ² + GND	30	4/40/30

◆ YUTAKI H Combi

Model	Power supply	Operation mode	Max. current (A)	Power supply cables	CB (A)	ELB (no. of poles/A/mA)
HWD-WE-220S(-K)	~ 230V 50Hz	Without electric heaters	1.5	2 x 0.75 mm ² + GND	5	2/40/30
		With electric heater	28	2 x 6.0 mm ² + GND	32	2/40/30
		With DHW tank heater	14	2 x 2.5 mm ² + GND	16	2/40/30
		With electric and DHW tank heaters	40	2 x 10.0 mm ² + GND	50	2/63/30
	3N~ 400V 50Hz	Without electric heaters	1.5	4 x 0.75 mm ² + GND	5	4/40/30
		With electric heater	19	4 x 6.0 mm ² + GND	25	4/40/30
		With DHW tank heater	14	4 x 4.0 mm ² + GND	20	4/40/30
		With electric and DHW tank heaters	19	4 x 6.0 mm ² + GND	25	4/40/30

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 300m 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.

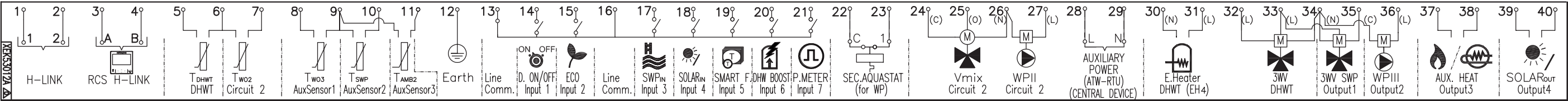
CAUTION

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 YUTAKI units

◆ RWM-(2-10)(N/R)1E, RASM-(2/3)VRE, RASM-(4-7)(V)R1E and HWM-WE

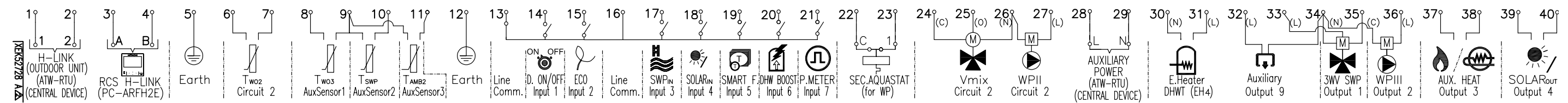


Mark	Part name	Description
TERMINAL BOARD 1 (TB1)		
N	~ 230V 50Hz	Main power supply connection
L1		
L2		
L3		
TERMINAL BOARD 2 (TB2)		
1	H-LINK communication	The H-LINK transmission has to be done between the indoor unit and the terminals 1-2 of either outdoor unit, ATW-RTU or any other central device.
2		
3	H-LINK communication for remote control switch	Terminals for the connection of the YUTAKI 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.
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 (IU+OU). - Two separated power meters (one for IU and one for OU).
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		

Mark	Part name	Description
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. A water electric heater (as accessory) can be used to provide the additional heating required on the coldest days of the year.
38		
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.

◆ RWD-(2-6)(N/R)W1E-220S(-K) and HWD-WE-220S(-K)

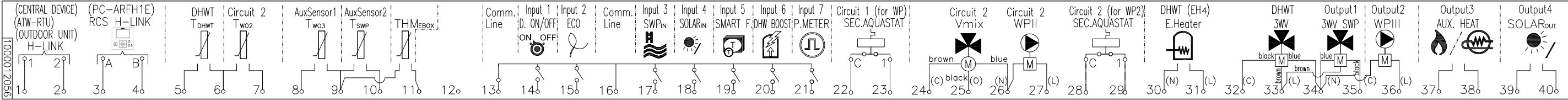


Mark	Part name	Description
TERMINAL BOARD 1 (TB1)		
N L1	~ 230V 50Hz	Main power supply connection
L2 L3	-	
TERMINAL BOARD 2 (TB2)		
1 2	H-LINK communication	The H-LINK transmission has to be done between the indoor unit and the terminals 1-2 of either outdoor unit, ATW-RTU or any other central device.
3 4	H-LINK communication for remote control switch	Terminals for the connection of the YUTAKI unit controller.
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.
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 (IU+OU). - Two separated power meters (one for IU and one for OU).
22 23	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.
24(C) 25(O)	Mixing valve close Mixing valve open	When a mixing system is required for a second temperature control, these outputs are necessary to control the mixing valve.
26(N)	Common line	
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.

Mark	Part name	Description
28 29	Auxiliary power	Power supply for ATW-RTU and central device.
30(N) 31(L)	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.
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 38	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. A water electric heater (as accessory) can be used to provide the additional heating required on the coldest days of the year.
39 40	Output 4 (Solar) (*)	Output for solar combination with Domestic Hot Water Tank.

(*): 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.

◆ RWH-(4.0-6.0)(V)NF(W)E (From January 2023 S/N: ≥ 80202A30184431)



Mark	Part name	Description
TERMINAL BOARD 1 (TB1)		
N	~ 230V	Main power supply connection
L1	50Hz	
L2	-	
L3		
TERMINAL BOARD 2 (TB2)		
1	H-LINK commutation	The H-LINK transmission has to be done between the indoor unit and the terminals 1-2 of either outdoor unit, ATW-RTU-07 or any other central device.
2		
3	H-LINK communication for remote control switch	PC-ARFH1E
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 thermistor.
10	Thermistor for swimming pool water temperature (As default: Aux Sensor 2)	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 electrical box	The sensor is used for the electrical box temperature control.
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.
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 (IU+OU). - Two separated power meters (one for IU and one for OU).
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	Limit thermostat(Only UK market models)	
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.

Mark	Part name	Description
28 29	Aquastat security for circuit 2 (WP2)	Terminals intended for the connection of the Aquastat security accessory (ATW-AQT-01) to control the water temperature of the circuit 2.
30(N) 31(L)	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.
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)	Common line (phase)	Common terminal for the 3-way valve for DHW tank.
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 38	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. A water electric heater (as accessory) can be used to provide the additional heating required on the coldest days of the year.
39 40	Output 4 (Solar) (*)	Output for solar combination with Domestic Hot Water Tank.

(*): 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.

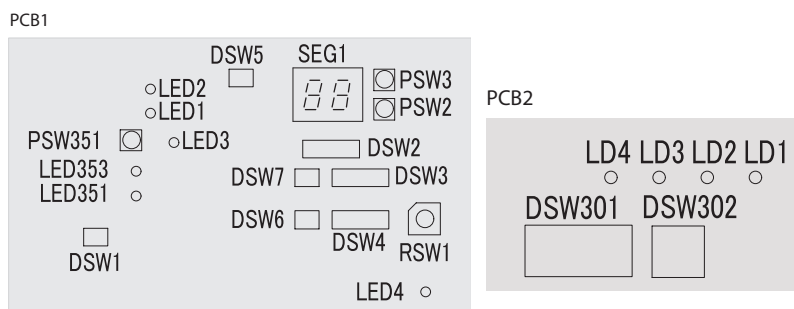
9.7 Setting of DIP switches and RSW switches

9.7.1 Split system - Outdoor unit

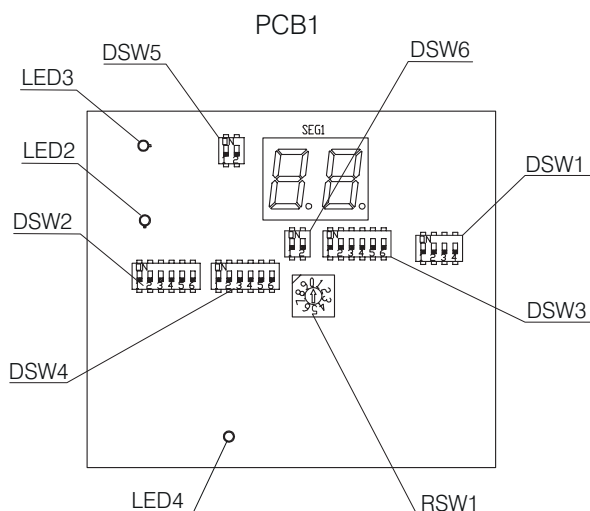
9.7.1.1 Location of DIP switches and rotary switches

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

◆ RAS-(2-3)WHVRP1



◆ RAS-(4-10)WH(V)NPE



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.

9.7.1.2 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.

9.7.1.3 DSW1

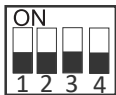
◆ Cancellation of electric current detection

RAS-(2-3)WHVRP1: PCB1

DSW1	RAS-(2-3)WHVRP1
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-(4-10)WH(V)NPE: PCB1

DSW1	RAS-(4-10)WH(V)NPE
Factory setting	
Test run for pump down	
Not available	
Not available	
Not available	
Forced stoppage of compressor	

NOTE

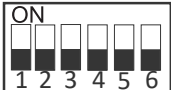
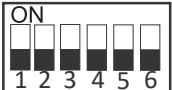
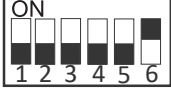
- This operation is reset once the compressor is in Thermo-ON mode.
- During the test run operation the units will operate continuously during 2 hours without Thermo-OFF and the 3-minute guard for compressor protection will be effective.
- Test run will start within 20 seconds after setting DSW1 pin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

9.7.1.4 DSW2

◆ Optional Function setting

RAS-(2-3)WHVRP1: PCB1

RAS-(4-10)WH(V)NPE: PCB1

DSW2	RAS-(2-3)WHVRP1	RAS-(4-10)WH(V)NPE
Factory setting		
Pipe length longer than 30 m (Long pipe settings)	Not available	
Optional function setting mode (The optional function selection mode becomes available)		
External input, output setting mode (The input /output signals selection mode becomes available).		

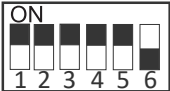
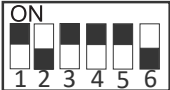
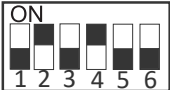
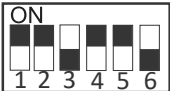
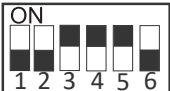
9.7.1.5 DSW3

◆ Capacity Setting (No setting is required)

RAS-(2-3)WHVRP1: PCB1

RAS-(4-10)WH(V)NPE: PCB1

DSW3	Factory setting
RAS-2.WHVRP1	
RAS-2.5WHVRP1	
RAS-3WHVRP1	
RAS-4WHVNPE	

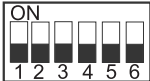
DSW3	Factory setting
RAS-5WHVNPE	
RAS-6WHVNPE	
RAS-4WHNPE	
RAS-5WHNPE	
RAS-6WHNPE	
RAS-8WHNPE	
RAS-10WHNPE	

9.7.1.6 DSW4 / RSW1

◆ Refrigerant cycle selection (No setting is required)

RAS-(2-3)WHVRP1: PCB1

RAS-(4-10)WH(V)NPE: PCB1

DSW4 / RSW1	RAS-(2-3)WHVRP1 RAS-(4-10)WH(V)NPE
Factory setting	 

9.7.1.7 DSW5

◆ Terminal resistance

RAS-(2-3)WHVRP1: PCB1

RAS-(4-10)WH(V)NPE: PCB1

DSW5

RAS-(2-3)WHVRP1
RAS-(4-10)WH(V)NPE

Factory setting



9.7.1.8 DSW6

◆ No setting is required

RAS-(2-3)WHVRP1: PCB1

RAS-(4-10)WH(V)NPE: PCB1

DSW6

RAS-(2-3)WHVRP1
RAS-(4-10)WH(V)NPE

Factory setting



9.7.1.9 DSW7

◆ Function selection

RAS-(2-3)WHVRP1: PCB1

RAS-(4-10)WH(V)NPE: PCB1

DSW7

RAS-(2-3)WHVRP1
RAS-(4-10)WH(V)NPE

Factory setting



9.7.1.10 DSW301

◆ Test run mode (Only for RAS-(2-3)WHVRP1)

RAS-(2-3)WHVRP1: PCB2

DSW301	RAS-(2-3)WHVRP1
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-minute guard for compressor protection will be effective.
- Test run will start within 20 seconds after setting DSW1 pin 1 to ON position.

9.7.1.11 DSW302

◆ Optional Function setting (Only for RAS-(2-3)WHVRP1)

RAS-(2-3)WHVRP1: PCB1

DSW302	RAS-(2-3)WHVRP1
Factory setting	

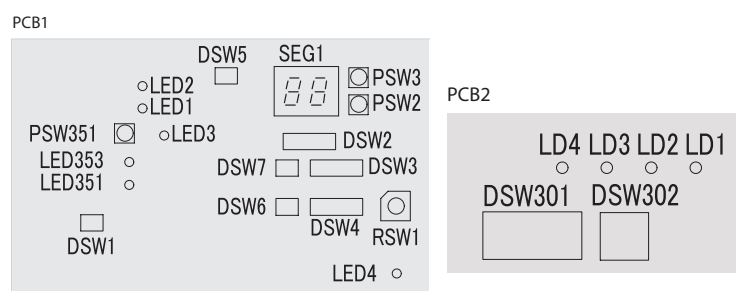
9.7.1.12 LED indication

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

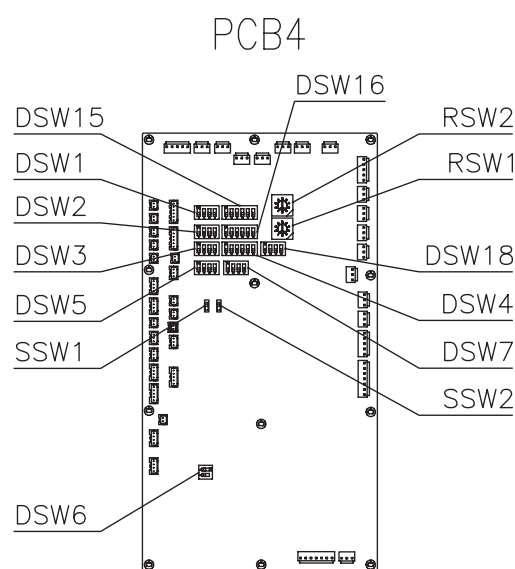
9.7.2 Location of DIP switches and rotary switches Split system - Indoor Unit / Monobloc system / Hydrosplit system

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

YUTAKI M - RASM-(2/3)VRE (~230V 50Hz)

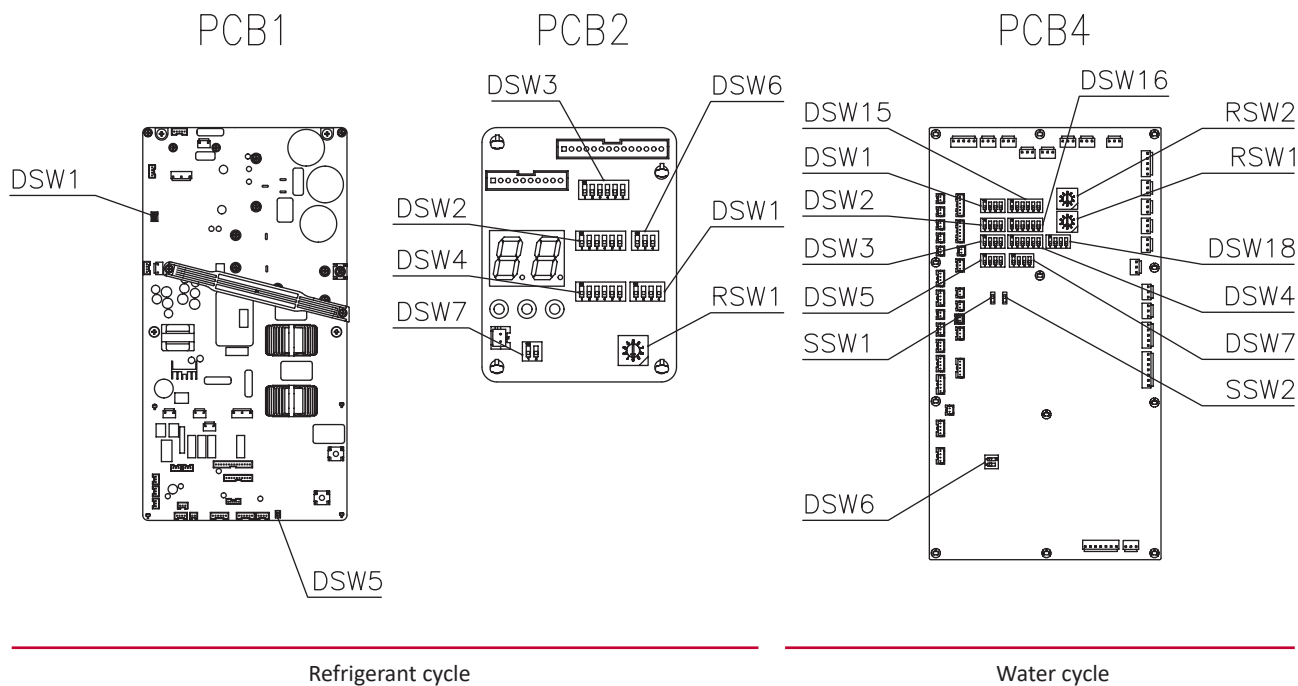


Refrigerant cycle

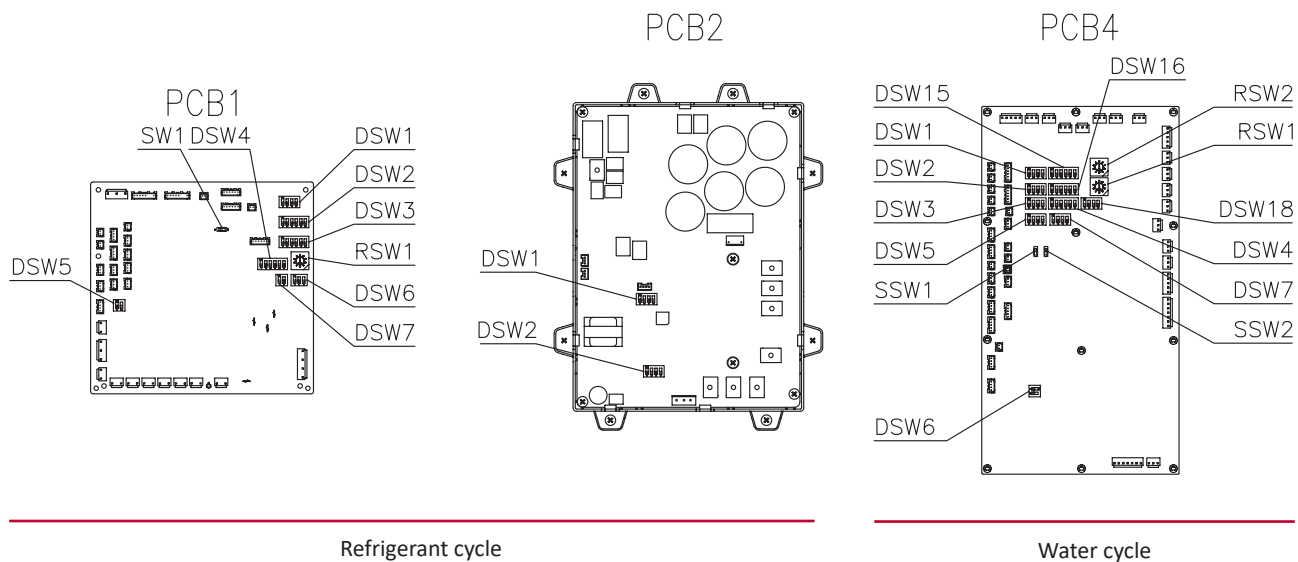


Water cycle

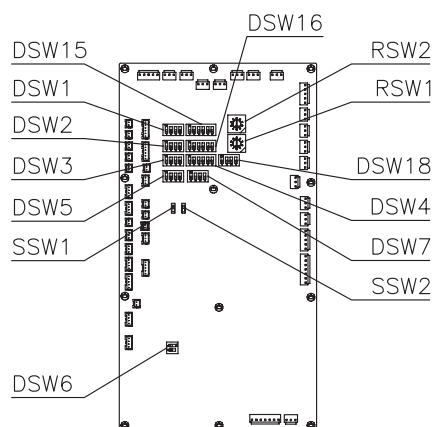
YUTAKI M / YUTAKI Hydrosplit R32 - RASM-(4-6)VR(W)1E (~230V 50Hz)



YUTAKI M / YUTAKI Hydrosplit R32 - RASM-(4-7)R(W)1E (3N~ 400V 50Hz)



YUTAKI S, YUTAKI S Combi, YUTAKI S80, YUTAKI H, YUTAKI H Combi



Water cycle

9.7.3 Refrigerant cycle PCB

Monobloc system - YUTAKI M and Hydrosplit system

9.7.3.1 DSW1

◆ Cancellation of electric current detection

RASM-(2/3)VRE: PCB1

RASM-(4-6)VR(W)1E: PCB1

RASM-(4-7)R(W)1E: PCB2

DSW1	RASM-(2/3)VRE	RASM-(4-6) VR(W)1E	RASM-(4-7)R(W)1E
Factory setting			
When set pin to ON, the electric current detection is cancelled. Pin should be set back to OFF after electrical work.			Not applicable

◆ Test run mode

RASM-(4-6)VR(W)1E: PCB2

RASM-(4-7)R(W)1E: PCB1

DSW1	RASM-(4-7)(V)R(W)1E
Factory setting	
Test run for pump down	
Not available	
Not available	
Not available	
Forced stoppage of compressor	

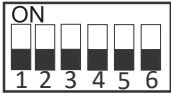
i NOTE

- 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-minute guard for compressor protection will be effective.
- Test run will start within 20 seconds after setting DSW1 pin 1 to ON position.

9.7.3.2 DSW2

◆ Optional Function setting

RASM-(2/3)VRE: PCB1
RASM-(4-6)VR(W)1E: PCB2
RASM-(4-7)R(W)1E: PCB1

DSW2	RASM-(2/3)VRE	RASM-(4-7)(V)R(W)1E
Factory setting		
Function selection setting mode		
External input, output setting mode		

◆ Not used

RASM-(4-7)R(W)1E: PCB2

DSW2	RASM-(4-7)R(W)1E
Factory setting	

9.7.3.3 DSW3

◆ Capacity Setting (No setting is required)

RASM-(2/3)VRE: PCB1

RASM-(4-6)VR(W)1E: PCB2

RASM-(4-7)R(W)1E: PCB1

DSW3	Factory setting
RASM-2VRE	
RASM-3VRE	
RASM-4VR(W)1E	
RASM-5VR(W)1E	
RASM-6VR(W)1E	
RASM-4R(W)1E	
RASM-5R(W)1E	
RASM-6R(W)1E	
RASM-7R(W)1E	

NOTE

For RASM-7R(W)1E DSW6 must be configured to PIN 1 ON (factory setting, do not change).

9.7.3.4 DSW4 / RSW1

◆ Refrigerant cycle selection (No setting is required)

RASM-(2/3)VRE: PCB1

RASM-(4-6)VR(W)1E: PCB2

RASM-(4-7)R(W)1E: PCB1

DSW4 / RSW1	RASM-(2-7)(V)R(W)(1)E
Factory setting	 

9.7.3.5 DSW5

◆ Terminal resistance

RASM-(2/3)VRE: PCB1

RASM-(4-6)VR(W)1E: PCB1

RASM-(4-7)R(W)1E: PCB1

DSW5	RASM-(2/3)VRE	RASM-(4-6) VR(W)1E	RASM-(4-7)R(W)1E
Factory setting			
Fuse recovery	Not applicable	Not applicable	

9.7.3.6 DSW6

◆ No setting is required

RASM-(2/3)VRE: PCB1

RASM-(4-6)VR(W)1E: PCB2

RASM-(4-7)R(W)1E: PCB1

DSW6	RASM-(2/3)VRE	RASM-(4-6)(V) R(W)1E	RASM-7R(W)1E
Factory setting			

9.7.3.7 DSW7

◆ Function selection

RASM-(2/3)VRE: PCB1

RASM-(4-6)VR(W)1E: PCB2

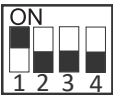
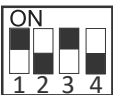
RASM-(4-7)R(W)1E: PCB1

DSW7	RASM-(2/3)VRE	RASM-(4-7)(V) R(W)1E
Factory setting		
Open valves (when DSW1 for test run pin 4 is switched ON)	Not applicable	

9.7.3.8 DSW301

◆ Test run mode (Only for RASM-(2/3)VRE)

RASM-(2/3)VRE: PCB2

DSW301	RASM-(2/3)VRE
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-minute guard for compressor protection will be effective.
- Test run will start within 20 seconds after setting DSW1 pin 1 to ON position.

9.7.3.9 DSW302

◆ Optional Function setting (Only for RASM-(2/3)VRE)

RASM-(2/3)VRE: PCB2

DSW302	RASM-(2/3)VRE
Factory setting	

9.7.3.10 LED indication

◆ RASM-(2/3)VRE

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

◆ RASM-(4-7)(V)R(W)1E

Name	Colour	Indication
LED1	Red	This LED indicates the transmission status between the indoor unit and the unit controller
LED2	Yellow	This LED indicates the transmission status between the indoor unit and the outdoor unit
LED3	Green	Power source for the PCB

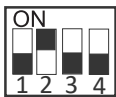
9.7.4 Water cycle PCB

Split system - Monobloc system - YUTAKI M and Hydrosplit system

9.7.4.1 DSW1

◆ Additional setting 1

Factory setting. No setting is required.

DSW1	RWM-(N/R)1E	RWD-(N/R)W1E-220S(-K)	RWH-VNF(W)E	RWH-NF(W)E
Factory setting (*)				
DSW1	RASM-(V)R(1)E	RASM-(V)RW1E	HWM-WE	HWD-WE-220S(-K)
Factory setting (*)				

NOTE

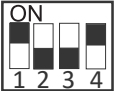
(*): In case of installing the “Cooling kit” accessory, set the pin 4 of DSW1 to ON in order to enable the cooling operation.

9.7.4.2 DSW2

◆ Unit capacity setting

Factory setting. No setting is required.

DSW2	Factory setting
2.0 HP	
2.5 HP	
3.0 HP	

DSW2		Factory setting
4.0 HP		
5.0 HP		
6.0 HP		
7.0 HP		
8.0 HP		
10.0 HP		
DSW2	Factory setting	Setting required in HWM-WE and HWD-WE-220S(-K) for combination
HWM-WE HWD-WE-220S(-K)		 with RASM-4(V) RW1E
		 with RASM-5(V) RW1E
		 with RASM-6(V) RW1E
		 with RASM-7RW1E

9.7.4.3 DSW3

◆ Additional setting 1

DSW3	RWM-(N/R)1E	RWD-(N/R)W1E-220S(-K)	RWH-VNF(W)E (*)	RWH-NF(W)E (*)
Factory setting				
1 step heater for 3 phase unit option			Not applicable	

(*)From January 2023. S/N: $\geq 80202A30184431$ DSW3#1=ON. S/N: $< 80202A30184431$ DSW3#1=OFF

DSW3	RASM-VR(1)E	RASM-VR(1)E	RASM-VRW1E	RASM-RW1E
Factory setting				
1 step heater for 3 phase unit option	Not applicable		Not applicable	Not applicable

DSW3	HWM-WE	HWD-WE-220S(-K)
Factory setting		
1 step heater for 3 phase unit option		

9.7.4.4 DSW4

◆ Additional setting 2

DSW4	RWM-(N/R)1E RWD-(N/R)W1E-220S(-K) RWH-(V)NF(W)E RASM-(V)R(1)E	RASM-(V)RW1E	HWM-WE HWD-WE-220S(-K)
Factory setting	ON 	ON 	ON
DHW defrost	ON 	Not applicable	ON (Not applicable for HWD-WE-220S(-K))
Heater forced OFF	ON 	Not applicable	ON
Unit and installation pipes antifreeze protection	ON 	Not applicable	ON
Standard / ECO water pump operation	ON 	Not applicable	ON
Electric heater or boiler emergency mode	ON 	Not applicable	ON
DHW tank's heater operation	ON 	Not applicable	ON
DHW 3-way valve forced ON	ON 	Not applicable	ON
Mirror function (YUTAKI Mirror)	ON 	Not applicable	Not applicable

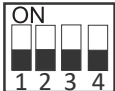
⚠ CAUTION

- 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.
- For YUTAKI M units RASM-(V)R(1)E using a Mirror box accessory, SWW1 must be changed to Local.
- 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	RASM-(V)RW(1)E	RWM-(N/R)1E RWD-(N/R)W1E-220S(-K) RWH-(V)NF(W)E RASM-(V)R(1)E
Factory setting		
Outdoor unit sensor for circuits 1 and 2.	Not applicable	
Outdoor unit sensor for circuit 1; Auxiliary sensor for circuit 2.	Not applicable	
Auxiliary sensor for circuit 1; Outdoor unit sensor for circuit 2.	Not applicable	
Auxiliary sensor instead of outdoor unit sensor for both circuits.	Not applicable	
Use the maximum temperature value between Two3 (boiler / heater thermistor) and Two (water outlet thermistor) for water control	Not applicable	

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	RASM-(V)RW(1)E	RWM-(N/R)1E RWD-(N/R)W1E-220S(-K) RWH-(V)NF(W)E RASM-(V)R(1)E
Factory setting		
Compatibility with ATW-RTU-04 (When cooling mode operation is needed)	Not applicable	

9.7.4.8 DSW15 & RSW2

◆ Refrigerant cycle address

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

9.7.4.9 DSW16 & RSW1

◆ Not used

DSW16 & 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)1E RWD-(N/R)W1E-220S(-K) RWH-(V)NF(W)E RASM-(V)R(1)E	RASM-(V)RW1E	HWM-WE HWD-WE-220S(-K)
Factory setting	Remote Local	Remote Local	Remote Local
Local operation	Remote Local	Not available	Not available

NOTE

- For YUTAKI M units RASM-(V)R(1)E using a Mirror box accessory, SSW1 must be changed to Local.
- For YUTAKI M units RASM-(V)R(1)E: 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.

9.7.4.12 SSW2

◆ Heat/Cool

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

NOTE

Only for YUTAKI M units RASM-(V)R(1)E (Factory setting DSW4#1 is OFF).

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

Optional functions

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10.1 Optional functions by Unit controller

10.1.1 Optional functions for Space Heating or Space Cooling

A: All models

Optional function	Explanation	Model
Floor screed drying function (Circuits 1 & 2)	This function is used exclusively for the process of drying screed that has been newly applied to floor heating system. The water temperature set-point follows a predetermined schedule upon activation of the floor screed drying function. For more information refer to Water control chapter.	A
Heating Auto ON/OFF	At higher outside temperatures it doesn't make sense to keep heating the building. The YUTAKI 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. For more information refer to Service Manual.	A
Auto Heat-Cool	Only available for Cooling and Heating models and cooling mode enabled. By using auto summer switch off average, user can use auto heat cool mode. The end-user sets the desired operation mode on the user interface: Heating, Cooling or Automatic. When Automatic is selected, the change of the operation mode is based on: Averaged outdoor temperature: the operation mode will be changed in order to always be within range determined by the space heating OFF temperature for heating and the space cooling ON temperature for cooling. If the outdoor temperature drops, the operation mode switches to heating and vice versa. For more information refer to Service Manual.	A
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. For more information refer to Service Manual.	A

10.1.2 Optional functions for DHW

A: All models

S80: YUTAKI S80

Optional function	Explanation	Model
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. For more information refer to Service Manual.	A
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. For more information refer to Service Manual.	A
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. For more information refer to Service Manual.	A
DHW Mode	DHW operation has 3 different modes, ECONOMIC (only for YUTAKI S 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. For more information refer to Service Manual.	A
DHW Control	Unit has 2 DHW heating up control modes that are selected by PC-ARFH1E: H.EFFICIENCY MODE: Control to keep best efficiency (COP). H.SPEED MODE: Control to heat tank as fast as possible.	S80

10.1.3 Optional functions for Heat pump

A: All models

S: YUTAKI S

SC: YUTAKI S Combi

S80: YUTAKI S80

M: YUTAKI M

YC: YUTAKI Hydrosplit

H: YUTAKI H

HC: YUTAKI H Combi

Optional function	Explanation	Model
Hydraulic separator combination	In some cases, water pump of the YUTAKI 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 (T_{wo3}) are needed for boiler combination control (automatic added when Boiler combination is enabled). For more information refer to Service Manual.	A
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. For more information refer to Service Manual.	S/SC/M/ YH/H/HC
DHW tank location selection (only for YUTAKI S)	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.	S/H
Electrical heater or boiler emergency mode	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 and the configuration must be done from the Unit controller For more information refer to Service Manual.	A
Power meter data control	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 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 (IU+OU). - Two separated power meters (one for IU and one for OU). For more information refer to Service Manual.	S80

Optional function	Explanation	Model
System consumption data control	YUTAKI 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 ODU 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 (IU+OU). - Two separated power meters (one for IU and one for OU). For more information refer to Service Manual.	S/SC/M/ YH/H/HC
Capacity data control	Due to usage of Water temperature inlet and outlet + water flow leve, a estimation of capacity can be checked. This screens show the value of kWh for each zone (Heating,Cooling, DHW, swimming pool and its total) and also let to see the values month by month. For more information refer to Service Manual.	A
Smart Grid ready	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. For more information refer to Service Manual.	S/SC/M/ YH/H/HC
Smart Function	This function can be used to block or limit the heat pump or increase demand due to electricity availability. For more information refer to Service Manual.	S80
Air Purge	Air purge function drives the pump in a way for evacuating air bubbles in the installation. For more information refer to Service Manual.	A
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. For more information refer to Service Manual.	A
Night shift	Night shift operation reduce compressor load in order to reduce environmental noise during night. It can be configured as a daily timer. For more information refer to Service Manual.	A
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 YUTAKI optional outputs.	S/SC/M/ YH/H/HC
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 ODU unit.	S/SC/M/ YH/H/HC

10.1.4 Optional functions for Unit Controller

A: All models

S80: YUTAKI S80

Optional function	Explanation	Model
Favourite action	This favourite button has the possibility to customize the action according on system configuration: Holiday Eco/Comfort Timer Night shift DHW Boost	S80
UTC Zone	UTC Zone: Europe spans 7 primary time zones (5 of them can be seen on the map in this article, while 2 other zones contain the European part of Kazakhstan and some very eastern territories of European Russia). Most of European countries use daylight saving time and switch to it at the same moment, which is 'harmonise' their summer time adjustment.	A
European summer time	When European summer time is activated, it should change the time when the country / UTC zone is doing it.	A
Holidays	Holidays function is only available for room thermostat view of PC-ARFH2E. Holidays let the user specify a date and hour for the Room Setting to be OFF with the configured setting.	A

10.1.5 Optional external input/output configuration signals

The system has 7 input and 4 output optional signals (+ 4 output signals when using accessory). The new YUTAKI series allow different ports to be configured for those I/O signals, as well.

The user can configure those input signal to perform different functions from the unit controller. This is briefly explained in the next tables:

10.1.5.1 Input signals and input ports

Code	Name	Port	Input
1	Input 1	TB2 #13&14	230 V
2	Input 2	TB2 #13&15	230 V
3	Input 3	TB2 #16&17	230 V
4	Input 4	TB2 #16&18	230 V
5	Input 5	TB2 #16&19	230 V
6	Input 6	TB2 #16&20	230 V
7	Input 7	TB2 #16&21	230 V

◆ Input functions (To be configured from the unit controller)

Function #	Input	Description	Model
0	Deactivated	-	A
1	Demand ON/OFF	Send Demand ON or OFF Operation to Circuit 1 and Circuit 2.	A
2	Smart Act./SG Ready Input 1	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 of use of Smart Grid Ready application, this input is used as a digital input 2 and allows four different operating modes.	A
3	Swimming pool	Input used to let YUTAKI know swimming pool is in demand ON conditions.	A
4	Solar	In case of combine YUTAKI with solar panels, this input is used as a feedback for solar station ready operation.	A
5	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.	A
6	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.	A
7	Power meter 1	Input used as kW/h pulse count for Energy data recording.	A
8	Demand ON/OFF C1	Send Demand ON or OFF Operation only to Circuit 1.	A
9	Demand ON/OFF C2	Send Demand ON or OFF Operation only to Circuit 2.	A
10	Forced heating	Forced Heating Demand by input of contact signal from outside.	A
11	Forced cooling	Forced Cooling Demand by input of contact signal from outside.	A

Function #	Input	Description	Model
12	Power meter 2	Input used as kW/h pulse count for Energy data recording.	A
13	ECO mode C1 & 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.	A
14	ECO mode C1	Water temperature setting for Circuit 1 it is reduced by ECO operation mode (Default 3°C) by input of contact signal from outside.	A
15	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.	A
16	Force OFF	Force OFF operation for unit. RCS will continue as normally set but will show indication that operation is forbidden.	A
17	SG Ready Input 2	In case of want to use Smart Grid Ready application, this input is used as a digital input 2 and allow four different operating modes.	A
18	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.	S/SC/M/ YH/H/HC

◆ Output signals and output ports

Code	Name	Port	Output
01	Output 1	TB2 #34 (N) & 35 (L)	230 V
02	Output 2	TB2 #34 (N) & 36 (L)	230 V
03	Output 3	TB2 #37&38	Free voltage signal
04	Output 4	TB2 #39&40	Free voltage signal
05	Output 5	PCN20 #1-2	12Vdc signal
06	Output 6	PCN21 #1-2	12Vdc signal
07	Output 7	PCN22 #1-2	12Vdc signal
08	Output 8	PCN23 #1-2	12Vdc signal
09	Output 9 (only for YUTAKI S Combi and YUTAKI H Combi)	PCN12 #1-2	230 V

◆ Output functions (To be configured from the PC-ARFH2E Unit Controller)

Function #	Output	Description
0	Deactivated	
1	3WV SWP	In case of combine YUTAKI with swimming pool, this output is used to drive 3 way valve swimming pools.
2	WP3	In case of combine YUTAKI with boiler or hydraulic separator, this output is used to drive water pump 3.
3	Boiler combination	In case of combine YUTAKI with boiler, this output is used to switch ON it.
4	Solar pump	In case of combine YUTAKI with solar panel, this output is used to drive water pump station .
5	Alarm signal	Output when an "Alarm Code" is received from Indoor Unit or outdoor unit.
6	Operation signal	Output in case that "Thermo-ON" signal in any condition.
7	Cooling signal	Output in case that "Thermo-ON" signal in Cooling operation.
8	Demand-ON signal circuit 1	Signal is enabled when circuit 1 is operating in Demand-ON.
9	Heating signal	Output in case that "Thermo-ON" signal in Heating operation.
10	DHW signal	Output in case that "Thermo-ON" signal in DHW operation.
11	Solar overheat	Output in case that solar temperature signal is active when solar overheat (only when solar combination status is total control).
12	Defrost	Output if the operation state of the outdoor unit when is defrosting.
13	DHW re-circulation pump	In case of re-circulation pump enabled for DHW tank.
14	Fan 1 Low speed	Output for fan coil speed.
15	Fan 1 Medium speed	Output for fan coil speed.
16	Fan 1 High speed	Output for fan coil speed.
17	Fan 2 Low speed	Output for fan coil speed.
18	Fan 2 Medium speed	Output for fan coil speed.
19	Fan 2 High speed	Output for fan coil speed.
20	Constant Heat	Output in high state whenever operation mode from Unit controller is in heating mode.
21	Constant cool	Output in high state whenever operation mode from Unit controller is in cooling mode.

10.2 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	Deactivated	0	NTC
Sensor 2	A2	CN25 #1-2	Deactivated	0	NTC
Sensor 3	A3	CN5 #1	Deactivated	0	NTC

10.2.1 Function of sensors

Function #	Input	Description
0	Deactivated	
1	T _{wo3} sensor	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.
2	Swimming pool	When combining YUTAKI with swimming pool, this sensor is used to read the temperature from the water of the swimming pool.
3	Solar panel sensor	When combining YUTAKI with solar panels, this sensor is used to read the temperature from the solar panel.
4	Zone 1 & 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.

10.3 Change of defrost condition

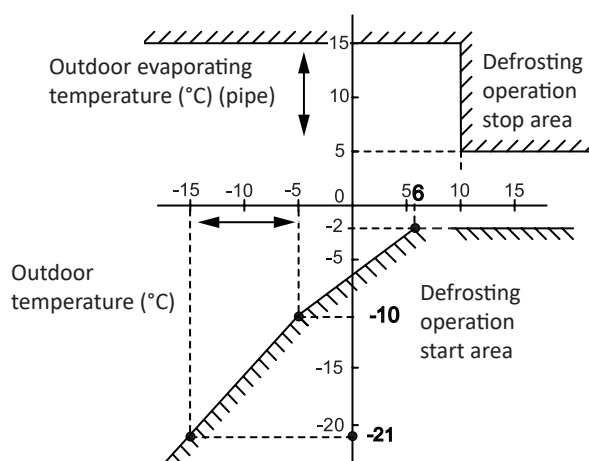
These optional function is available for being selected using the PSW switches and 7-segment on the PCB of the Outdoor Units:

Indication	Description	Application
10	Change of defrost condition	This function allows to shift the temperature conditions in order to cause an earlier defrosting. It is useful in installations placed in very cold regions, where frost generates continuously; enabling an earlier defrosting operation results in a lower amount of accumulated frost, therefore keeping higher heating capacity values.
F9	Defrost improvement (only for RAS-(2-3) WHVRP1, option available from update software H-0235)	In case F9 is set to 1, this optional function allows to perform defrost operation earlier in order to avoid excessive frost formation. In case F9 is set to 2, same conditions than 1 are applied and also EVO control is smoothed to avoid frost formation.

Example for **RAS-(2-3)WHVRP1** and **RASM-(2/3)VRE**

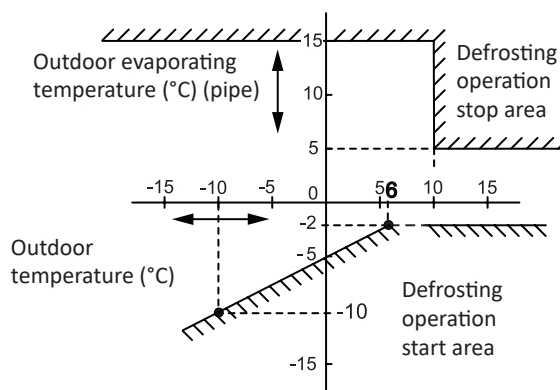
Setting condition	Standard Specifications (factory default state)
	Function selection setting 10 : 0

Temperature conditions under defrosting operation



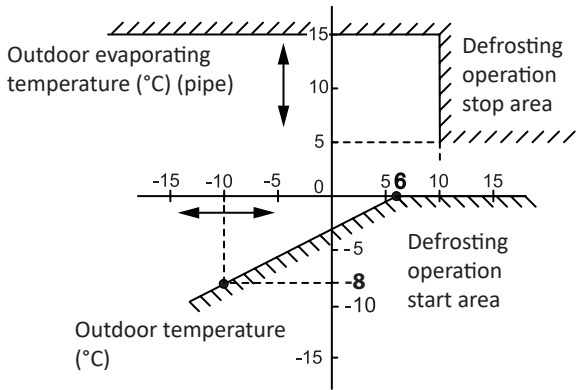
Setting condition	Cold region
	Function selection setting 10 : 1

Temperature conditions under defrosting operation



Setting condition	Cold and high humidity region
	Function selection setting 設定 : 2

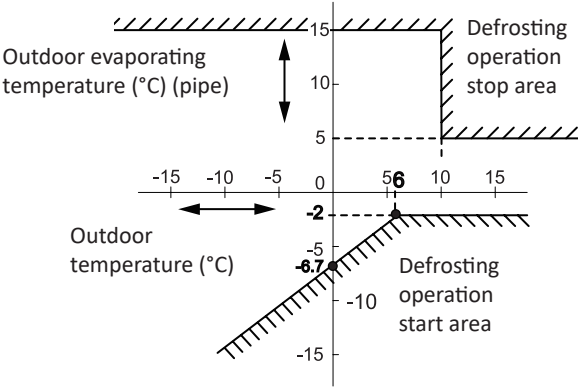
Temperature conditions under defrosting operation



Example for RAS-(4-10)WH(V)NPE

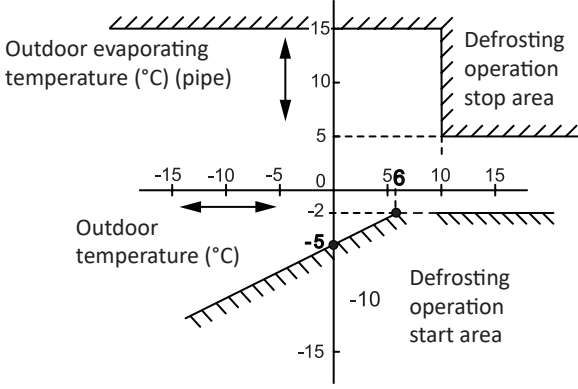
Setting condition	Standard Specifications (factory default state)
	Function selection setting 設定 : 0

Temperature conditions under defrosting operation



Setting condition	Cold region
	Function selection setting 設定 : 1

Temperature conditions under defrosting operation



Example for RASM-(4-7)(V)R(W)1E

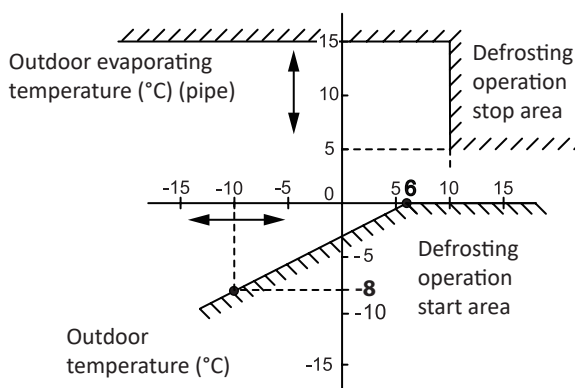
Setting condition	Standard Specifications (factory default state) Function selection setting $\mu\Delta : \square$ (4HP models)
Temperature conditions under defrosting operation	
Setting condition	Standard Specifications (factory default state) Function selection setting $\mu\Delta : \square$ (5-7HP models)
Temperature conditions under defrosting operation	
Setting condition	Cold region Function selection setting $\mu\Delta : \text{!}$ (4-7HP models)
Temperature conditions under defrosting operation	

Setting
condition

Cold and high humidity region

Function selection setting 10:2 (4-7HP models)

Temperature
conditions
under
defrosting
operation



10.4 Output/input signals

Split system - Outdoor units, Monobloc - YUTAKI M and Hydrosplit system - Outdoor units

◆ 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.

◆ Output signals on Split system - Outdoor units

Indication	Output signal	Application
	No setting application	No setting.
	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.
	Alarm signal	This signal allows to notify that protection devices have been activated and to transfer it to additional systems.
	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 RAS unit.
	Defrost operation signal	This signal allows to notify that the unit is under defrosting operation.

◆ Output signals on YUTAKI M and Hydrosplit system - Outdoor units

Indication	Output signal	Application
	No setting application	No setting.
	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 RAS unit.
	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 YUTAKI Cascade Controller is designed as an extension of the hydraulic control of YUTAKI range to establish a larger and efficient heating or cooling system. When YUTAKI Cascade Controller function is active, system separate water generation (hot or cold) from water distribution and consumption.

Water generation is performed on YUTAKI Sub units, and water distribution and consumption is done on Main YUTAKI 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 YUTAKI outdoor/indoor units.
- Allows to control the following heating unit models:
 - ✓ YUTAKI S (from 4-10HP)
 - ✓ YUTAKI S Combi (from 4-6HP)
 - ✓ YUTAKI H (from 4 to 7 HP)
 - ✓ YUTAKI H Combi (from 4 to 7 HP)
 - ✓ YUTAKI M (from 4-7 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.

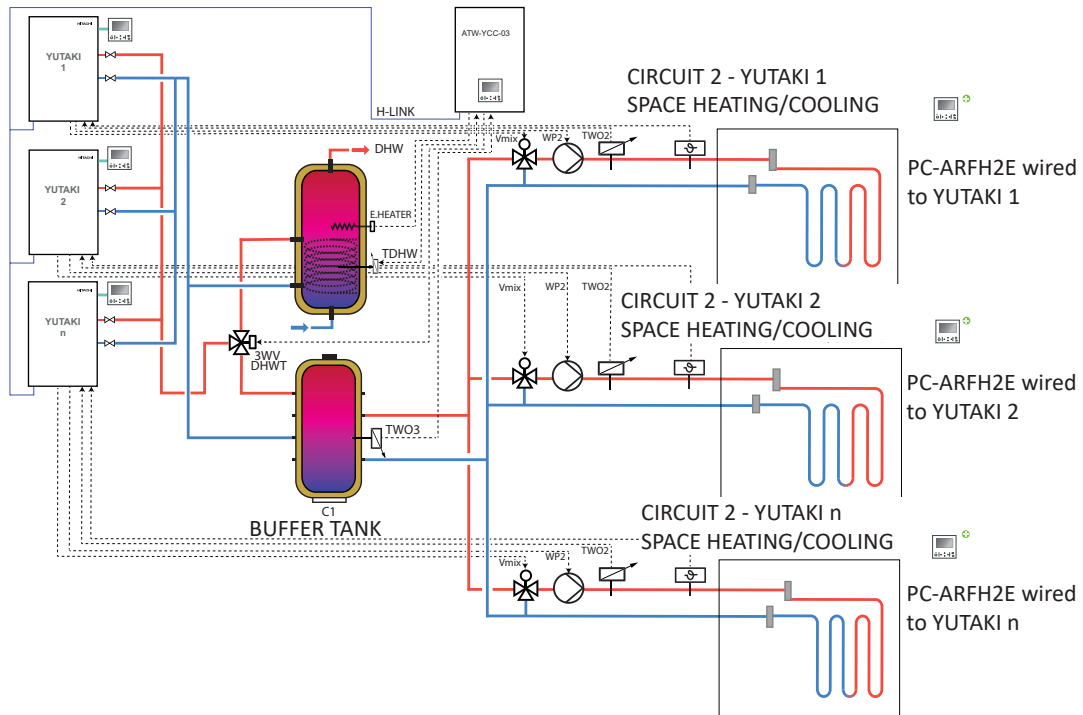
◆ Individual Heating/Cooling household in combination with common DHW production

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

When YUTAKI 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, YUTAKI 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 YUTAKI Cascade Controller.
- C1 buffer tank is managed by means YUTAKI Cascade Controller unit without thermostat.
- Each C2 circuit of each YUTAKI Sub unit is assigned to a specific household.
- Each C2 mixing kit of each YUTAKI 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.

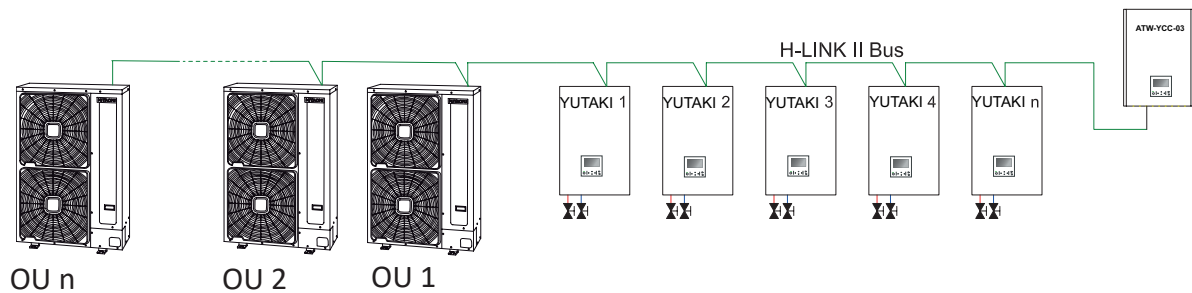


Example for illustrative purpose, refer to the installation manual for more installation examples.

11.1.2 Installation benefits

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

The YUTAKI 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.



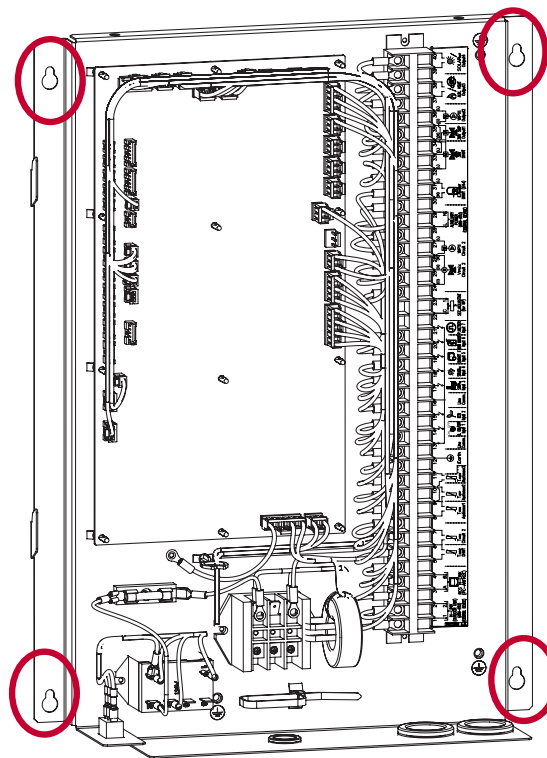
◆ No additional device into each Sub unit

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

◆ Universal mounting concept

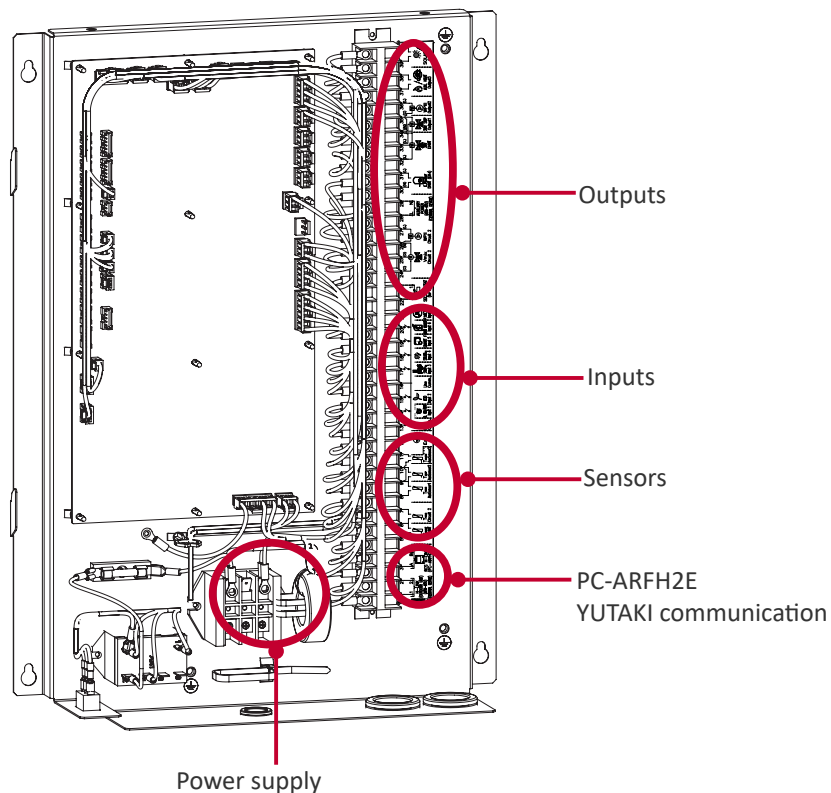
The YUTAKI Cascade Controller is designed for direct wall mounting.

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



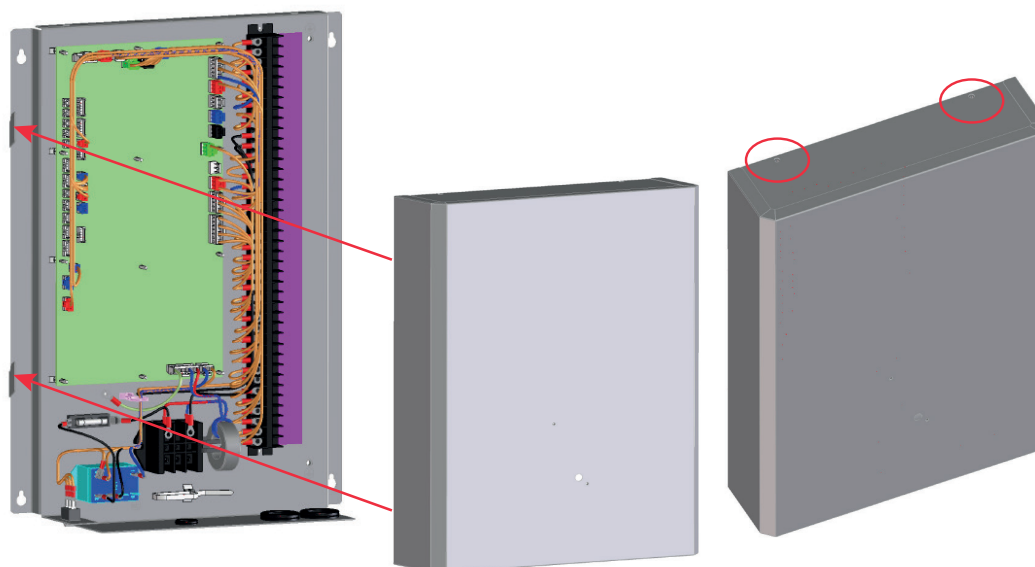
◆ Connection by areas

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 YUTAKI Unit.

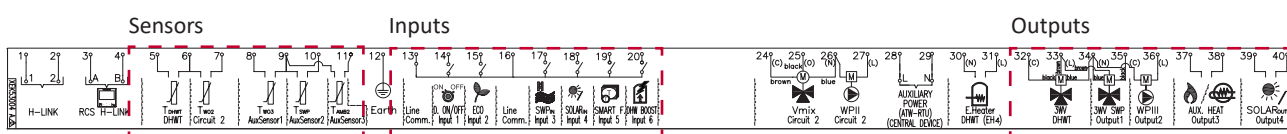
- Cascade Controller alarms: These alarms are generated at the Cascade Controller side. Alarms can be due to factors such as sensor abnormality, wrong setup of the Cascade Controller, high temperature limitation, freeze protection or abnormalities related to wireless thermostats. Some of these alarms 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 YUTAKI Cascade Controller allows a wide range of configurations, just as in the YUTAKI 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:



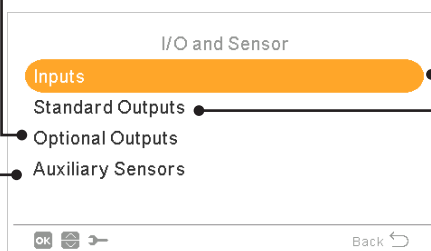
The following input, output and sensor functions can be selected in the “I/O and Sensor” menu of the controller:

Optional outputs:

There 4 additional available outputs to set. These 4 additional outputs are not wired to the YUTAKI 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

- **Deactivated**
- **Demand ON/OFF** (by default in input 1):
Consider both Circuit 1 and Circuit 2 in Demand ON when the signal is ON.
- **Demand ON/OFF C1:**
Consider Circuit 1 in Demand ON when the signal is ON.
- **Demand ON/OFF C2:**
Consider Circuit 2 in Demand ON when the signal is ON.
- **Power Meter 2:**
To count any pulse received from the power meter 2 and sent to central control energy consumption calculation.
- **ECO C1 + C2:**
Switch both Circuit 1 and Circuit 2 to ECO mode when input is closed.
- **ECO C1** (by default in input 2, if there is circuit 1 in the installation):
Switch Circuit 1 to ECO mode when input is closed.
- **ECO C2:**
Switch Circuit 2 to ECO mode when input is closed.
- **Forced Off:**
Forbid DHW, space heating and space cooling.
- **Smart Act / SG1** (Fixed in input 5 if smart action is enabled):
To active Smart Function.
- **Swimming Pool** (Fixed in input 3 if swimming pool is enabled):
Consider Swimming pool in Demand ON when the signal is ON.
- **Solar** (Fixed in input 4 if solar is enabled):
To let YUTAKI know that external Solar management system is ready to provide Solar energy.
- **Operation:**
To switch between space cooling and space heating.
- **DHW Boost** (Fixed in input 6 if is DHW Boost is enabled):
If it is set to open (NC), boost signal ON if circuit is open. If it is set to close (NO), boost signal ON if circuit is closed.
- **Forced Heating:**
Force mode heating when input is closed.
- **Forced Cooling:**
Force mode cooling when input is closed.
- **SG2:**
To active the different estates of Sm Grid Ready.

◆ List of available outputs

- **Deactivated**
- **SWP 3WV** (Fixed in output 1 if swimming pool is enabled):
Signal control of the 3-way valve of the swimming pool.
- **Water pump 3** (Fixed in output 2 if buffer tank is installed):
Signal control of the water pump for buffer tank.
- **Boiler** (Fixed in output 3 if boiler is enabled):
Signal control of the boiler.
- **Solar Pump**: (Fixed in output 4 if solar pump is enabled):
Signal control of the solar pump.
- **Alarm** (By default in output 5):
Signal is active if there is an alarm.
- **Operation** (By default in output 6):
Signal active in case Thermo ON in any condition.
- **Cooling** (By default in output 7):
Signal active when space cooling is operating.
- **Dem-ON C1** (By default in output 8):
Signal active when there is Demand in circuit 1.
- **Heating**:
Signal active when space heating is operating.
- **DHW**:
Signal active when DHW is operating.
- **Solar overheat**:
Signal is active when solar overheat (only when solar combination status is total control)
- **Defrost**:
Signal active when outdoor unit is defrosting.
- **DHW Re-circulation**:
Signal active depending on option selected at chapter Circuit pump.
- **Fan 1 Low**:
Signal is active when fan coil speed selected for Circuit 1 is set to Low.
- **Fan 1 Medium**:
Signal is active when fan coil speed selected for Circuit 1 is set to Medium.
- **Fan 1 High**:
Signal is active when fan coil speed selected for Circuit 1 is set to High.
- **Fan 2 Low**:
Signal is active when fan coil speed selected for Circuit 2 is set to Low
- **Fan 2 Medium**:
Signal is active when fan coil speed selected for Circuit 2 is set to Medium.
- **Fan 2 High**:
Signal is active when fan coil speed selected for Circuit 2 is set to High.
- **Constant Heating**:
Signal is active in case operation mode of LCD controller is set to Heating.
- **Constant Cooling**:
Signal is active in case operation mode of LCD controller is set to Cooling.

◆ List of available sensors

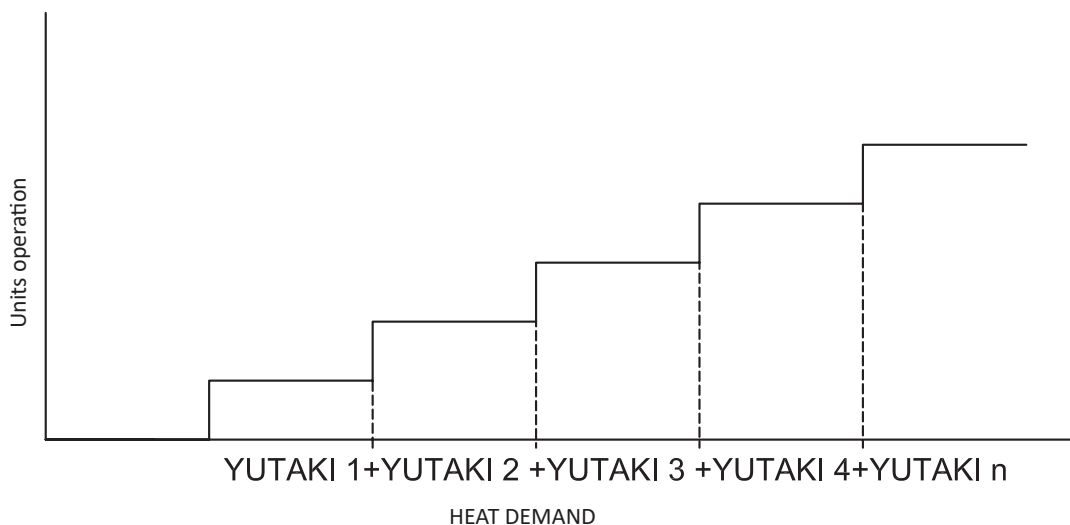
- **Deactivated**
- **T_{wo3}** (Fixed in sensor 1 if boiler is installed):
 - Use this sensor to monitor water temperature when boiler is used.
- **Swimming Pool** (Fixed in sensor 2 if swimming pool is installed):
 - Use this sensor when swimming pool is used in order to monitor swimming pool temperature.
- **Solar panel sensor:**
 - Use this sensor when Total control is configured to monitor Solar Panel temperature.
- **C1 + C2 Ambient:**
 - Use this sensor when auxiliary ambient temperature sensor is used for C1 and C2.
- **C1 Ambient:**
 - Use this sensor when auxiliary ambient temperature sensor is used for C1.
- **C2 Ambient:**
 - Use this sensor when auxiliary ambient temperature sensor is used for C2.
- **Outdoor sensor (NTC)** (By default sensor 3):
 - To connect to the controller an auxiliary outside temperature sensor 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 YUTAKI 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 YUTAKI 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	0
2	PID determine to switch ON module. YCC switches ON next available Sub Unit	1	0	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	0
4	PID determine to switch ON module. YCC switches ON next available Sub Unit	1	2	3	0	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	0
6	PID determine to switch ON module. YCC switches ON next available Sub Unit	1	2	3	4	5	0	0	0
7	Heat Demand. PID does not determine new Unit to be started	1	2	3	4	5	0	0	0
8	Module 3 is in alarm. YCC switches ON new module instead	1	2		3	4	5	0	0
9	PID determines to switch OFF a module. YCC switches OFF first module started	0	1		2	3	4	0	0
10	PID determines to switch OFF a module. YCC switches OFF first module started	0	0		1	2	3	0	0
11	PID determines to switch ON Module. YCC switches ON next available Unit	0	0	0	1	2	3	0	4
12	PID determine to switch ON module. YCC switches ON next available Sub Unit	5	0	0	1	2	3	0	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 ONfor Sub DHW tank

Unit in alarm

Disabled

11.1.7 Synchronized defrost

The defrosting process of the YUTAKI 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 YUTAKI 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 YUTAKI outdoor unit is established according to the total number of units connected to the Cascade Controller and the individual need to defrost of each YUTAKI outdoor unit.

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

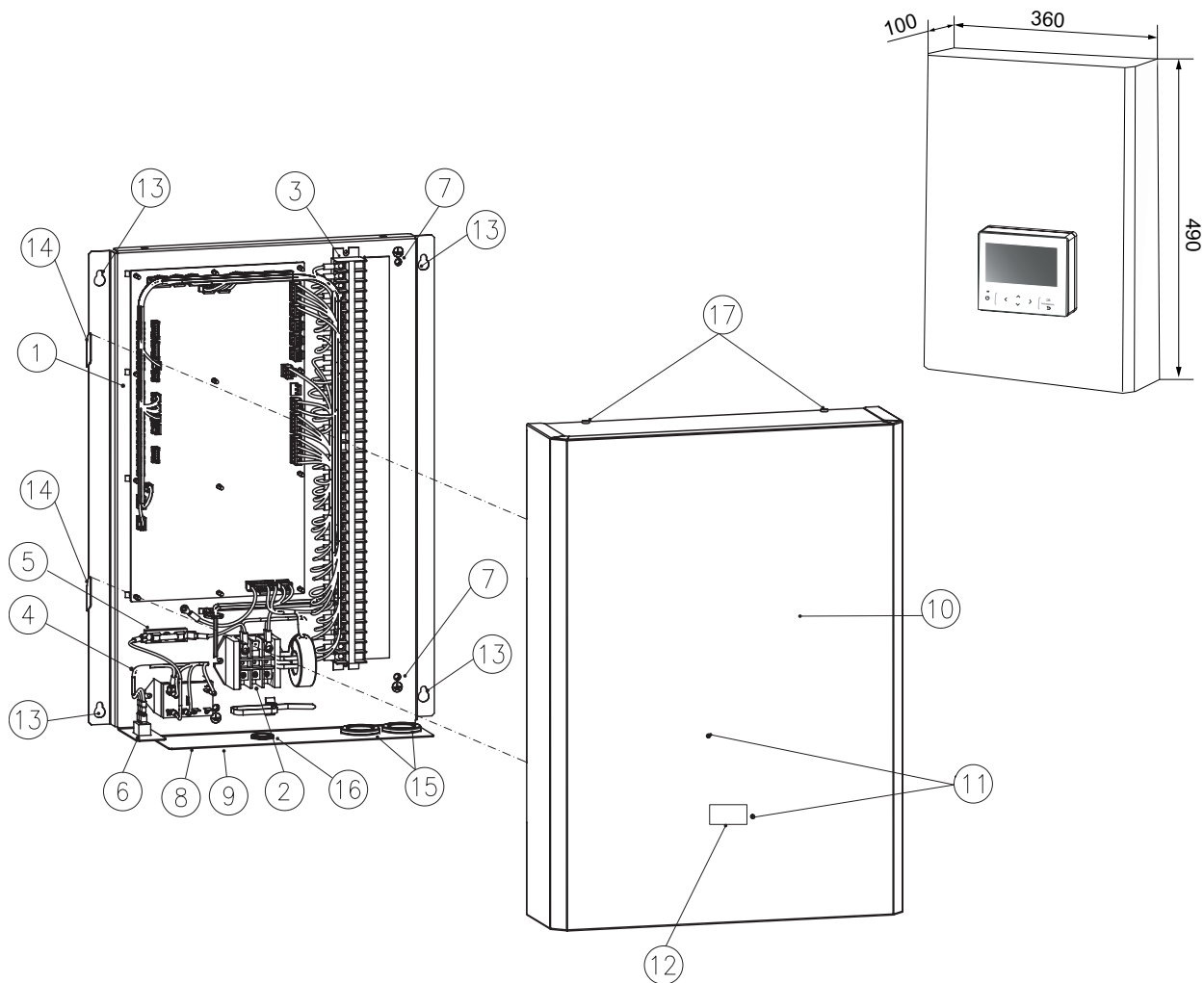
11.2 General data

YUTAKI Cascade Controller - ATW-YCC-03	
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-03 (with DHW E.Heater)	230	~	50	253	207	16
ATW-YCC-03 (only EBOX)	230	~	50	253	207	5

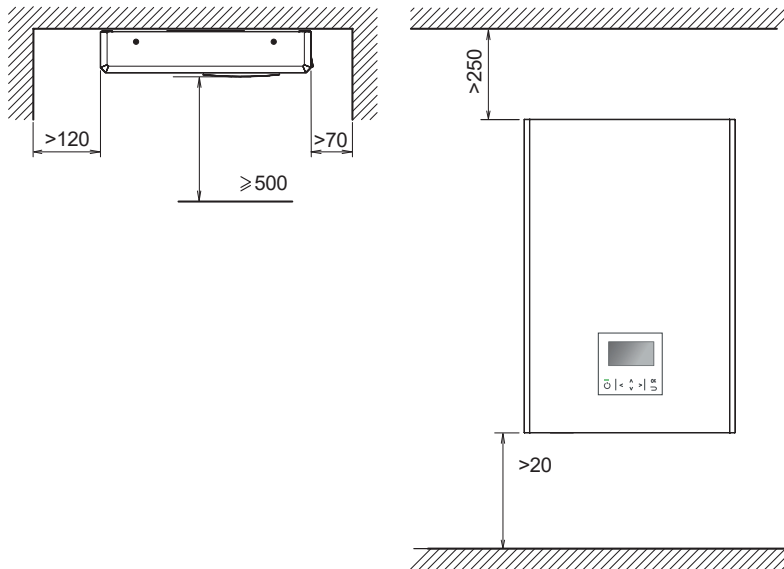
11.4 Name of parts



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)

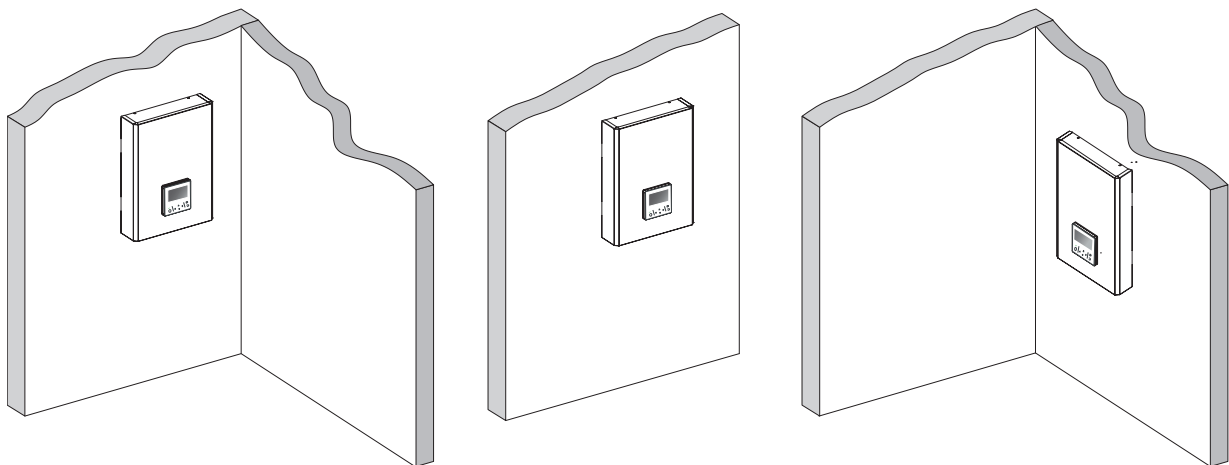
11.5 Service space

Units: mm

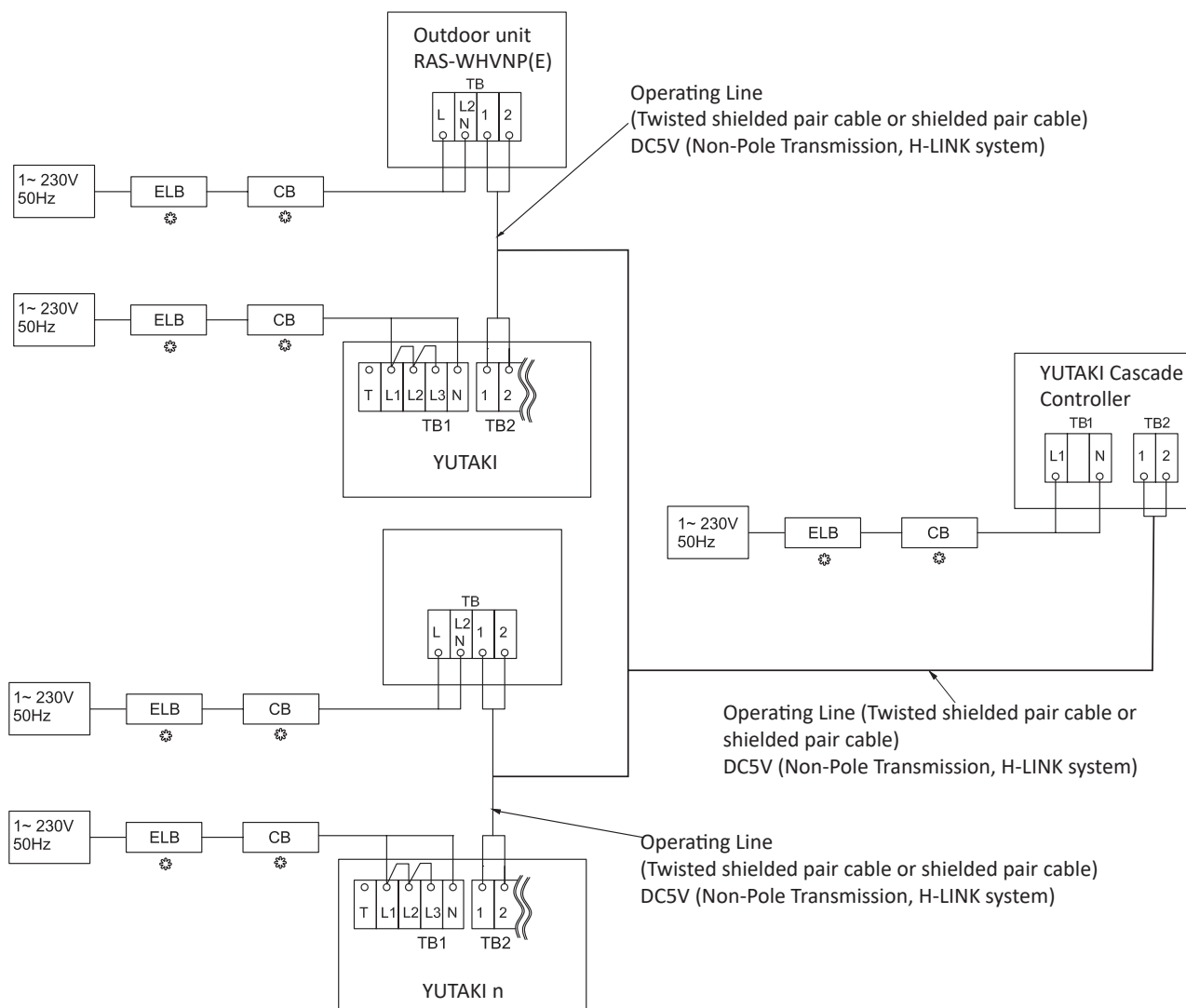


Keep a minimum distance for the installation of cables

Examples for placement



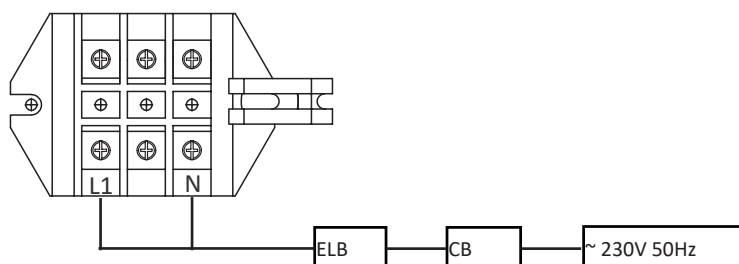
11.6 Electrical wiring



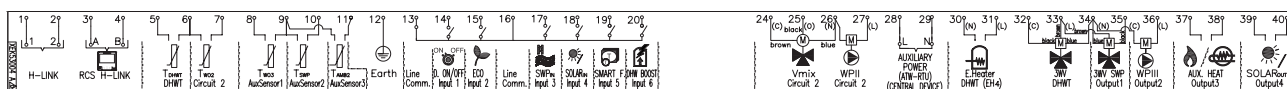
11.7 Transmission wiring

11.7.8 Connections on the Terminal board 1 (TB1)

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



11.7.9 Connections on the Terminal board 2 (TB2)

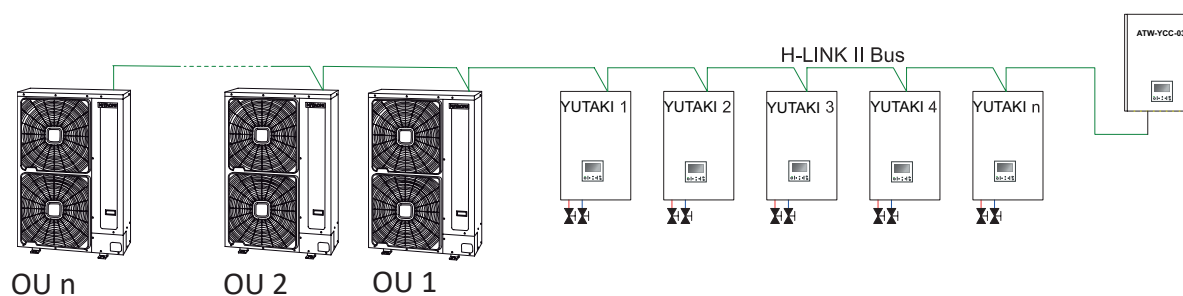


CAUTION

When installing the YUTAKI Cascade Controller (ATW-YCC-03) electrical connections for the control of the system must be done on the terminal board 2 of the YUTAKI Cascade Controller rather than perform those connections on the terminal board of the YUTAKI.

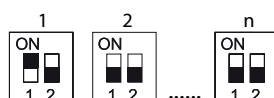
◆ H-LINK connection

The YUTAKI units, YUTAKI 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 YUTAKI and Outdoor units which are controlled by the same YUTAKI Cascade Controller unit must be connected at the same H-LINK II line:

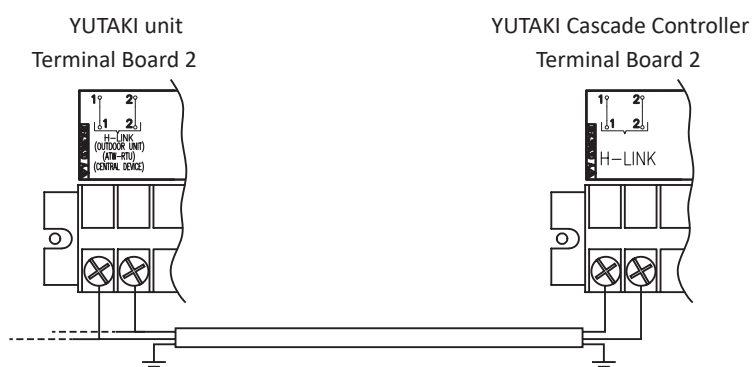


Setting of End Terminal Resistance

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 1000m 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.

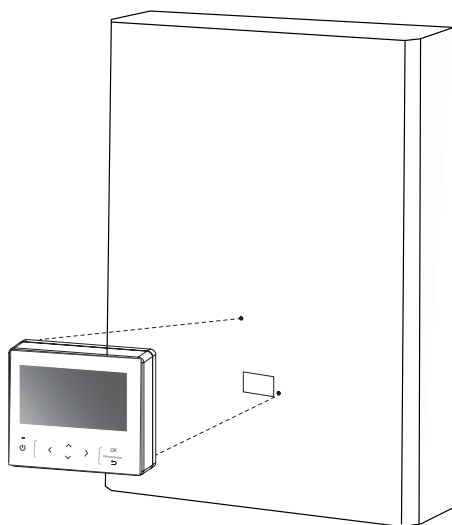
◆ LCD unit controller (PC-ARFH2E) installation and connection

LCD unit controller (PC-ARFH2E) is supplied bundled with the unit as an accessory.

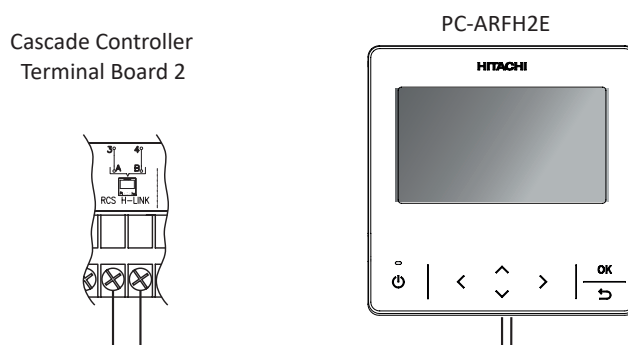
CAUTION

It is mandatory to install the unit controller (PC-ARFH2E) 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-ARFH2E should be done on the terminal board 2 of the YUTAKI Cascade Controller as shown in the next figure:

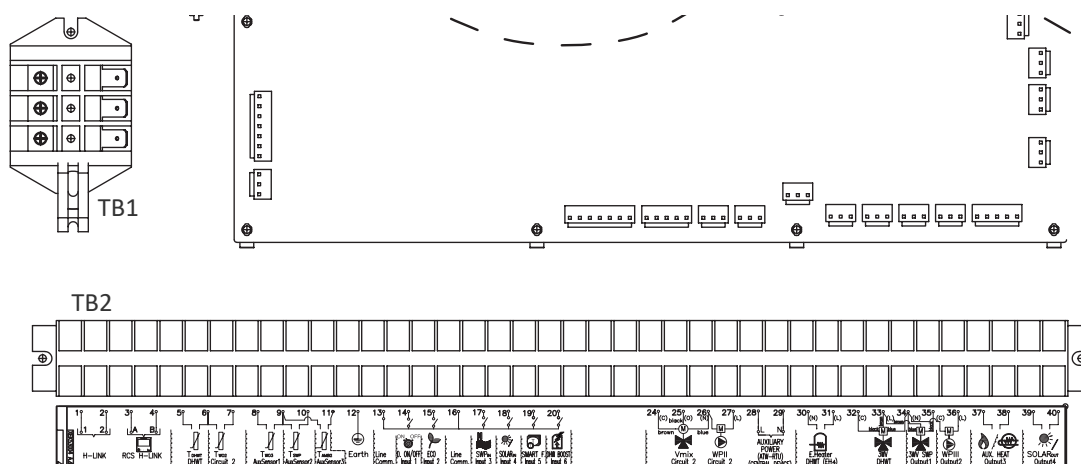


For this purpose, a H-LINK cable (accessory) is necessary.

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

Terminal board	Tightening Torque (N·m/cm ²)
TB1	2.0~2.5
TB2	1.0~1.3

11.7.10 Summary of the terminal board connections for YUTAKI Cascade Controller



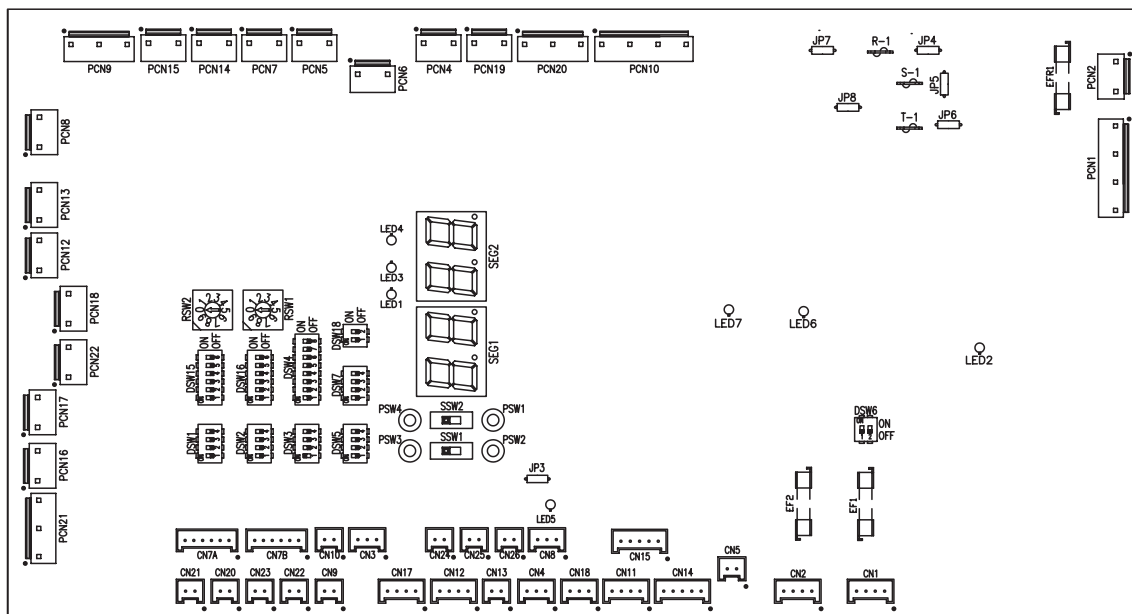
Mark	Part name	Description
TERMINAL BOARD 2 (TB2)		
1	Commutation	Communication between the Cascade Controller and terminals 1-2 of the YUTAKI unit, and additionally ATW-RTU-08/09 (for temperature control) and/or ATW-MBS-02 (only for system monitoring).
2		
3	H-LINK communication for remote control switch	Terminals for the connection of the LCD unit controller (PC-ARFH2E) and Wired Room Thermostat (PC-ARFH2E).
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.
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.

Mark	Part name	Description
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.
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 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)	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 YUTAKI Cascade Controller technical documentation and operation manual for detailed information.

11.7.11 Location of DIP switches and rotary switches



11.7.11.1 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.

11.7.11.2 DSW1

◆ Additional setting 1

DSW1	RWM-(N/R)1E	RWD-(N/R)W1E-220S(-K)	RWH-VNF(W)E	RWH-NF(W)E
Factory setting (*)				
DSW1	RASM-(V)R(1)E	RASM-(V)RW1E	HWM-WE	HWD-WE-220S(-K)
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.

11.7.11.3 DSW2

◆ Unit capacity setting

Setting is required in order to match with the model of the Sub YUTAKI installed.

DSW2	Factory setting
2.0 HP	
2.5 HP	
3.0 HP	
4.0 HP	
5.0 HP	
6.0 HP	

DSW2

Factory setting

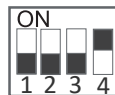
7.0 HP



8.0 HP



10.0 HP



11.7.11.4 DSW3

◆ Additional setting 1

DSW3

Factory setting



1 step heater for 3 phase unit option



11.7.11.5 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.

11.7.11.6 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.	

11.7.11.7 DSW6 (only if available)

◆ Not used

DSW6		All units
Factory setting (do not change)		

11.7.11.8 DSW7

◆ Additional setting 4

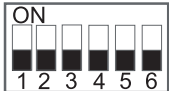
DSW7	
Factory setting	
Compatibility with ATW-RTU-04 (When cooling mode operation is needed)	

11.7.11.9 DSW15 & RSW2

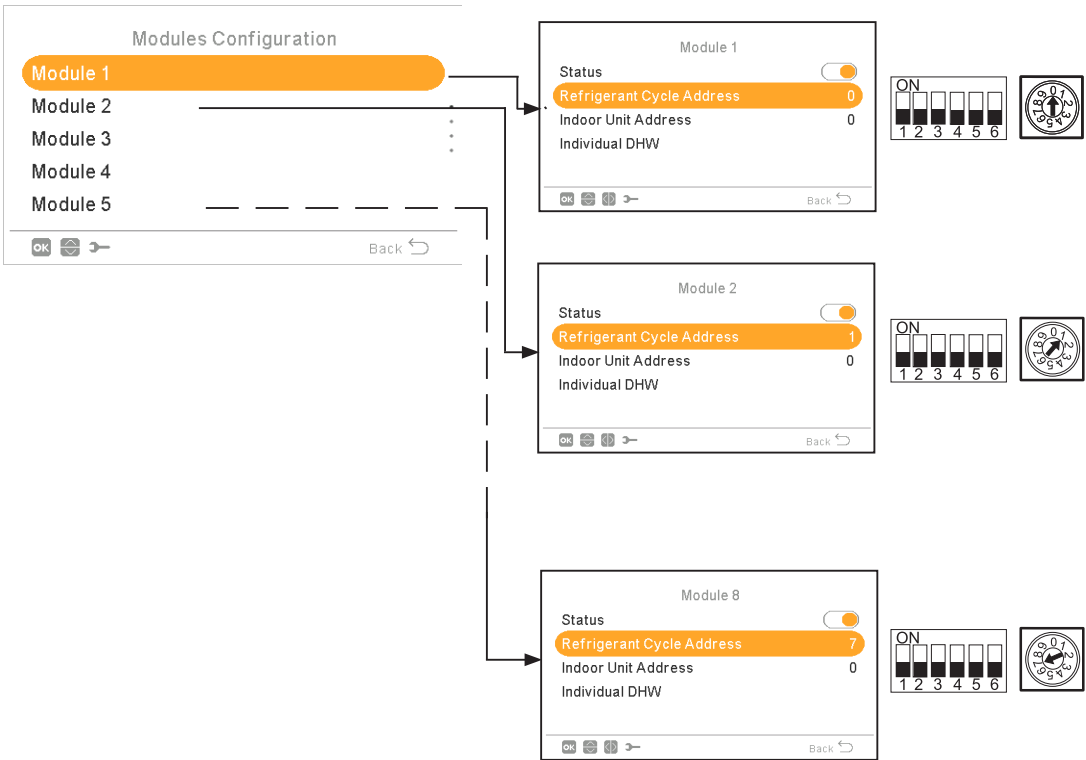
◆ Refrigerant cycle number setting for YUTAKI Cascade Controller

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 is set the same refrigerant cycle number in the LCD remote controller.



11.7.11.10 DSW16 & RSW1

◆ Not used

	DSW16	RSW1
Factory setting		

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

11.7.11.11 SSW1

◆ Remote/Local

SSW1	
Factory setting	Remote
Remote operation	Local(*)

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

11.7.11.12 SSW2

◆ Heat/Cool (when SSW1 is in local setting)

SSW2		
Factory setting	Heat	
Heat operation	Cool(*)	

(*) Don't change this setting, otherwise malfunction will occur.

11.7.11.13 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 Optional functions

11.8.12 Optional functions by Unit controller (PC-ARFH2E)

11.8.12.14 Optional functions for Space Heating or Space Cooling

Optional function	Explanation
Floor screed drying function (Circuits 1 & 2)	This function is used exclusively for the process of drying screed that has been newly applied to floor heating system. The water temperature set-point follows a predetermined schedule upon activation of the floor screed drying function. For more information refer to Water control chapter.
Heating Auto ON/OFF	At higher outside temperatures it doesn't make sense to keep heating the building. The YUTAKI S 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. For more information refer to Service Manual.

Optional function	Explanation
Auto Heat-Cool	Only available for Cooling and Heating models and cooling mode enabled. By using auto summer switch off average, user can use auto heat cool mode. The end-user sets the desired operation mode on the user interface: Heating, Cooling or Automatic. When Automatic is selected, the change of the operation mode is based on: Averaged outdoor temperature: the operation mode will be changed in order to always be within range determined by the space heating OFF temperature for heating and the space cooling ON temperature for cooling. If the outdoor temperature drops, the operation mode switches to heating and vice versa. For more information refer to Service Manual.
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. For more information refer to Service Manual.

11.8.12.15 Optional functions for DHW

Optional function	Explanation
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. For more information refer to Service Manual.
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. For more information refer to Service Manual.
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. For more information refer to Service Manual.
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 TDHWON. 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. For more information refer to Service Manual.

11.8.12.16 Optional functions for Heat pump

Optional function	Explanation
Hydraulic separator combination	In some cases, water pump of the YUTAKI 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 (T_{wo3}) are needed for boiler combination control (automatic added when Boiler combination is enabled). For more information refer to Service Manual.
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. For more information refer to Service Manual.
Electrical heater or boiler emergency mode	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 and the configuration must be done from the Unit controller For more information refer to Service Manual.
Smart Grid ready	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. For more information refer to Service Manual.
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 YUTAKI optional outputs.

11.8.12.17 Optional functions for Unit controller (PC-ARFH2E)

Optional function	Explanation
UTC Zone	UTC Zone: Europe spans 7 primary time zones (5 of them can be seen on the map in this article, while 2 other zones contain the European part of Kazakhstan and some very eastern territories of European Russia). 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.
Holidays	Holidays function is only available for room thermostat view of PC-ARFH2E. Holidays let the user specify a date and hour for the Room Setting to be OFF with the configured setting.

11.8.13 Optional external input/output configuration signals

The system has 7 input and 4 output optional signals (+ 4 output signals when using accessory). The new YUTAKI series allow different ports to be configured for those I/O signals, as well.

The user can configure those input signal to perform different functions from the unit controller. This is briefly explained in the next tables:

Input signals and input ports

Code	Name	Port	Input
1	Input 1	TB2 #13&14	230 V
2	Input 2	TB2 #13&15	230 V
3	Input 3	TB2 #16&17	230 V
4	Input 4	TB2 #16&18	230 V
5	Input 5	TB2 #16&19	230 V
6	Input 6	TB2 #16&20	230 V
7	Input 7	TB2 #16&21	230 V

Input functions (To be configured from the unit controller)

Function #	Input	Description
0	Deactivated	-
1	Demand ON/OFF	Send Demand ON or OFF Operation to Circuit 1 and Circuit 2.
2	Smart Act./SG Ready Input 1	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 of use of Smart Grid Ready application, this input is used as a digital input 2 and allows four different operating modes.
3	Swimming pool	When YUTAKI model is used to warm th swimming pool water, this input is used as a feedback for swimming pool water pump.
4	Solar	In case of combine YUTAKI with solar panels, this input is used as a feedback for solar station ready operation.
5	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.
6	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.
8	Demand ON/OFF C1	Send Demand ON or OFF Operation only to Circuit 1.
9	Demand ON/OFF C2	Send Demand ON or OFF Operation only to Circuit 2.
10	Forced heating	Forced Heating Demand by input of contact signal from outside.
11	Forced cooling	Forced Cooling Demand by input of contact signal from outside.
13	ECO mode C1 & 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.
14	ECO mode C1	Water temperature setting for Circuit 1 it is reduced by ECO operation mode (Default 3°C) by input of contact signal from outside.
15	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.
16	Force OFF	Force OFF operation for unit. RCS will continue as normally set but will show indication that operation is forbidden.
17	SG Ready Input 2	In case of want to use Smart Grid Ready application, this input is used as a digital input 2 and allow four different operating modes.

Output signals and output ports

Code	Name	Port	Output
01	Output 1	TB2 #34 (N) & 35 (L)	230 V
02	Output 2	TB2 #34 (N) & 36 (L)	230 V
03	Output 3	TB2 #37&38	Free voltage signal
04	Output 4	TB2 #39&40	Free voltage signal
05	Output 5	PCN20 #1-2	12Vdc signal
06	Output 6	PCN21 #1-2	12Vdc signal
07	Output 7	PCN22 #1-2	12Vdc signal
08	Output 8	PCN23 #1-2	12Vdc signal

Output functions (To be configured from the unit controller)

Function #	Output	Description
0	Deactivated	-
1	3WV SWP	In case of combine YUTAKI with swimming pool, this output is used to drive 3 way valve swimming pools.
2	WP3	In case of combine YUTAKI with boiler or hydraulic separator, this output is used to drive water pump 3.
3	Boiler combination	In case of combine YUTAKI with boiler, this output is used to switch ON it.
4	Solar pump	In case of combine YUTAKI with solar panel, this output is used to drive water pump station.
5	Alarm signal	Output when an "Alarm Code" is received from Indoor Unit or outdoor unit.
6	Operation signal	Output in case that "Thermo-ON" signal in any condition.
7	Cooling signal	Output in case that "Thermo-ON" signal in Cooling operation.
8	Demand-ON signal circuit 1	Signal is enabled when circuit 1 is operating in Demand-ON.
9	Heating signal	Output in case that "Thermo-ON" signal in Heating operation.
10	DHW signal	Output in case that "Thermo-ON" signal in DHW operation.
11	Solar overheat	Output in case that solar temperature signal is active when solar overheat (only when solar combination status is total control).
12	Defrost	Output if the operation state of the outdoor unit when is defrosting.
13	DHW re-circulation pump	In case of re-circulation pump enabled for HSW tank.
14	Fan 1 Low speed	Output for fan coil speed.
15	Fan 1 Medium speed	Output for fan coil speed.
16	Fan 1 High speed	Output for fan coil speed.

Function #	Output	Description
17	Fan 2 Low speed	Output for fan coil speed.
18	Fan 2 Medium speed	Output for fan coil speed.
19	Fan 2 High speed	Output for fan coil speed.
20	Constant Heat	Output in high state whenever operation mode from Unit controller is in heating mode.
21	Constant cool	Output in high state whenever operation mode from Unit controller is in cooling mode.

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 YUTAKI with swimming pool, this sensor is used to read the temperature from the water of the swimming pool.
3	Solar panel sensor	When combining YUTAKI with solar panels, this sensor is used to read the temperature from the solar panel.
4	Zone 1 & 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.



Hitachi certifies that our products have met EU consumer safety, health and environmental requirements.



ER-0198/1996



GA-1999/0044

Johnson Controls-Hitachi Air Conditioning Spain, S.A.U. is certified with:
ISO 9001 of AENOR, Spain for its Quality Management accordance with the standard.
ISO 14001 of AENOR Spain for its Environmental Management systems accordance with the standard.



JQA-1084



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ISO 14001 of JACO, Japan for its Environmental Management accordance with the standard.



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Cooling & Heating

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