LG
Life's Good

LG Electronics
Commercial Air Conditioning

128, Yeoui-daero, Yeongdeungpo-gu, Seoul, Republic of Korea
www.lg.com http://partner.lge.com http://www.lgethermav.com

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Iris Hellas
Technology Innovations
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HEATING SOLUTION

APPLICATION BOOK

HEATING SOLUTION

APPLICATION BOOK

LG
Life's Good

Dear Spec-in Engineer & Designer ( )

LG Electronics Air Solution Business Unit is a provider of total HVAC and energy solutions.
The company offers a broad portfolio of air conditioners and heating products that are compatible with any building anywhere, including compact residences, towering Skyscrapers, massive factories and giant concert halls.

The company has steadily increased its sales and market share by introducing energy efficient and reliable HVAC solutions and actively pursuing new opportunities wherever they arise.

This is a complimentary material for A/C installers, plumbers and designers

Essential and frequently referenced information is introduced in this material.
We hope that you lead design processes and product purchases referring to this guide.

For more information, please visit us at www.partner.lge.com

Thank you.

Contents

Welcome to LG application book which is designed to help you decide which LG model is best suited to customer's needs. Through this book, you will learn about application cases, product information, wiring, and checklists.

What is Modern Heat pump ?
How to use this book ?

Please read this guide completely before installing the product.
Installation work must be performed in accordance with the national wiring standards by authorized personnel only.
Please retain this guide for future reference after reading it thoroughly.

What is Modern Heat Pump System?

Introduction

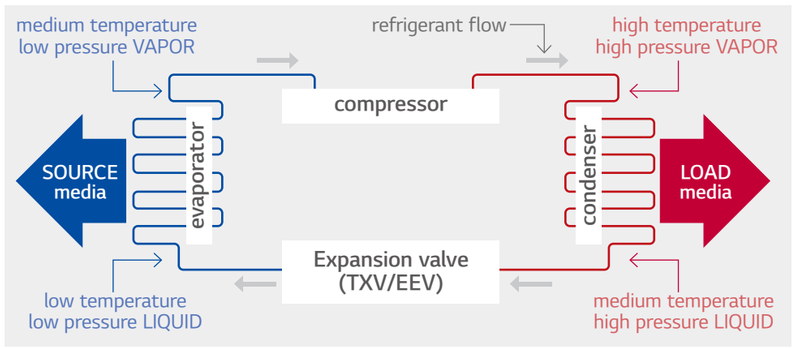
Domestic, commercial hot water and heating systems have been used for a long time, employing gas, oil, or electric heaters. Also, as a cooling system, heat pumps using air as a heat source has recently expanded from a large centralized facility such as a chiller to a building system in a short period of time.
In existing systems, there is a lack of environmentally friendly aspects such as an infrastructure system for fuel supply, a space for storing fuel, and environmental pollution. In recent years, with the requirements for high efficiency and environmentally friendly equipment, the technological advances of the manufacturer's heat pumps have provided a driving force for changes in energy consumption.

What is Heat Pump?

The heat pump is a device that convert low temperature heat to high temperature using two heat exchangers, a condenser and an evaporator. The refrigerant circulates through the medium to transfer heat energy. During cooling operation, the indoor heat is absorbed and discharged to the outside And when the heating operation is performed, the outdoor heat is absorbed and the heat is released to the room.

Refrigeration Cycle

The refrigerant cycle is a vapor compression process. The main components are a compressor, a condenser, an expansion device, and an evaporator. A 4Way valve is additionally installed to switch between the heating and cooling operations. In case of cooling operation, the high-temperature and pressure gas refrigerant driven by the compressor is converted into a liquid refrigerant through the condensation process and becomes a low-temperature and pressure liquid refrigerant through the expansion valve.
The heat is absorbed through the evaporator and circulated back to the compressor in a state of low-temperature low-pressure gas refrigerant Categories of Heat pump.



[Major components]

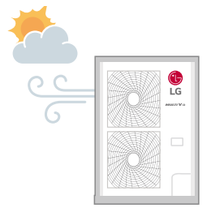
- Compressor
- Condenser
- Expansion device (EEV)
- Evaporator
- 4Way valve

Categories of Heat pump

Heat pumps can be classified according to the sources from which heat is absorbed and dissipated as follow:
If the heat source is air, it is an air source. If it is water, it is a water source. If it is geothermal, it is a ground source heat pump.

ASHP

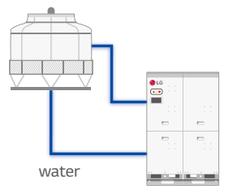
Air Source Heat Pump



- Air to Air : MULTI V series (VRF), Multi, Single CAC, Single Package, GHP
- Air to Water : THERMA V, Hydro Kit, etc.

WSHP

Water Source Heat Pump

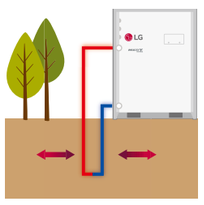


- Water to Air : MULTI V Water series (VRF)
- Water to Water : Inverter Scroll Chiller heat pump, Chiller products

※ Centrifugal Chiller, Screw Chiller, Absorption Chiller, Scroll Chiller

GSHP

Ground Source Heat Pump



- Ground to Air : MULTI V Water series (VRF)
- Ground to Water : Inverter Scroll Chiller heat pump, Chiller products

How to use this book?

Welcome to LG Heating Application guide which is designed to help you decide **which LG model is best suited to your renewable and high-efficient heating solution based on your customer requirements.**

Key Requirements

1. Building-side

- Building specifications
- Heating system specifications

2. Customer-side

Residential Applications

1. Heating only by heat pump
2. Heating and domestic hot water by heat pump
3. Heating and cooling by heat pump
4. Heating system combined the boiler
5. Heating with solar system

Commercial Applications

1. Cooling and hot water
2. Heating and Cooling by heat pump
3. Thermal storage system by heat pump
4. Heating system combined cassette unit

LG Product Information for Commercial Use

Multi V / Hydro Kit

Inverter scroll Chiller heat pump

LG Products Information for Residential Use

THERMA V / Multi V S

DHW Integrated

Controller & Others

1. Controllers
2. External devices
3. Tank

Check list

1. Installation for refrigerant side
2. Installation for water side
3. Installation for electric side

Solar & ESS (Energy storage system)

1. Line up
2. Specification

Key Requirements

1. Building-side
- Building specifications
- Heating System specifications

2. Customer-side
- Heating Requirements
- Functional Requirements

Key Requirements

BUILDING-SIDE

Buildings can be largely divided into residential and commercial buildings based on their purpose.
In order to propose an optimal heating solution that meets the requirements of the site, it is necessary to know in advance the building's and heating specifications in detail.

Building Specifications

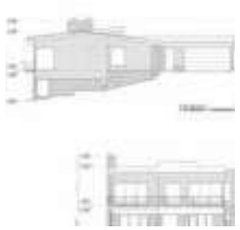
- Building type: Residential / Commercial
- Project type: New building / Replacement or Renovation
- Building and energy regulation / policy
- Building drawing: Building architects and dimensions

Heating System Specifications

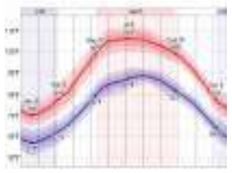
- Available energy source: Oil, Gas, Pellet, Electric, etc.
- Calculated Heat Loss which depends on building design and the weather conditions: For renovation or replacement, existing system's specifications such as radiator and floor heating help to calculate heat loss more accurately.
- Expected operating cost: The operating time of system is used for accurate energy cost calculation.
- The temperature and humidity standard required for the living space

Regulations / Incentives

- Mandatory HVAC design / Duty ratio with heat pump system
- Requirements for receiving government grants and incentives



[Architecture information]



[Weather data]

CUSTOMER-SIDE

Recent heating systems became more and more energy-efficient, but in order to prove the energy performance that the system guarantees, you must consider actual customers' usage patterns. In a viewpoint of energy efficiency, comfort, and convenience, you must understand customers' requirements in detail before designing the system so that they can operate the heating system more efficiently and smartly.

Heating Requirements

- Desired heating and cooling temperature to maximize a comfortability of indoor environment
- Desired hot water temperature and maximum hot water usage volume per hour
- Preferred heat emitter (Radiator, Underfloor heating, and FCU)
- Additional heat loads: Swimming pool, thermal storage, snow and ice melting, etc.

Functional Requirements

- Low noise, small size, and simple & easy piping
- Zoning control of indoor temperature for heating
- Integrated and remote control and management for 'Smart home' service
- Energy performance monitoring (wired or wireless data tracking based on IoT)

[Floor heating]

[FCU]

[Radiator]

[Hot water]

Line up for water heat pump

[Air to Water Heat Pump]

※ (Heating Capa.)

System		Water Temperature (C/H)	Refrigerant	Power	Capacity (kW)							
					5	7	9	12	14	16	25	32
Therma V Monobloc 		5℃ / 65℃	R32	1ø 220V	● 5.5 (5.5)	● 7.0 (7.0)	● 9.0 (9.0)	● 12.0 (12.0)	● 14.0 (14.0)	● 16.0 (16.0)		
				3ø 380V				● 12.0 (12.0)	● 14.0 (14.0)	● 16.0 (16.0)		
Therma V Spilt  	Hydro Box Type	5℃ / 57℃	R410A	1ø 220V	● 5.0 (5.0)	● 7.0 (7.0)	● 9.0 (9.0)	● 10.4 (12.0)	● 12.0 (14.0)	● 13.0 (16.0)		
				3ø 380V				● 10.4 (12.0)	● 12.0 (14.0)	● 13.0 (16.0)		
	DHW Tank Integrated	7℃ / 58℃		1ø 220V			● 9.0 (9.0)	● 10.4 (12.0)	● 11.0 (14.0)	● 12.0 (16.0)		
				3ø 380V				● 10.4 (12.0)	● 11.0 (14.0)	● 12.0 (16.0)		
Therma V High temp 	High Temp (Heating only) 	80℃	R410A + R134a	1ø 220V						● (16.0)		
Multi V / S 	Mid temp 	5℃ / 50℃	R410A	1ø 220V				● 12.3 (13.8)			● 28 (31.5)	
	High Temp (Heating only) 	80℃	R410A + R134a	1ø 220V					● (13.8)		● (25.2)	

[Inverter Scroll Chiller Heat Pump]

System	Water Temperature (C/H)	Refrigerant	Power	Capacity (kW)							
				65	74	114	130	148	171	195	222
Inverter scroll Chiller Heat pump	5℃ / 55℃	R410A	3ø 380V	● 65 (70.3) 	● 74 (82)	● 114 (120)	● 130 (140.6) 	● 148 (164)	● 171 (180)	● 195 (210.9) 	● 222 (246)

※ line-up can be changeable

Residential Applications

1. Heating Only by Heat Pump
2. Heating and Domestic Hot Water by Heat Pump
3. Heating and Cooling by Heat Pump
4. Heating System Combined with the Boiler
5. Heating with Solar System

Residential Applications

APPLICATION OVERVIEW FOR RESIDENCE

As a heating / cooling system for domestic and light commercial buildings, the following products offer advantages such as environmentally friendly and a cost efficient operation. In addition, various degrees of design freedom and design of various application systems are possible. Inverter scroll Compressor and heat pump system using air as heat source enables stable operation and implement high performance with great efficiency A +++.
(*R32 Monobloc)

THERMA V - R32 Monobloc

Capacity range : 1P 5/7/9/12/14/16 kW
3P 12/14/16 kW

- Supply water up to 65℃ for heating
- Supply water up to 5℃ for cooling
- Radiant system design
- Space heating/cooling design with FCU
- Hot water system
- Water components included
- No refrigerant piping work

THERMA V - Split

Capacity range : 1P 5/7/9/12/14/16 kW
3P 12/14/16 kW

- Supply water up to 57℃ for heating
- Supply water up to 5℃ for cooling
- Radiant system design
- Space heating/cooling design with FCU
- Hot water system
- Water components included

THERMA V - High temp

Capacity range (Single) : Outdoor 1P 16 kW
Indoor 1P 16 kW

- Supply water up to 80℃ for High temp heating
- Radiant system design
- Space heating/cooling design with FCU
- Hot water system

MULTI V S + Hydro Kit

Capacity range (Outdoor):
- Heat pump
1P 12.5/15/16/18 kW
3P 12.5/16/18/24.5/30.6/36.7 kW
- Heat recovery
1P 15.5/18 kW (C/H)

- Supply water up to 50℃ for heating
- Supply water up to 5℃ for cooling
- Supply water up to 80℃ for High temp heating
- Radiant system design
- Space heating/cooling design with FCU
- Hot water system

DHW Integrated

Capacity range: 1P 9/12/14/16 kW
3P 12/14/16 kW

- Supply water up to 58℃ for heating
- Supply water up to 7℃ for cooling
- Integrated water tank (All in one)
- Radiant system design
- Space heating design with FCU
- Hot water system

Available Emitter

- **Radiator / Convector**
- **Underfloor heating**
- **FCU**

Radiator | Convector | FCU | Floor heating | Hot water

Residential Applications

HEATING ONLY
BY HEAT PUMP

Available Product

- THERMA V™ - R32 Monobloc
- THERMA V™ - Split
- MULTI V™ S + Hydro Kit
- DHW Integrated

Design Purpose

• To control heating the indoor space by sensing room air temperature.

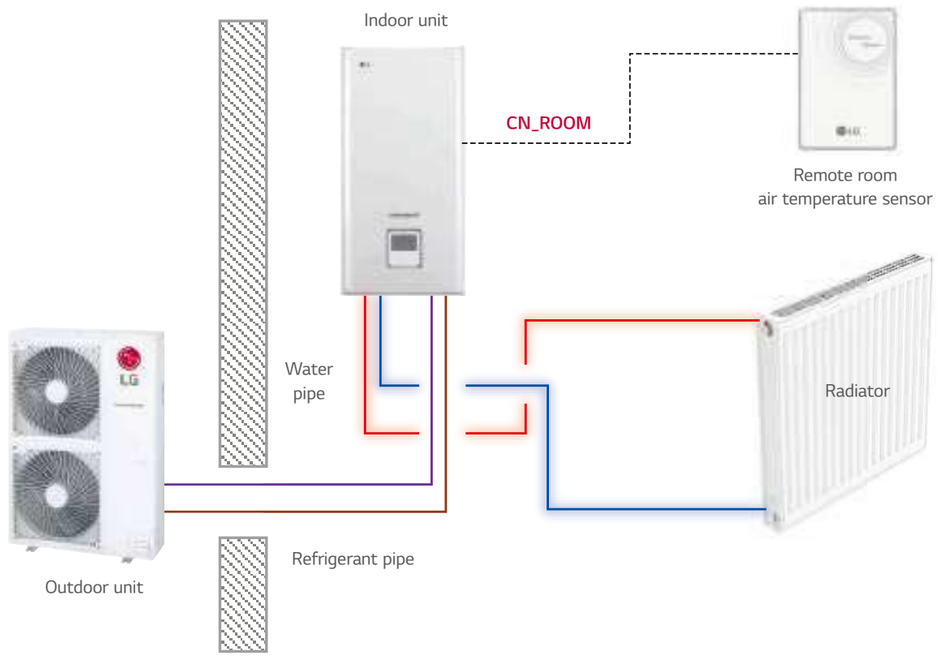
Preparation

• Remote room air temperature sensor (Accessory, Field scope) for Split, Multi V S

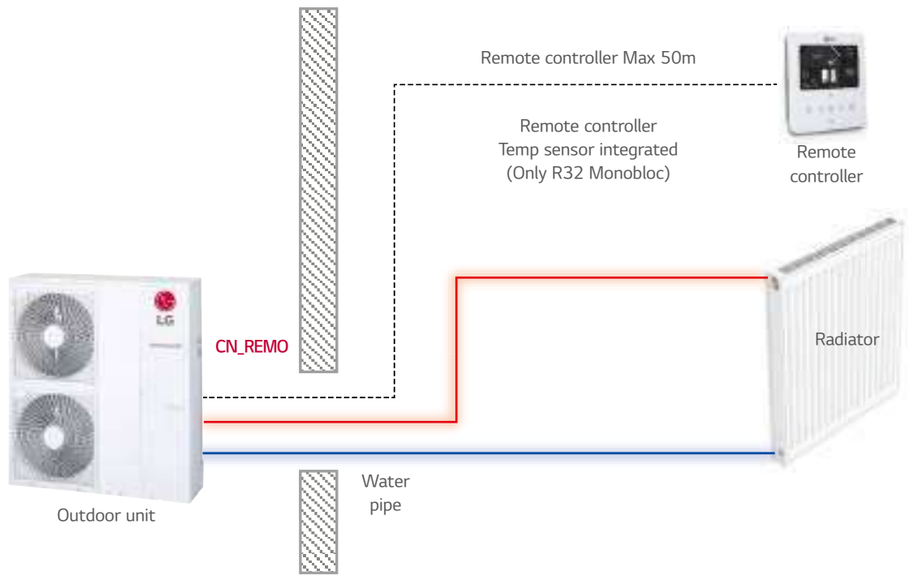
Remote Temp Sensor (Accessory)

Model name	Feature
Remote Room Air Temperature Sensor (PQRSTA0) 	• Sensor for detecting the room air temperature • Max. wire length : 15m

Therma V Split, Multi V S



R32 Monobloc



Residential Applications

HEATING ONLY
BY HEAT PUMP

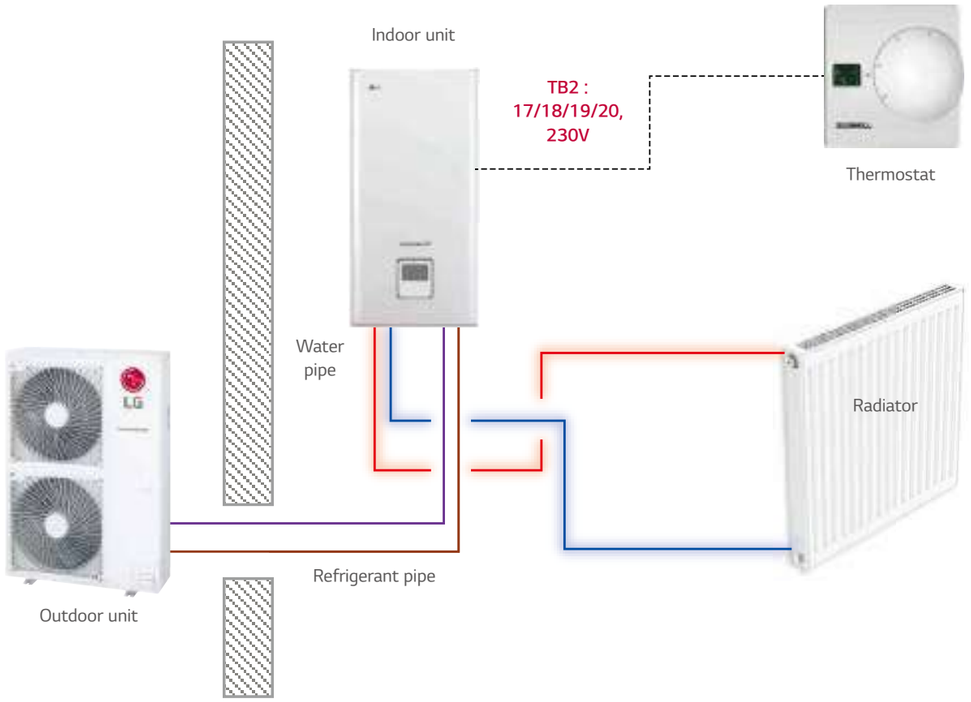
1. Air temp sensor | **2. Thermostat** | 3. Dry contact | 4. External pump | 5. 2 zone temp

Available Product

- THERMA V™ - R32 Monobloc
- THERMA V™ - Split
- MULTI V™ S + Hydro Kit
- DHW Integrated

Design Purpose

• In this design, thermostat can control product on/off status and mode change.



Preparation

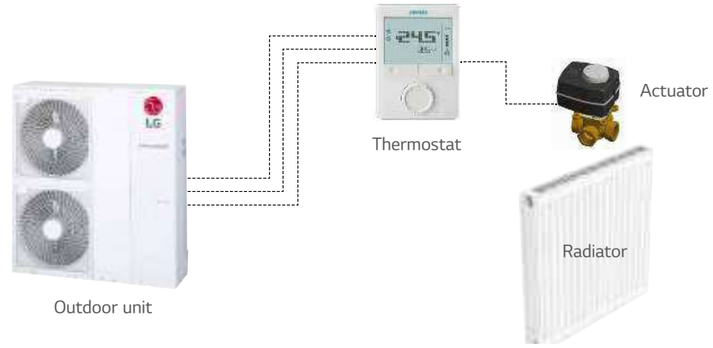
• Thermostat (Field scope)
• BMS (Field scope)

Thermostat (Accessory)

Model name	Feature
Thermostat (3rd Party)	• 230V AC Signal • Mode : Cooling / Heating

※ Not applicable for wireless thermostat

Application



※ Not applicable for wireless thermostat

Wiring

17	18	19	20
L	N	L1	L2
THERMOSTAT (Default : 230 V AC)			

(L) (N) (C) (H)

Thermostat

(L) : Live signal from outdoor unit's PCB to thermostat
(N) : Neutral signal from outdoor unit's PCB to thermostat
(C) : Cooling signal from thermostat to outdoor unit's PCB
(H) : Heating signal from thermostat to outdoor unit's PCB

Residential Applications

HEATING ONLY
BY HEAT PUMP

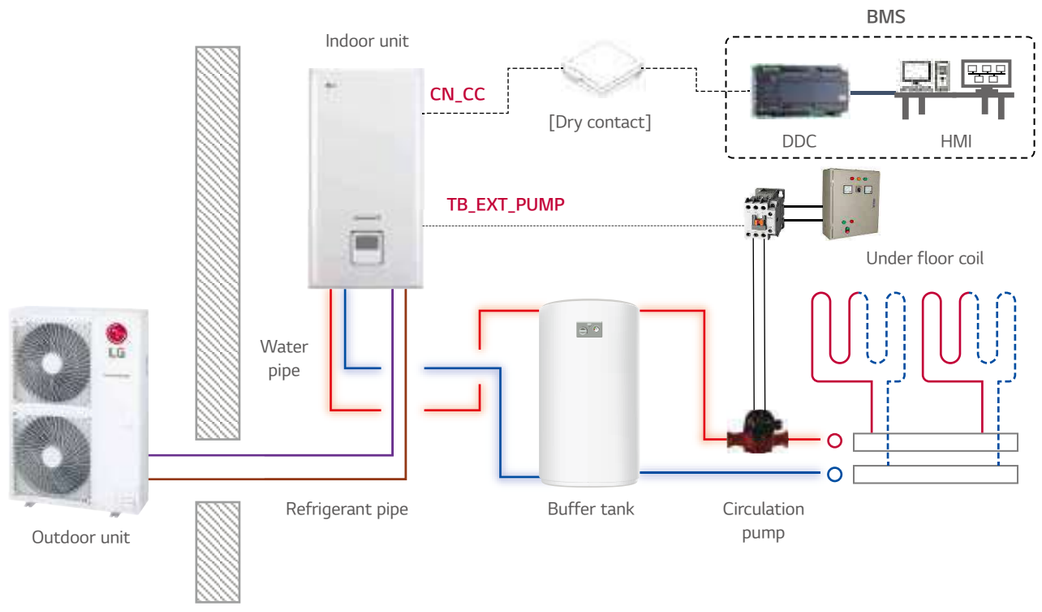
1. Air temp sensor | 2. Thermostat | **3. Dry contact** | 4. External pump | 5. 2 zone temp

Available Product

- THERMA V™ - Monobloc
- THERMA V™ - Split
- MULTI V™ S + Hydro Kit

Design Purpose

• In this design, a dry contact is used to channel communications between the third party DDC and our product.



Preparation

• Dry contact (Accessory, Field scope)
• BMS (Filed scope)

Dry contact (Accessory)

Model name	Feature
Simple Dry Contact (PDRYCB000) 	• 1 set per 1 unit • 1 input contact for turning on/off • Input power : 220-240 V • 2 output contacts - Operation status - Error status
Dry Contact for Thermostat (PDRYCB300) 	• 1 set per 1 unit • Non voltage or 12 ~ 24 V • 8 input Contacts for thermostat - On/Off, Operation mode, DHW heating - Emergency mode, Silent mode • 2 output contacts - Operation status - Error status

Residential Applications

HEATING ONLY
BY HEAT PUMP

1. Air temp sensor | 2. Thermostat | 3. Dry contact | **4. External pump** | 5. 2 zone temp

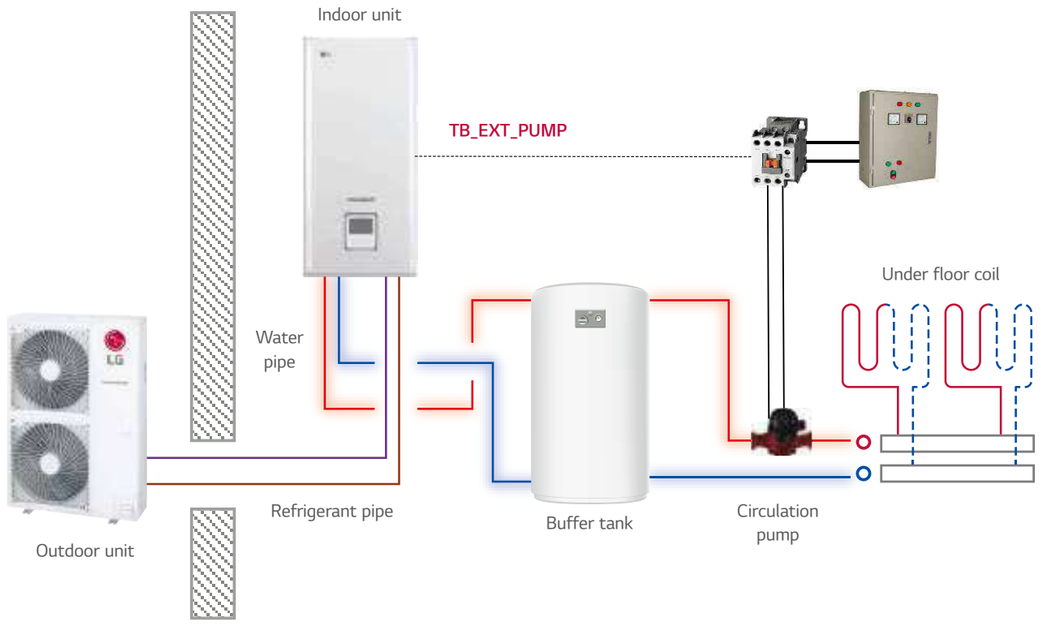
Available Product

- THERMA V - R32 Monobloc
- THERMA V - Split
- MULTI V S + Hydro Kit
- DHW Integrated

Design Purpose

- If auxiliary circulation pump is required (with Buffer tank)
- Additional pump connection control due to big pressure drop of terminal unit

Therma V (Split, R32 Monobloc)



Preparation

- External pump (Field scope)
- Magnet/relay, MCC (Field scope)

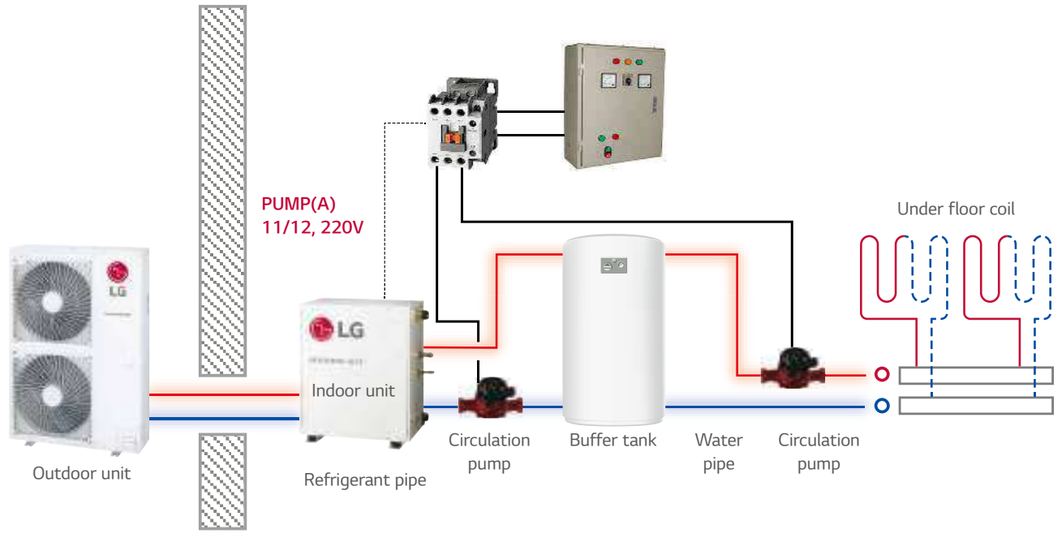
External pump (Signal)

Model Name	Feature
Therma V Split, R32 Mono	• Contact Signal
Hydro Kit	• 220V AC Output
DHW Integrated	• 220V AC Output

Field scope

- External pump
- MCC
- Relay/Magnet

Multi V S



Residential Applications

HEATING ONLY
BY HEAT PUMP

1. Air temp sensor | 2. Thermostat | 3. Dry contact | 4. External pump | **5. 2 zone temp**

Available Product

THERMA V - Monobloc

THERMA V - Split

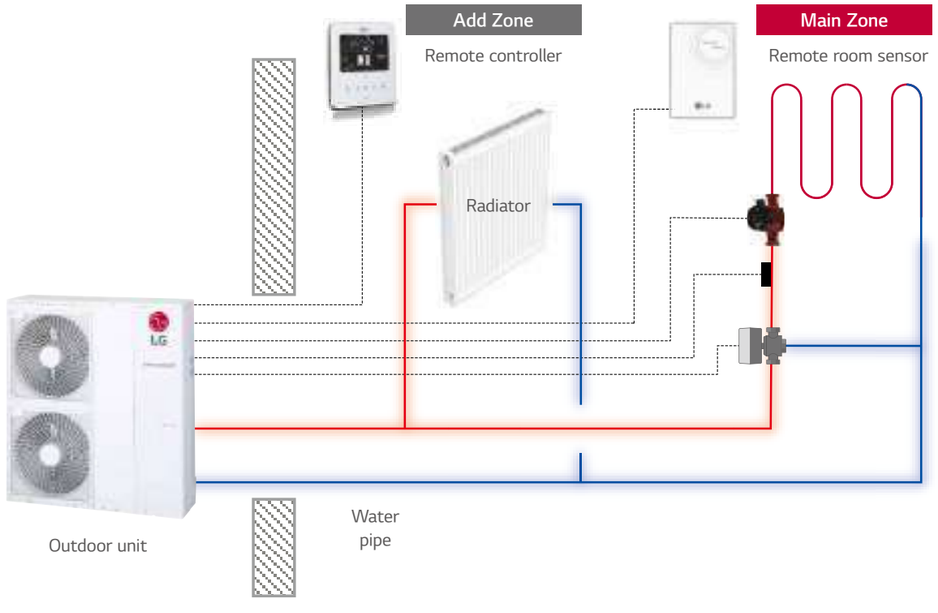
MULTI V S + Hydro Kit

Design Purpose

• If there is a need to design two different set temperatures for two zones, the main zone will have the remote room sensor, and the other zone will have the remote controller.

Preparation

• Mix pump (Field scope)
• 3Way mixing valve (Field scope)



Control

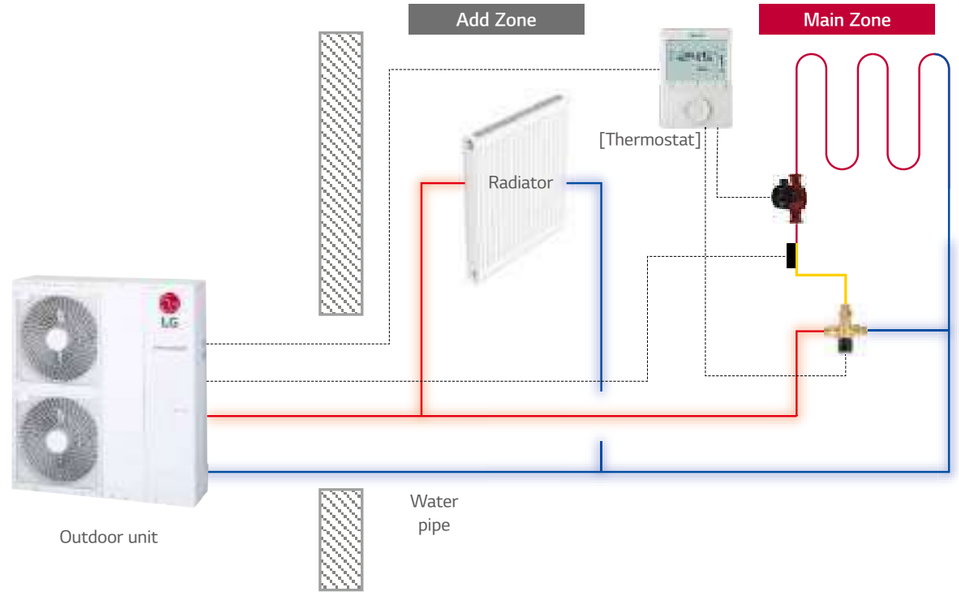
• Main zone : Mixed zone, lower temperature than Add zone
• Add zone : High temperature zone
• The temperature of the main zone is controlled by the mixing valve.
• The temperature of the main zone can be adjusted below the Add zone temperature
  - Available with temp sensor

2 zone temp (Accessory)

Model name	Feature
Mix Temp Sensor (PRSTAT5K10)	• Accessory (5kΩ Thermistor), 10m
Mix Pump	• Field scope • 220V Output Signal from PCB
3Way Mixing Valve 	• Field scope • 220V Input Signal • Full open time Max. 240sec

Application

• Different temperature zone is available using thermostat valve



Residential Applications

HEATING AND DHW BY HEAT PUMP

Available Product

- THERMA V - Monobloc
- THERMA V - Split
- MULTI V S + Hydro Kit
- DHW Integrated

Design Purpose

• This application is designed for hot water supply.

Preparation

• Temp sensor (Accessory, Field scope)

Low Temp Product

• Therma V Split
• DHW integrated

Mid Temp Product

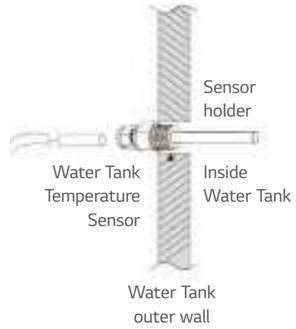
• R32 monobloc
• Multi V S

High Temp Product

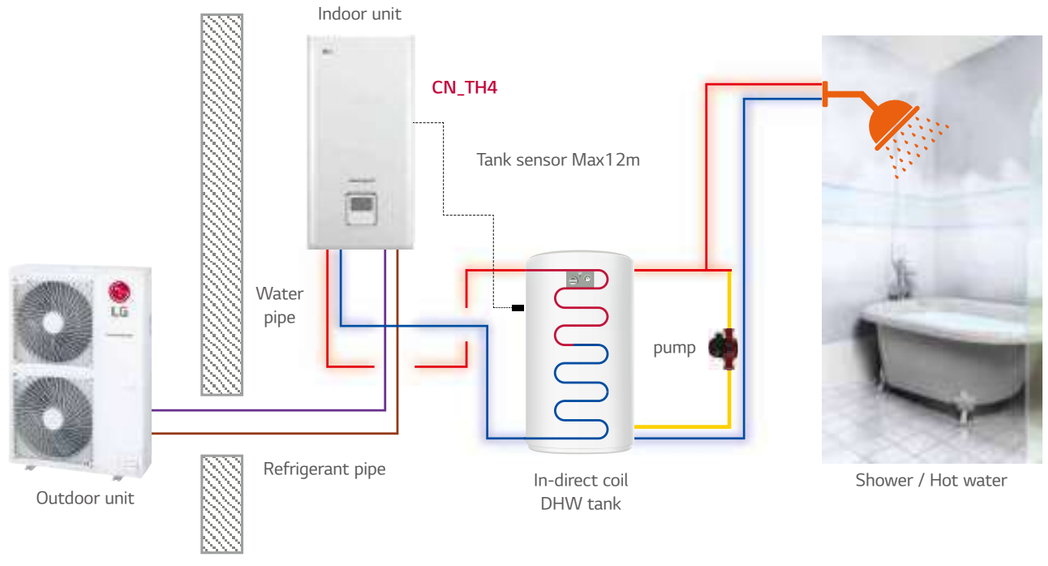
• Multi V S + High temp Hydro Kit

Accessory

Model name	Feature
DHW Kit (Relay, Sensor, Holder)	• Accessory PHLTA (Split 1p) PHLTB (Mono) PHLTC (Split 3p)
DHW Temp Sensor (PHRSTA0)	• Accessory • 5kΩ, 7PI, 12m
DHW Sensor Holder	• Field scope



Therma V Split



Residential Applications

HEATING AND DHW BY HEAT PUMP

Available Product

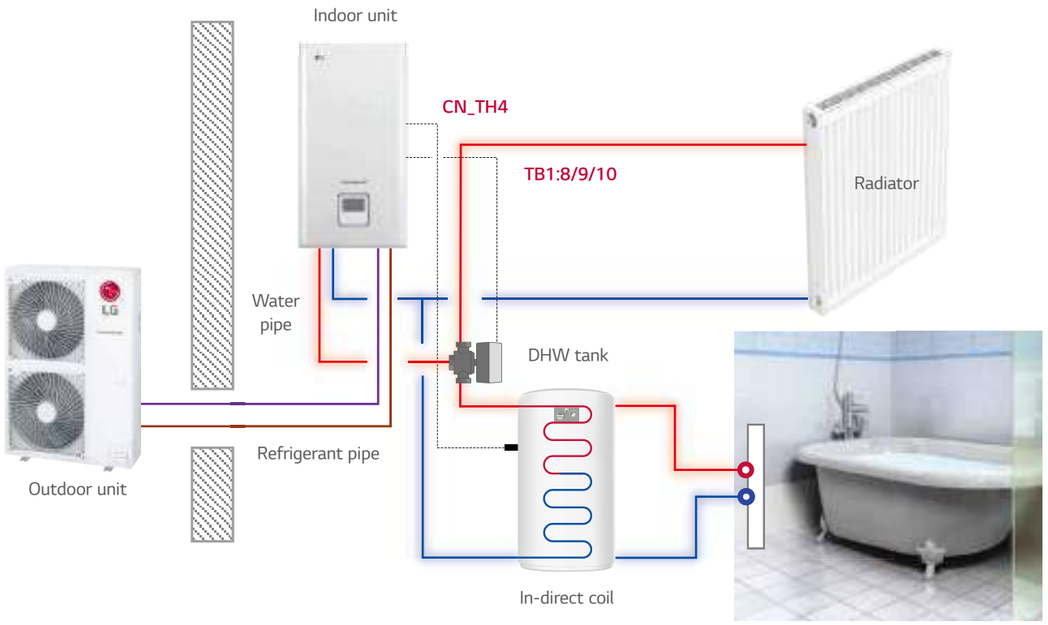
THERMA V - Monobloc

THERMA V - Split

MULTI V S + Hydro Kit

Design Purpose

• This design employs a 3Way valve to switch between hot water supply and floor heating operations.

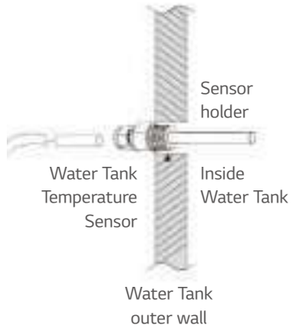


Preparation

• Temp sensor (Accessory, Field scope)

Accessory

Model name	Feature
DHW Kit (Relay, Sensor, Holder)	• Accessory PHLTA (Split 1p) PHLTB (Mono) PHLTC (Split 3p)
DHW Temp Sensor (PHRSTA0)	• Accessory • 5kΩ, 7Pl, 12m
DHW Sensor Holder	• Accessory
3Way Valve	• Field scope • AC 220V signal from PCB



Ex) 3Way valve (Field Scope)

Voltage	230 V (±10%) - 50–60 Hz
Protection class	IP42
Operating time (angle of rotation 90°)	40 s
Temperature	-40 ~ 70°C

Residential Applications

HEATING AND DHW
BY HEAT PUMP

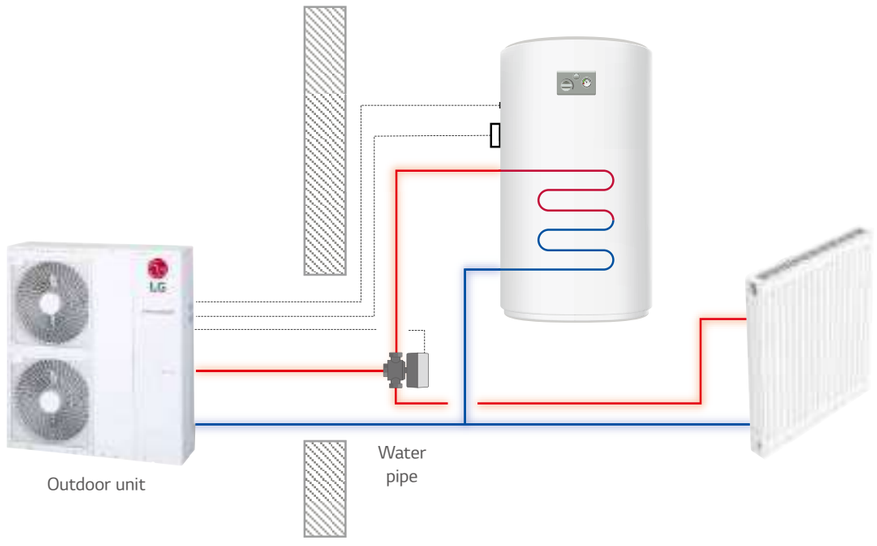
Available Product

- THERMA V - Monobloc
- THERMA V - Split
- MULTI V S + Hydro Kit
- DHW Integrated

Design Purpose

• In this design, in case high hot water temperature is needed, an auxiliary electric heater is required.

Therma V Split, R32 Mono



Preparation

• Tank kit (Accessory, Field scope)
• 3Way valve (Field scope)

Accessory

Model name	Feature
DHW Kit (Relay, Sensor, Holder)	• Accessory PHLTA (Split 1p) PHLTB (Mono) PHLTC (Split 3p)
DHW Temp Sensor (PHRSTA0)	• Accessory • 5kΩ, 7PI, 12m
DHW Sensor Holder	• Field scope
3Way Valve	• Field scope • AC 220V signal from PCB

* Need to purchase a DHW tank equipped with an electric heater. an electric heater integrated DHW tank.


Heater element


DHW Tank
Hot Water Tank

Ex) 3Way valve (Field Scope)

Voltage	230 V (±10%) - 50–60 Hz
Protection class	IP42
Operating time (angle of rotation 90°)	40 s
Temperature	-40 ~ 70°C

Residential Applications

HEATING & COOLING BY HEAT PUMP

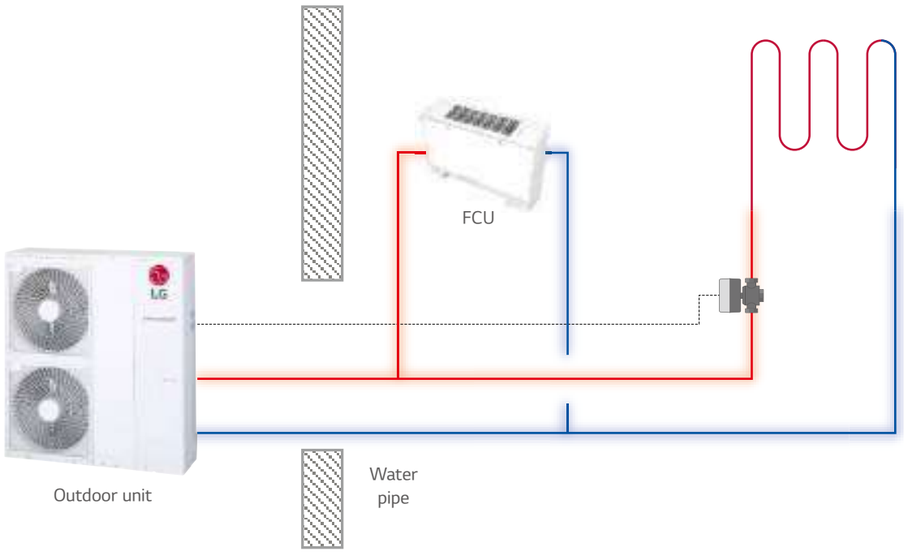
Available Product

- THERMA V - Monobloc
- THERMA V - Split
- MULTI V S + Hydro Kit
- DHW Integrated

Design Purpose

• If fan coil unit and underfloor coil are installed in the same system, a 2Way valve is used to prevent underfloor side condensation during cooling

Conceptual diagram : FCU, UFC – Heating mode (Winter)
FCU – Cooling mode (Summer) by 2Way valve operation



Preparation

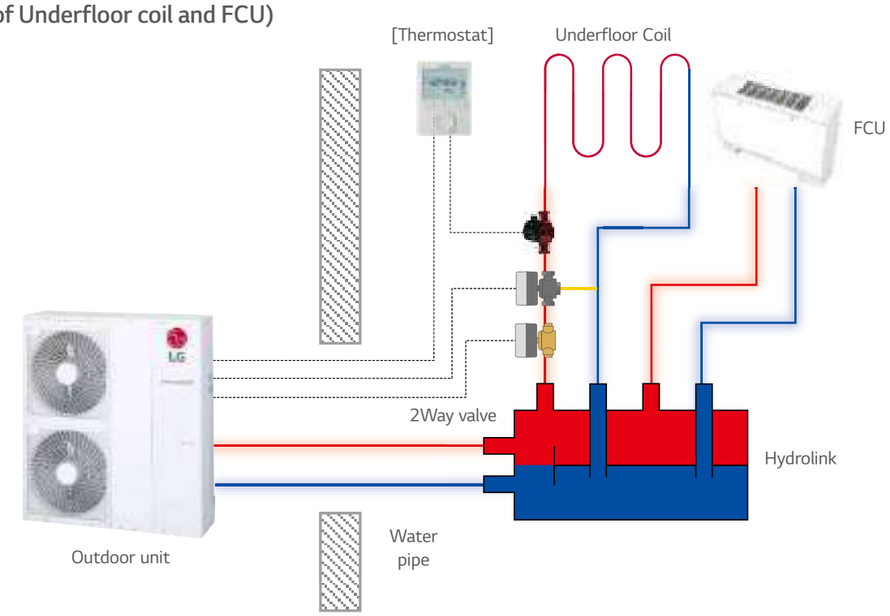
• 2Way valve (Field scope)

Voltage	220-240V, 50Hz
Protection class	IP20
Starting position	normally closed
Temperature	-40 ~ 65°C

Accessory

Model Name	Feature
2Way Valve	• Field scope • AC 220V signal from PCB

Application
(Combination of Underfloor coil and FCU)



Residential Applications

HEATING SYSTEM COMBINED WITH THE BOILER

Available Product

THERMA V - Monobloc

THERMA V - Split

DHW Integrated

Design Purpose

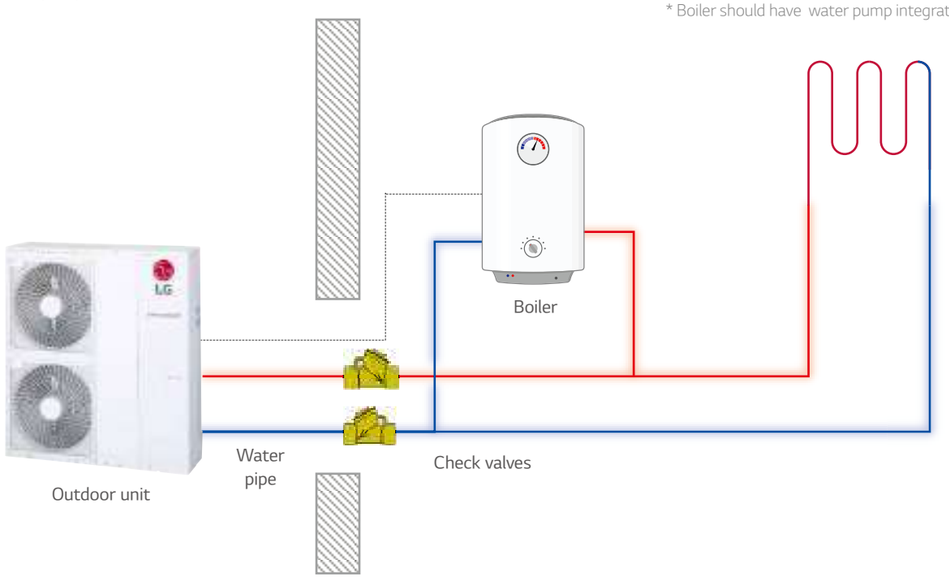
- Insufficient capacity due to the decrease of ambient temperature in winter
- When the temperature operation range of the heat pump in winter is frequently exceeded

Preparation

- Auxiliary boiler (Field scope)
- Shut off valves (Field scope)
- Check valve (Field scope)

Therma V Split, R32 Mono

* Boiler should have water pump integrated



Accessory

Model Name	Feature
Auxiliary boiler	• Field scope • Contact signal from PCB

Logic

• The boiler operation has 2 modes (Manual, Auto). In case of automatic operation, it operates according to set temperature
It is used for heating assistant and for preventing freeze when heater is not installed.

Operation Mode	Control	
Manual	Run / Stop	
Auto	Ambient Temp.	-25 ~ 25℃ (Default : -7℃)

* No feedback
* When 3rd boiler on, Heat pump stop

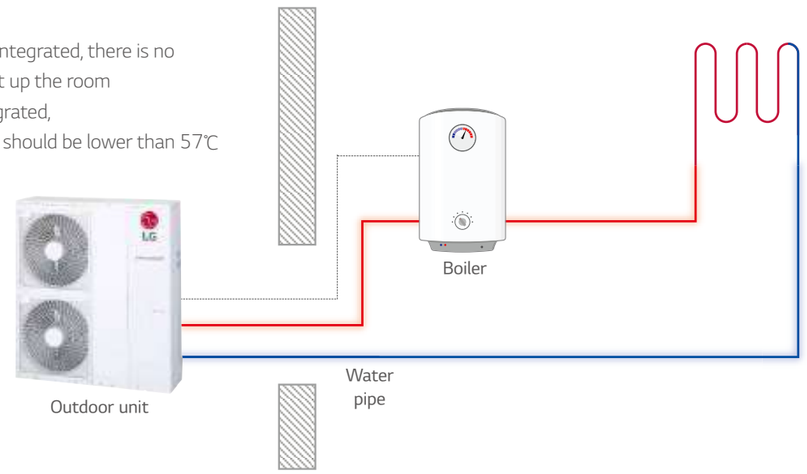
When water heated by the boiler reach the heat pump, an error occurs. Use a check valve or other devices to prevent water from flowing backward.

Check valves (Field scope)

Therma V Split, R32 Mono

[Cautions]

1. If the boiler has not pump integrated, there is no flow and impossible to heat up the room
2. If the boiler has pump integrated, the setting of temperature should be lower than 57℃



Residential Applications

HEATING SYSTEM
COMBINED WITH
THE BOILER

Available Product

THERMA V™ - R32 Monobloc

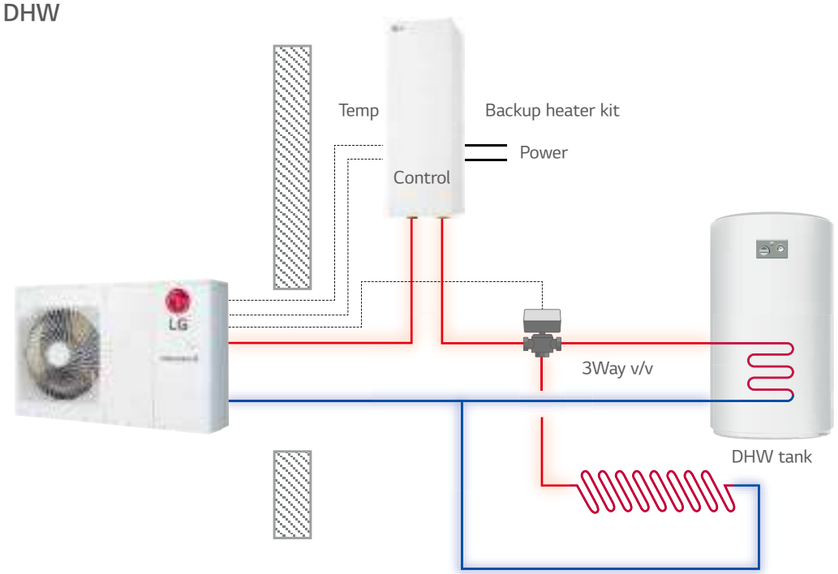
Design Purpose

- In case of insufficient capacity due to the decrease of ambient temperature in winter
- When the temperature operation range of the heat pump in winter is frequently exceeded

Preparation

- Back up heater (Accessory)
- 3Way valve (Field scope)

Heating & DHW



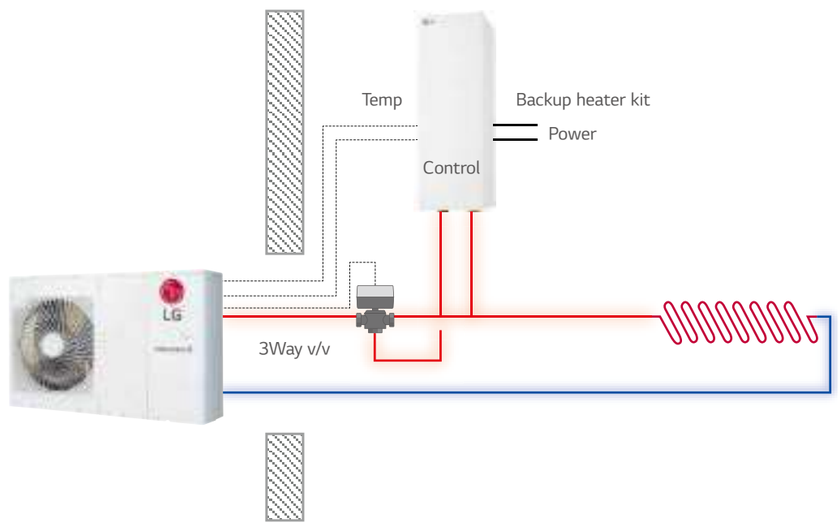
Accessory (Back-up Heater)

Electrical Specification		AHEH036A	AHEH066A
Type	-	Sheath	Sheath
Number of Heating Coil	EA	1	2
Capacity Combination	kW	3.0	3.0 + 3.0
Heating Steps	Step	1	2
Power Supply	V, Ø, Hz	220-240, 1, 50	220-240, 1, 50
Maximum Current	A	12.0	24.0

* Backup heater kit includes heater, sensor and wire

Model name	Feature
Backup Heater Temp Sensor	• Field scope 0.75mm² x 4C
Wire for Signal	• Field scope (H05RN-F) 0.75mm² x 2C (3kW) 0.75mm² x 4C (6kW)
3Way Valve	• Field Scope • AC 220V Signal from PCB

Heating & Cooling



Residential Applications

HEATING WITH SOLAR SYSTEM

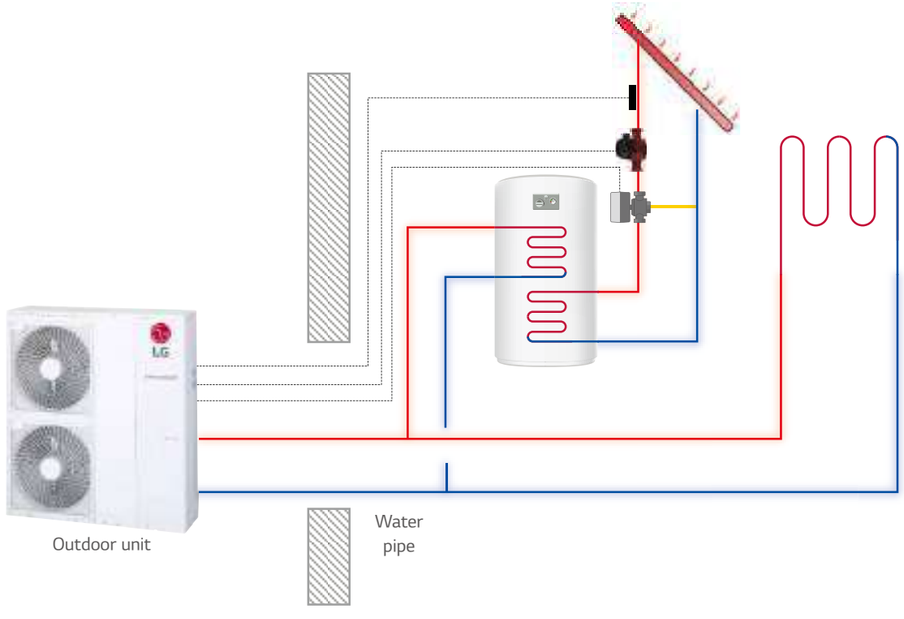
Available Product

- THERMA V™ - Monobloc
- THERMA V™ - Split
- MULTI V™ S + Hydro Kit
- DHW Integrated

Design Purpose

• In case solar panels are used in the design

Therma V Split, R32 Mono



Preparation

• 2Way valve (Field scope)
• Circulating pump for solar (Field scope)

Accessories

Model Name	Feature
Solar kit (PHLLA)	• Accessory 
3Way Valve for Solar	• Field scope • AC 220V signal from PCB
Solar pump	• Field scope • AC 220V signal from PCB

Solar Thermal System

Main components (3rd party)

- Solar collector
- Pump
- 3Way Valve
- Expansion tank
- Pressure relief valve
- Air vent / check valve

• A circulator is used for moving specific fluid between indirect coin in DHW and solar collector
• Solar water heating systems should have freeze protection.
• Antifreeze system and closed loop
• Drainback devices

Product information for Residential

1. Therma V Split
2. Therma V R32 Monobloc
3. Therma V High Temp
4. Multi V S Hydro Kit
5. IWT

Product Information for Residential

THERMA V SPLIT

Indoor unit

Outdoor unit

Controller

No	Contents	Remark
1	Wifi Control	Wi-Fi module needed (accessory)
2	Control by room air temp sensor	Need air temp sensor
3	Reference for Temperature Control	Leaving Water temperature
		Room Air Temperature base Control
		Simultaneous Control with Room Air and Water Temperature
4	Weather dependent operation	Auto operation
5	Solar water heating	Accessory needed
6	Air purge operation	1 ~ 60 minutes (remote controller setting)
7	DHW Tank Anti-Legionella Operation	Target temperature 60 ~ 80℃
		Operation maintaining time : 1 ~ 12 hours
8	Pump setting	RPM control
9	LG Therma V Configuration	
10	2nd circuit	Need mixing valve system
11	External water pump	
12	3rd party boiler	on/off control
13	Meter interface	
14	Smart Grid (SG)	
15	LG Central controller	ACP, Ez touch
16	Dry Contact Mode	Accessory
17	Screed drying	
18	Programmable Digital Input Operation	
19	PI485	Accessory for central control

* Open Modbus Not supported

Component Specification

No	Name	Remark
1	Water pump	Panasonic, INV
2	Expansion tank	8ℓ, Max 3bar
3	Electric heater	3kW / 6kW
4	Strainer	STS, 28mesh
5	Flow switch	SIKA
6	Air vent valve	Max 3.5bar
7	Relief valve	3bar
8	Manometer	Max 4bar
9	Shut off valve	2ea

SmartThinQ Better Life with IoT — WiFi

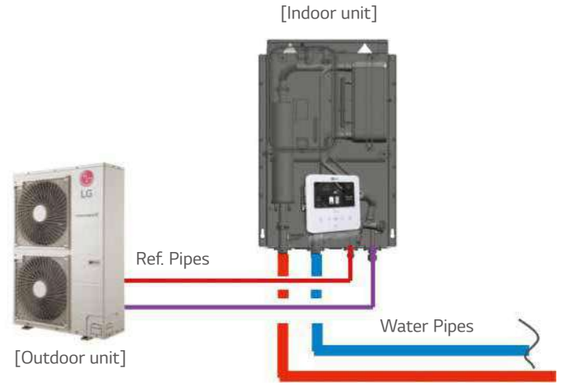
ThinQ App

SG Ready

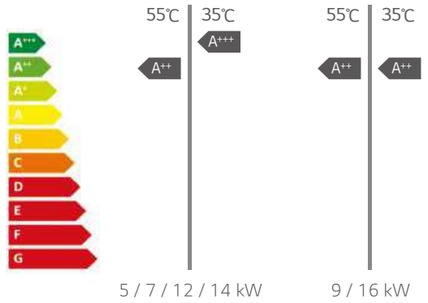
Easy configuration

Applications

Therma V split is a product consists of two units; an outdoor unit and an indoor unit, with air as the heat source. Major water components are integrated in the indoor unit.
It is convenient for installers to apply for home heating and hot water system.



• Heating



R410A

EUROVENT Certification will be available in 2019
Be sure to check with your LG partner before use

Main Components

PHE (Ref-Water) / Water pump
Backup heater / Strainer
Relief valve / Flow switch
Expansion tank / Remote controller

Line up

	Capacity (kW)	5	7	9	12	14	16
Spilt Low Temp.	1ø 220V	●	●	●	●	●	●
	3ø 380V				●	●	●

Product Information for Residential

THERMA V SPLIT

Outdoor Units				AHUW056A3 [HU051 U43]	AHUW076A3 [HU071 U43]	AHUW096A3 [HU091 U43]	AHUW126A3 [HU121 U33]
Operation Range (Outdoor Temperature)	Cooling	Min. ~ Max.	°CDB	5 ~ 48	5 ~ 48	5 ~ 48	5 ~ 48
	Heating	Min. ~ Max.	°CDB	-20 ~ 35	-20 ~ 35	-20 ~ 35	-20 ~ 35
Compressor	Type		-	Hermetic Motor	Hermetic Motor	Hermetic Motor	Hermetic Motor
Refrigerant	Type		-	R410A	R410A	R410A	R410A
Sound Power Level	Heating	Rated	dB (A)	65	65	65	66
Piping Connections	Liquid	Type	-	Flare	Flare	Flare	Flare
		Outer Dia.	mm (inch)	Ø 9.52 (3/8)	Ø 9.52 (3/8)	Ø 9.52 (3/8)	Ø 9.52 (3/8)
	Gas	Type	-	Flare	Flare	Flare	Flare
		Outer Dia.	mm (inch)	Ø 15.88 (5/8)	Ø 15.88 (5/8)	Ø 15.88 (5/8)	Ø 15.88 (5/8)
Pipe		Standard	m	7.5	7.5	7.5	7.5
		Max.	m	50	50	50	50
Piping Level Difference	Outdoor Unit ~ Indoor Unit	Max.	m	30	30	30	30
Dimensions	Unit	W × H × D	mm	950 × 834 × 330	950 × 834 × 330	950 × 834 × 330	950 × 1,380 × 330
	Packed Unit	W × H × D	mm	1,065 × 918 × 461	1,065 × 918 × 461	1,065 × 918 × 461	1,140 × 1,462 × 461
Weight	Unit		kg	59	59	59	94
	Packed Unit		kg	65	65	65	107
Power Supply			V, Ø, Hz	220-240 / 1 / 50	220-240 / 1 / 50	220-240 / 1 / 50	220-240 / 1 / 50
Maximum Running Current	Cooling		A	19	19	19	25
	Heating		A	19	19	19	25
Wiring Connections	Power Supply Cable (Included Earth)		No. x mm²	3 x 4.0 (H07RN-F)	3 x 4.0 (H07RN-F)	3 x 4.0 (H07RN-F)	3 x 6.0 (H07RN-F)

Outdoor Units				AHUW146A3 [HU141 U33]	AHUW166A3 [HU161 U33]	AHUW128A3 [HU123 U33]	AHUW148A3 [HU143 U33]	AHUW168A3 [HU163 U33]
Operation Range (Outdoor Temperature)	Cooling	Min. ~ Max.	°CDB	5 ~ 48	5 ~ 48	5 ~ 48	5 ~ 48	5 ~ 48
	Heating	Min. ~ Max.	°CDB	-20 ~ 35	-20 ~ 35	-20 ~ 35	-20 ~ 35	-20 ~ 35
Compressor	Type		-	Hermetic Motor	Hermetic Motor	Hermetic Motor	Hermetic Motor	Hermetic Motor
Refrigerant	Type		-	R410A	R410A	R410A	R410A	R410A
Sound Power Level	Heating	Rated	dB (A)	66	66	66	66	66
Piping Connections	Liquid	Type	-	Flare	Flare	Flare	Flare	Flare
		Outer Dia.	mm (inch)	Ø 9.52 (3/8)	Ø 9.52 (3/8)	Ø 9.52 (3/8)	Ø 9.52 (3/8)	Ø 9.52 (3/8)
	Gas	Type	-	Flare	Flare	Flare	Flare	Flare
		Outer Dia.	mm (inch)	Ø 15.88 (5/8)	Ø 15.88 (5/8)	Ø 15.88 (5/8)	Ø 15.88 (5/8)	Ø 15.88 (5/8)
Pipe		Standard	m	7.5	7.5	7.5	7.5	7.5
		Max.	m	50	50	50	50	50
Piping Level Difference	Outdoor Unit ~ Indoor Unit	Max.	m	30	30	30	30	30
Dimensions	Unit	W × H × D	mm	950 × 1,380 × 330	950 × 1,380 × 330	950 × 1,380 × 330	950 × 1,380 × 330	950 × 1,380 × 330
	Packed Unit	W × H × D	mm	1,140 × 1,462 × 461	1,140 × 1,462 × 461	1,140 × 1,462 × 461	1,140 × 1,462 × 461	1,140 × 1,462 × 461
Weight	Unit		kg	94	94	94	94	94
	Packed Unit		kg	107	107	107	107	107
Power Supply			V, Ø, Hz	220-240 / 1 / 50	220-240 / 1 / 50	380-415 / 3 / 50	380-415 / 3 / 50	380-415 / 3 / 50
Maximum Running Current	Cooling		A	25	25	16.1	16.1	16.1
	Heating		A	25	25	16.1	16.1	16.1
Wiring Connections	Power Supply Cable (Included Earth)		No. x mm²	3 x 6.0 (H07RN-F)	3 x 6.0 (H07RN-F)	5 x 2.5 (H07RN-F)	5 x 2.5 (H07RN-F)	5 x 2.5 (H07RN-F)

Description			Outdoor Unit	AHUW056A3 [HU051 U43]	AHUW076A3 [HU071 U43]	AHUW096A3 [HU091 U43]
			Indoor Unit	AHNW16606A3 [HN1616 NK3]		
Nominal Capacity	Heating	LWT 35°C at OAT 7°C	kW	5.00	7.00	9.00
		LWT 35°C at OAT 2°C	kW	4.30	5.97	7.30
		LWT 50°C at OAT -2°C	kW	6.24	6.68	7.08
		LWT 35°C at OAT -7°C	kW	4.23	5.88	7.53
	Cooling	LWT 18°C at OAT 35°C	kW	5.00	7.00	9.00
Nominal Power Input	Heating	LWT 35°C at OAT 7°C	kW	1.01	1.59	2.05
		LWT 35°C at OAT 2°C	kW	3.52	1.70	2.09
		LWT 50°C at OAT -2°C	kW	3.20	3.34	3.54
		LWT 35°C at OAT -7°C	kW	2.78	2.14	2.74
	Cooling	LWT 18°C at OAT 35°C	kW	1.09	1.56	2.37
COP	Heating	LWT 35°C at OAT 7°C	W/W	4.93	4.80	4.40
		LWT 35°C at OAT 2°C	W/W	3.52	3.51	3.50
		LWT 50°C at OAT -2°C	W/W	1.95	2.00	2.00
		LWT 35°C at OAT -7°C	W/W	2.78	2.75	2.75
EER	Cooling	LWT 18°C at OAT 35°C	W/W	4.60	4.50	3.80

Description			Outdoor Unit	AHUW126A3 [HU121 U33]	AHUW146A3 [HU141 U33]	AHUW166A3 [HU161 U33]
			Indoor Unit	AHNW16606A3 [HN1616 NK3]		
Nominal Capacity	Heating	LWT 35°C at OAT 7°C	kW	12.00	14.00	16.00
		LWT 35°C at OAT 2°C	kW	10.33	10.83	11.95
		LWT 50°C at OAT -2°C	kW	11.89	11.89	11.89
		LWT 35°C at OAT -7°C	kW	11.00	12.50	13.50
	Cooling	LWT 18°C at OAT 35°C	kW	10.40	12.00	13.00
Nominal Power Input	Heating	LWT 35°C at OAT 7°C	kW	2.64	3.17	3.76
		LWT 35°C at OAT 2°C	kW	2.93	3.09	3.41
		LWT 50°C at OAT -2°C	kW	5.25	5.25	5.25
		LWT 35°C at OAT -7°C	kW	3.14	3.73	4.35
	Cooling	LWT 18°C at OAT 35°C	kW	2.60	3.08	3.60
COP	Heating	LWT 35°C at OAT 7°C	W/W	4.55	4.41	4.26
		LWT 35°C at OAT 2°C	W/W	3.52	3.51	3.50
		LWT 50°C at OAT -2°C	W/W	2.27	2.27	2.27
		LWT 35°C at OAT -7°C	W/W	3.50	3.35	3.10
EER	Cooling	LWT 18°C at OAT 35°C	W/W	4.00	3.90	3.61

Description			Outdoor Unit	AHUW128A3 [HU123 U33]	AHUW148A3 [HU143 U33]	AHUW168A3 [HU163 U33]
			Indoor Unit	AHNW16809A3 [HN1639 NK3]		
Nominal Capacity	Heating	LWT 35°C at OAT 7°C	kW	12.00	14.00	16.00
		LWT 35°C at OAT 2°C	kW	10.33	10.83	11.95
		LWT 50°C at OAT -2°C	kW	11.89	11.89	11.89
		LWT 35°C at OAT -7°C	kW	11.00	12.50	13.50
	Cooling	LWT 18°C at OAT 35°C	kW	10.40	12.00	13.00
Nominal Power Input	Heating	LWT 35°C at OAT 7°C	kW	2.64	3.17	3.76
		LWT 35°C at OAT 2°C	kW	2.93	3.09	3.41
		LWT 50°C at OAT -2°C	kW	5.25	5.25	5.25
		LWT 35°C at OAT -7°C	kW	3.14	3.73	4.35
	Cooling	LWT 18°C at OAT 35°C	kW	2.60	3.08	3.60
COP	Heating	LWT 35°C at OAT 7°C	W/W	4.55	4.41	4.26
		LWT 35°C at OAT 2°C	W/W	3.52	3.51	3.50
		LWT 50°C at OAT -2°C	W/W	2.27	2.27	2.27
		LWT 35°C at OAT -7°C	W/W	3.50	3.35	3.10
EER	Cooling	LWT 18°C at OAT 35°C	W/W	4.00	3.90	3.61

Product Information for Residential

THERMA V SPLIT

PERFORMANCE TABLE FOR COOLING OPERATION

MAXIMUM COOLING CAPACITY

AHUW056A3 [HU051 U43] + AHNW16606A3 [HN1616 NK3]

Outdoor Temperature	LWT 7°C		LWT 10°C		LWT 13°C		LWT 15°C		LWT 18°C		LWT 20°C		LWT 22°C	
	TC	PI	TC	PI	TC	PI	TC	PI	TC	PI	TC	PI	TC	PI
20℃ DB	3.65	0.67	4.11	0.72	4.57	0.77	4.97	0.82	5.38	0.86	5.76	0.91	-	-
30℃ DB	4.15	1.04	4.35	1.05	4.7	1.14	5.13	1.09	5.24	1.07	5.47	1.07	-	-
35℃ DB	3.82	1.11	4.17	1.15	4.49	1.18	4.86	1.19	5	1.09	5.17	1.17	5.37	1.21
40℃ DB	3.64	1.24	3.86	1.28	4.24	1.31	4.5	1.32	4.59	1.21	4.76	1.24	4.95	1.26
45℃ DB	3.07	1.33	3.41	1.36	3.74	1.38	4.06	1.4	4.4	1.42	4.54	1.4	4.68	1.39

AHUW076A3 [HU071 U43] + AHNW16606A3 [HN1616 NK3]

Outdoor Temperature	LWT 7°C		LWT 10°C		LWT 13°C		LWT 15°C		LWT 18°C		LWT 20°C		LWT 22°C	
	TC	PI	TC	PI	TC	PI	TC	PI	TC	PI	TC	PI	TC	PI
20℃ DB	5.12	0.95	5.75	1.02	6.4	1.09	6.95	1.16	7.54	1.23	8.06	1.3	-	-
30℃ DB	5.81	1.48	6.09	1.5	6.58	1.62	7.19	1.56	7.34	1.54	7.66	1.52	-	-
35℃ DB	5.34	1.6	5.83	1.66	6.28	1.68	6.79	1.69	7	1.56	7.23	1.67	7.51	1.73
40℃ DB	5.09	1.77	5.4	1.82	5.93	1.87	6.3	1.89	6.42	1.73	6.66	1.75	6.92	1.79
45℃ DB	4.3	1.9	4.77	1.94	5.24	1.97	5.68	2	6.16	2.04	6.35	2.01	6.55	1.98

AHUW096A3 [HU091 U43] + AHNW16606A3 [HN1616 NK3]

Outdoor Temperature	LWT 7°C		LWT 10°C		LWT 13°C		LWT 15°C		LWT 18°C		LWT 20°C		LWT 22°C	
	TC	PI	TC	PI	TC	PI	TC	PI	TC	PI	TC	PI	TC	PI
20℃ DB	6.57	1.45	7.41	1.55	8.23	1.66	8.94	1.77	9.68	1.88	10.36	1.98	-	-
30℃ DB	7.46	2.25	7.83	2.28	8.46	2.47	9.23	2.37	9.44	2.35	9.84	2.31	-	-
35℃ DB	6.87	2.43	7.5	2.51	8.07	2.55	8.74	2.58	9	2.37	9.3	2.53	9.66	2.63
40℃ DB	6.54	2.7	6.94	2.76	7.62	2.84	8.1	2.87	8.25	2.62	8.56	2.66	8.9	2.73
45℃ DB	5.52	2.89	6.13	2.93	6.74	3	7.3	3.03	7.91	3.09	8.16	3.05	8.42	3.01

AHUW126A3 [HU121 U33] + AHNW16606A3 [HN1616 NK3]

Outdoor Temperature	LWT 7°C		LWT 10°C		LWT 13°C		LWT 15°C		LWT 18°C		LWT 20°C		LWT 22°C	
	TC	PI	TC	PI	TC	PI	TC	PI	TC	PI	TC	PI	TC	PI
20℃ DB	7.6	1.59	8.55	1.7	9.51	1.82	10.33	1.94	11.19	2.05	11.98	2.17	-	-
30℃ DB	8.62	2.46	9.05	2.5	9.78	2.71	10.67	2.6	10.9	2.57	11.37	2.53	-	-
35℃ DB	7.94	2.66	8.66	2.75	9.33	2.8	10.1	2.82	10.4	2.6	10.75	2.78	11.16	2.88
40℃ DB	7.56	2.96	8.02	3.03	8.81	3.12	9.36	3.16	9.54	2.87	9.89	2.93	10.28	2.99
45℃ DB	6.38	3.17	7.08	3.22	7.79	3.28	8.44	3.33	9.14	3.39	9.44	3.34	9.73	3.3

AHUW146A3 [HU141 U33] + AHNW16606A3 [HN1616 NK3]

Outdoor Temperature	LWT 7°C		LWT 10°C		LWT 13°C		LWT 15°C		LWT 18°C		LWT 20°C		LWT 22°C	
	TC	PI	TC	PI	TC	PI	TC	PI	TC	PI	TC	PI	TC	PI
20℃ DB	8.13	1.8	9.87	2.02	10.97	2.16	11.92	2.29	12.91	2.44	13.82	2.57	-	-
30℃ DB	9.24	2.81	10.44	2.97	11.29	3.21	12.31	3.08	12.58	3.04	13.12	2.99	-	-
35℃ DB	8.5	3.03	9.99	3.25	10.76	3.32	11.65	3.35	12	3.08	12.4	3.29	12.88	3.41
40℃ DB	8.1	3.37	9.25	3.59	10.17	3.69	10.8	3.73	11.01	3.4	11.42	3.47	11.86	3.53
45℃ DB	7.17	3.25	8.17	3.82	8.99	3.89	9.73	3.95	10.55	4.02	10.89	3.96	11.23	3.91

AHUW166A3 [HU161 U33] + AHNW16606A3 [HN1616 NK3]

Outdoor Temperature	LWT 7°C		LWT 10°C		LWT 13°C		LWT 15°C		LWT 18°C		LWT 20°C		LWT 22°C	
	TC	PI	TC	PI	TC	PI	TC	PI	TC	PI	TC	PI	TC	PI
20℃ DB	8.54	1.97	10.69	2.36	11.89	2.52	12.91	2.68	13.98	2.85	14.97	3.01	-	-
30℃ DB	9.7	3.07	11.31	3.47	12.22	3.75	13.34	3.6	13.63	3.55	14.21	3.5	-	-
35℃ DB	8.92	3.3	10.82	3.81	11.66	3.88	12.63	3.91	13	3.6	13.43	3.85	13.96	3.98
40℃ DB	8.51	3.67	10.03	4.19	11.02	4.31	11.7	4.36	11.93	3.97	12.37	4.05	12.85	4.13
45℃ DB	7.52	3.54	8.85	4.47	9.73	4.55	10.55	4.62	11.42	4.69	11.8	4.64	12.16	4.58

AHUW128A3 [HU123 U33] + AHNW16809A3 [HN1639 NK3]

Outdoor Temperature	LWT 7°C		LWT 10°C		LWT 13°C		LWT 15°C		LWT 18°C		LWT 20°C		LWT 22°C	
	TC	PI	TC	PI	TC	PI	TC	PI	TC	PI	TC	PI	TC	PI
20℃ DB	7.6	1.59	8.55	1.7	9.51	1.82	10.33	1.94	11.19	2.05	11.98	2.17	-	-
30℃ DB	8.62	2.46	9.05	2.5	9.78	2.71	10.67	2.6	10.9	2.57	11.37	2.53	-	-
35℃ DB	7.94	2.66	8.66	2.75	9.33	2.8	10.1	2.82	10.4	2.6	10.75	2.78	11.16	2.88
40℃ DB	7.56	2.96	8.02	3.03	8.81	3.12	9.36	3.16	9.54	2.87	9.89	2.93	10.28	2.99
45℃ DB	6.38	3.17	7.08	3.22	7.79	3.28	8.44	3.33	9.14	3.39	9.44	3.34	9.73	3.3

AHUW148A3 [HU143 U33] + AHNW16809A3 [HN1639 NK3]

Outdoor Temperature	LWT 7°C		LWT 10°C		LWT 13°C		LWT 15°C		LWT 18°C		LWT 20°C		LWT 22°C	
	TC	PI	TC	PI	TC	PI	TC	PI	TC	PI	TC	PI	TC	PI
20℃ DB	8.13	1.8	9.87	2.02	10.97	2.16	11.92	2.29	12.91	2.44	13.82	2.57	-	-
30℃ DB	9.24	2.81	10.44	2.97	11.29	3.21	12.31	3.08	12.58	3.04	13.12	2.99	-	-
35℃ DB	8.5	3.03	9.99	3.25	10.76	3.32	11.65	3.35	12	3.08	12.4	3.29	12.88	3.41
40℃ DB	8.1	3.37	9.25	3.59	10.17	3.69	10.8	3.73	11.01	3.4	11.42	3.47	11.86	3.53
45℃ DB	7.17	3.25	8.17	3.82	8.99	3.89	9.73	3.95	10.55	4.02	10.89	3.96	11.23	3.91

AHUW168A3 [HU163 U33] + AHNW16809A3 [HN1639 NK3]

Outdoor Temperature	LWT 7°C		LWT 10°C		LWT 13°C		LWT 15°C		LWT 18°C		LWT 20°C		LWT 22°C	
	TC	PI	TC	PI	TC	PI	TC	PI	TC	PI	TC	PI	TC	PI
20℃ DB	8.54	1.97	10.69	2.36	11.89	2.52	12.91	2.68	13.98	2.85	14.97	3.01	-	-
30℃ DB	9.7	3.07	11.31	3.47	12.22	3.75	13.34	3.6	13.63	3.55	14.21	3.5	-	-
35℃ DB	8.92	3.3	10.82	3.81	11.66	3.88	12.63	3.91	13	3.6	13.43	3.85	13.96	3.98
40℃ DB	8.51	3.67	10.03	4.19	11.02	4.31	11.7	4.36	11.93	3.97	12.37	4.05	12.85	4.13
45℃ DB	7.52	3.54	8.85	4.47	9.73	4.55	10.55	4.62	11.42	4.69	11.8	4.64	12.16	4.58

Note

1. DB : Dry bulb temperature (℃), LWT : Leaving water temperature (℃)
2. TC : Total capacity (kW), PI : Power Input (kW)
3. Direct interpolation is permissible. Do not extrapolate.
4. Measuring procedure follows EN-14511.
   - Rated values are based on standard conditions, and it can be found on specifications.
   - Above table values may not be matched according to installation condition. Except for rated value, the performance is not guaranteed.
   - In accordance with the test standard (or nations), the rating will vary slightly.

Product Information for Residential

THERMA V SPLIT

PERFORMANCE TABLE FOR HEATING OPERATION

MAXIMUM HEATING CAPACITY (INCLUDE DEFROST EFFECT)

AHUW056A3 [HU051 U43] + AHNW16606A3 [HN1616 NK3]

Outdoor Temperature	LWT 30℃		LWT 35℃		LWT 40℃		LWT 45℃		LWT 50℃		LWT 55℃	
	TC	PI	TC	PI	TC	PI	TC	PI	TC	PI	TC	PI
-20 ℃ DB	2.61	0.9	2.99	1.6	3.36	2.3	3.73	3.01	-	-	-	-
-15 ℃ DB	3.27	0.88	3.73	1.56	4.2	2.25	4.67	2.93	5.13	3.62	-	-
-7 ℃ DB	3.70	0.86	4.23	1.52	4.76	2.19	5.29	2.85	5.82	3.52	6.35	4.18
-2 ℃ DB	3.74	0.71	4.27	1.26	4.81	1.8	5.34	2.35	5.87	2.9	6.41	3.45
2 ℃ DB	3.73	0.59	4.26	1.05	4.79	1.5	5.33	1.96	5.86	2.42	6.39	2.87
7 ℃ DB	4.38	0.57	5	1.01	5.63	1.45	6.25	1.89	6.88	2.34	7.5	2.78
10 ℃ DB	4.49	0.5	5.13	0.89	5.77	1.28	6.41	1.66	7.05	2.05	7.69	2.44
15 ℃ DB	4.67	0.38	5.34	0.68	6.01	0.98	6.67	1.28	7.34	1.58	8.01	1.88
18 ℃ DB	4.78	0.31	5.47	0.56	6.15	0.8	6.83	1.05	7.52	1.29	8.2	1.54

AHUW076A3 [HU071 U43] + AHNW16606A3 [HN1616 NK3]

Outdoor Temperature	LWT 30℃		LWT 35℃		LWT 40℃		LWT 45℃		LWT 50℃		LWT 55℃	
	TC	PI	TC	PI	TC	PI	TC	PI	TC	PI	TC	PI
-20 ℃ DB	4.09	1.83	4.17	2.36	4.24	2.9	4.32	3.43	-	-	-	-
-15 ℃ DB	5.12	1.78	5.21	2.3	5.31	2.83	5.4	3.35	5.49	3.87	-	-
-7 ℃ DB	5.82	1.65	5.92	2.13	6.03	2.61	6.13	3.09	6.24	3.57	6.35	4.06
-2 ℃ DB	5.87	1.37	5.98	1.77	6.09	2.17	6.19	2.57	6.3	2.97	6.41	3.37
2 ℃ DB	5.86	1.15	5.97	1.49	6.07	1.82	6.18	2.16	6.29	2.5	6.39	2.83
7 ℃ DB	6.88	1.13	7	1.46	7.13	1.79	7.25	2.12	7.38	2.45	7.5	2.78
10 ℃ DB	7.05	1	7.18	1.3	7.31	1.59	7.43	1.88	7.56	2.17	7.69	2.47
15 ℃ DB	7.34	0.79	7.48	1.02	7.61	1.26	7.74	1.49	7.88	1.72	8.01	1.95
18 ℃ DB	7.52	0.67	7.65	0.86	7.79	1.06	7.93	1.25	8.06	1.45	8.2	1.64

AHUW096A3 [HU091 U43] + AHNW16606A3 [HN1616 NK3]

Outdoor Temperature	LWT 30℃		LWT 35℃		LWT 40℃		LWT 45℃		LWT 50℃		LWT 55℃	
	TC	PI	TC	PI	TC	PI	TC	PI	TC	PI	TC	PI
-20 ℃ DB	5.52	2.67	5.3	2.94	5.08	3.2	4.86	3.46	-	-	-	-
-15 ℃ DB	6.91	2.61	6.63	2.87	6.35	3.13	6.08	3.38	5.8	3.64	-	-
-7 ℃ DB	7.85	2.49	7.53	2.74	7.22	2.98	6.91	3.23	6.59	3.47	6.28	3.72
-2 ℃ DB	7.97	2.12	7.65	2.33	7.33	2.54	7.01	2.75	6.69	2.96	6.37	3.17
2 ℃ DB	7.99	1.83	7.67	2.01	7.35	2.19	7.03	2.37	6.71	2.55	6.39	2.73
7 ℃ DB	9.38	1.86	9	2.05	8.63	2.23	8.25	2.41	7.88	2.59	7.5	2.78
10 ℃ DB	9.61	1.71	9.23	1.87	8.84	2.04	8.46	2.21	8.08	2.38	7.69	2.54
15 ℃ DB	10.01	1.44	9.61	1.58	9.21	1.73	8.81	1.87	8.41	2.01	8.01	2.15
18 ℃ DB	10.25	1.29	9.84	1.41	9.43	1.54	9.02	1.66	8.61	1.79	8.2	1.92

AHUW126A3 [HU121 U33] + AHNW16606A3 [HN1616 NK3]

Outdoor Temperature	LWT 30℃		LWT 35℃		LWT 40℃		LWT 45℃		LWT 50℃		LWT 55℃	
	TC	PI	TC	PI	TC	PI	TC	PI	TC	PI	TC	PI
-20 ℃ DB	10.89	2.58	11	3.3	11.37	5.12	11.74	5.97	-	-	-	-
-15 ℃ DB	10.89	2.53	11	3.24	11.37	4.01	11.74	5.51	10.99	5.82	-	-
-7 ℃ DB	10.89	2.46	11	3.14	11.37	3.89	11.74	4.65	11.72	5.46	11.09	5.84
-4 ℃ DB	10.66	2.4	10.77	3.07	11.17	3.8	11.58	4.57	11.83	5.26	11.35	5.69
-2 ℃ DB	10.54	2.37	10.65	3.03	11.07	3.76	11.49	4.49	11.89	5.25	11.53	5.65
2 ℃ DB	10.22	2.29	10.33	2.93	10.79	3.64	11.26	4.37	11.74	5.12	11.88	5.72
7 ℃ DB	11.88	2.06	12	2.64	12.13	3.21	12.25	3.79	12.38	4.36	12.5	4.94
10 ℃ DB	12.03	1.82	12.16	2.33	12.28	2.84	12.41	3.35	12.54	3.86	12.66	4.37
15 ℃ DB	12.29	1.43	12.42	1.83	12.55	2.23	12.67	2.63	12.8	3.03	12.93	3.42
18 ℃ DB	12.44	1.19	12.57	1.52	12.7	1.86	12.83	2.19	12.96	2.52	13.1	2.86

AHUW146A3 [HU141 U33] + AHNW16606A3 [HN1616 NK3]

Outdoor Temperature	LWT 30℃		LWT 35℃		LWT 40℃		LWT 45℃		LWT 50℃		LWT 55℃	
	TC	PI	TC	PI	TC	PI	TC	PI	TC	PI	TC	PI
-20 ℃ DB	12.24	3.44	11.92	3.99	11.61	5.23	11.08	5.64	-	-	-	-
-15 ℃ DB	12.47	3.35	12.14	3.89	11.96	4.47	11.56	5.43	10.99	5.82	-	-
-7 ℃ DB	12.83	3.21	12.5	3.73	12.31	4.29	12.12	4.85	11.72	5.46	11.09	5.84
-4 ℃ DB	12.28	3.02	11.96	3.51	11.95	4.08	11.93	4.7	11.83	5.26	11.35	5.69
-2 ℃ DB	12.01	2.92	11.7	3.39	11.79	4	11.85	4.64	11.89	5.25	11.53	5.65
2 ℃ DB	11.12	2.66	10.83	3.09	11.2	3.77	11.53	4.47	11.82	5.15	11.88	5.72
7 ℃ DB	14.38	2.73	14	3.18	13.63	3.62	13.25	4.1	12.88	4.54	12.5	4.94
10 ℃ DB	14.66	2.48	14.28	2.88	13.9	3.28	13.52	3.68	13.13	4.08	12.75	4.48
15 ℃ DB	15.15	2.05	14.75	2.38	14.36	2.71	13.96	3.04	13.57	3.38	13.17	3.71
18 ℃ DB	15.44	1.8	15.03	2.08	14.63	2.37	14.23	2.66	13.83	2.95	13.42	3.24

AHUW166A3 [HU161 U33] + AHNW16606A3 [HN1616 NK3]

Outdoor Temperature	LWT 30℃		LWT 35℃		LWT 40℃		LWT 45℃		LWT 50℃		LWT 55℃	
	TC	PI	TC	PI	TC	PI	TC	PI	TC	PI	TC	PI
-20 ℃ DB	12.79	4.44	12.13	4.82	11.61	5.23	11.08	5.64	-	-	-	-
-15 ℃ DB	13.35	4.28	12.65	4.64	12.12	5.03	11.56	5.43	10.99	5.82	-	-
-7 ℃ DB	14.24	4.01	13.5	4.35	12.93	4.72	12.34	5.09	11.72	5.46	11.09	5.84
-4 ℃ DB	13.73	3.71	13.02	4.03	12.67	4.43	12.27	4.84	11.83	5.26	11.35	5.69
-2 ℃ DB	13.37	3.52	12.68	3.82	12.48	4.24	12.22	4.78	11.89	5.25	11.53	5.65
2 ℃ DB	12.6	3.15	11.95	3.41	12.07	4.07	12.09	4.69	12.03	5.24	11.88	5.72
7 ℃ DB	16.88	3.46	16	3.76	15.13	4.05	14.25	4.41	13.38	4.72	12.5	4.94
10 ℃ DB	17.38	3.26	16.48	3.54	15.58	3.82	14.68	4.1	13.78	4.38	12.88	4.66
15 ℃ DB	18.23	2.94	17.28	3.19	16.34	3.44	15.39	3.7	14.45	3.95	13.5	4.2
18 ℃ DB	18.73	2.75	17.76	2.98	16.79	3.22	15.82	3.45	14.85	3.69	13.88	3.92

Note

1. DB : Dry bulb temperature (℃), LWT : Leaving water temperature (℃)
2. TC : Total capacity (kW), PI : Power Input (kW)
3. Direct interpolation is permissible. Do not extrapolate.
4. Measuring procedure follows EN-14511.
   - Rated values are based on standard conditions, and it can be found on specifications.
   - Above table values may not be matched according to installation condition. Except for rated value, the performance is not guaranteed.
   - In accordance with the test standard (or nations), the rating will vary slightly.

Product Information for Residential

THERMA V SPLIT

PERFORMANCE TABLE FOR HEATING OPERATION

MAXIMUM HEATING CAPACITY (INCLUDING DEFROST EFFECT)

AHUW128A3 [HU123 U33] + AHNW16809A3 [HN1639 NK3]

Outdoor Temperature	LWT 30℃		LWT 35℃		LWT 40℃		LWT 45℃		LWT 50℃		LWT 55℃	
	TC	PI	TC	PI	TC	PI	TC	PI	TC	PI	TC	PI
-20 ℃ DB	10.89	2.58	11	3.3	11.37	5.12	11.74	5.97	-	-	-	-
-15 ℃ DB	10.89	2.53	11	3.24	11.37	4.01	11.74	5.51	10.99	5.82	-	-
-7 ℃ DB	10.89	2.46	11	3.14	11.37	3.89	11.74	4.65	11.72	5.46	11.09	5.84
-4 ℃ DB	10.66	2.4	10.77	3.07	11.17	3.8	11.58	4.57	11.83	5.26	11.35	5.69
-2 ℃ DB	10.54	2.37	10.65	3.03	11.07	3.76	11.49	4.49	11.89	5.25	11.53	5.65
2 ℃ DB	10.22	2.29	10.33	2.93	10.79	3.64	11.26	4.37	11.74	5.12	11.88	5.72
7 ℃ DB	11.88	2.06	12	2.64	12.13	3.21	12.25	3.79	12.38	4.36	12.5	4.94
10 ℃ DB	12.03	1.82	12.16	2.33	12.28	2.84	12.41	3.35	12.54	3.86	12.66	4.37
15 ℃ DB	12.29	1.43	12.42	1.83	12.55	2.23	12.67	2.63	12.8	3.03	12.93	3.42

AHUW148A3 [HU143 U33] + AHNW16809A3 [HN1639 NK3]

Outdoor Temperature	LWT 30℃		LWT 35℃		LWT 40℃		LWT 45℃		LWT 50℃		LWT 55℃	
	TC	PI	TC	PI	TC	PI	TC	PI	TC	PI	TC	PI
-20 ℃ DB	12.24	3.44	11.92	3.99	11.61	5.23	11.08	5.64	-	-	-	-
-15 ℃ DB	12.47	3.35	12.14	3.89	11.96	4.47	11.56	5.43	10.99	5.82	-	-
-7 ℃ DB	12.83	3.21	12.5	3.73	12.31	4.29	12.12	4.85	11.72	5.46	11.09	5.84
-4 ℃ DB	12.28	3.02	11.96	3.51	11.95	4.08	11.93	4.7	11.83	5.26	11.35	5.69
-2 ℃ DB	12.01	2.92	11.7	3.39	11.79	4	11.85	4.64	11.89	5.25	11.53	5.65
2 ℃ DB	11.12	2.66	10.83	3.09	11.2	3.77	11.53	4.47	11.82	5.15	11.88	5.72
7 ℃ DB	14.38	2.73	14	3.18	13.63	3.62	13.25	4.1	12.88	4.54	12.5	4.94
10 ℃ DB	14.66	2.48	14.28	2.88	13.9	3.28	13.52	3.68	13.13	4.08	12.75	4.48
15 ℃ DB	15.15	2.05	14.75	2.38	14.36	2.71	13.96	3.04	13.57	3.38	13.17	3.71

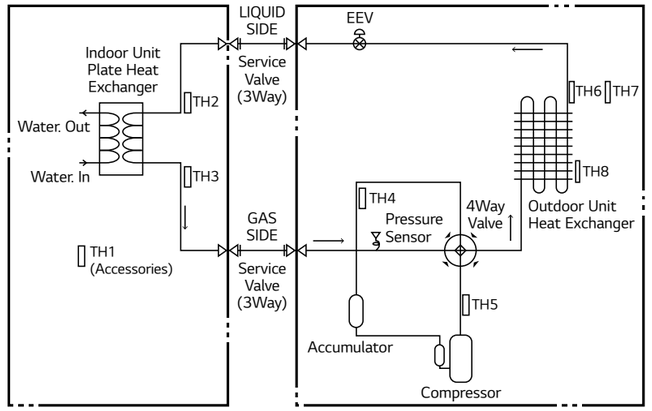
AHUW168A3 [HU163 U33] + AHNW16809A3 [HN1639 NK3]

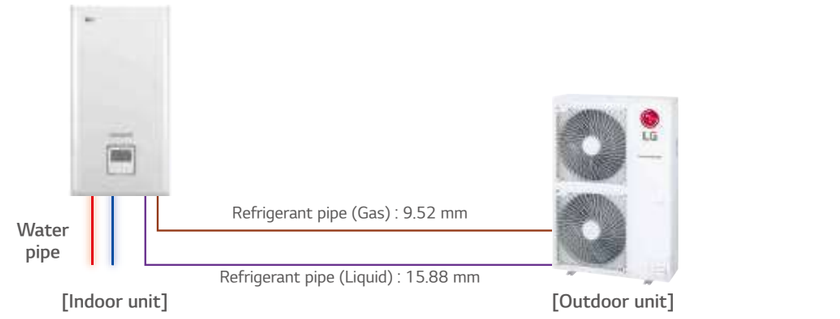
Outdoor Temperature	LWT 30℃		LWT 35℃		LWT 40℃		LWT 45℃		LWT 50℃		LWT 55℃	
	TC	PI	TC	PI	TC	PI	TC	PI	TC	PI	TC	PI
-20 ℃ DB	12.79	4.44	12.13	4.82	11.61	5.23	11.08	5.64	-	-	-	-
-15 ℃ DB	13.35	4.28	12.65	4.64	12.12	5.03	11.56	5.43	10.99	5.82	-	-
-7 ℃ DB	14.24	4.01	13.5	4.35	12.93	4.72	12.34	5.09	11.72	5.46	11.09	5.84
-4 ℃ DB	13.73	3.71	13.02	4.03	12.67	4.43	12.27	4.84	11.83	5.26	11.35	5.69
-2 ℃ DB	13.37	3.52	12.68	3.82	12.48	4.24	12.22	4.78	11.89	5.25	11.53	5.65
2 ℃ DB	12.6	3.15	11.95	3.41	12.07	4.07	12.09	4.69	12.03	5.24	11.88	5.72
7 ℃ DB	16.88	3.46	16	3.76	15.13	4.05	14.25	4.41	13.38	4.72	12.5	4.94
10 ℃ DB	17.38	3.26	16.48	3.54	15.58	3.82	14.68	4.1	13.78	4.38	12.88	4.66
15 ℃ DB	18.23	2.94	17.28	3.19	16.34	3.44	15.39	3.7	14.45	3.95	13.5	4.2

Note

1. DB : Dry bulb temperature (℃), LWT : Leaving water temperature (℃)
2. TC : Total capacity (kW), PI : Power Input (kW)
3. Direct interpolation is permissible. Do not extrapolate.
4. Measuring procedure follows EN-14511.
   - Rated values are based on standard conditions, and it can be found on specifications.
   - Above table values may not be matched according to installation condition. Except for rated value, the performance is not guaranteed.
   - In accordance with the test standard (or nations), the rating will vary slightly.

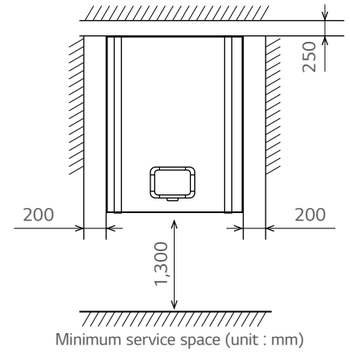
Product schematic



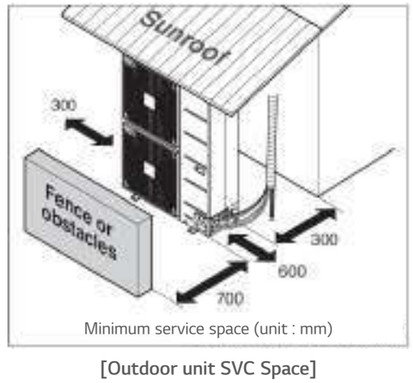


[Indoor unit] [Outdoor unit]

Installation & SVC space



[Indoor unit SVC Space]



[Outdoor unit SVC Space]

Product Information for Residential

THERMA V SPLIT

Terminal block information

No	Name	Remark	Connection
1	Thermostat	230V AC, H/C	TB1 (17/18/19/20)
2	3Way Valve (A) for hot water	3wire, SPDT, 230V AC	TB1 (8/9/10)
3	2Way Valve	2wire, 230V AC	TB2 (14/15/16)
4	Solar pump		TB1 (4/5)
5	3Way valve (B) for solar pump		TB1 (1/2/3)
6	Dry contact	Option / PDRYCB000 / PRRYCB300	
7	Booster heater KIT	PHLTA : 1P / PHLTC : 3P	3P : TB1 (6/7) TB3 (1/2/3/4/5) 1P : TB1 (6/7) TB3 (1/2/3/4)
8	Remote air sensor	P/N:PQRSTA0	
9	Solar pump Kit	PHLLA	
10	Mixing pump		TB5 (23/24)
11	Mixing valve	P/N:PQRSTA0	TB5 (25/26/27)

TERMINAL BLOCK : TB1

1	2	3	4	5	6	7	8	9	10
L	L1	N	L	N	L	N	L	L1	N
3WAY VALVE (B)			WATER PUMP (B)		WATER TANK HEATER		3WAY VALVE (A)		

TERMINAL BLOCK : TB2

11	12	13	14	15	16	17	18	19	20
1 (L)	2 (N)	3	L1	L2	N	L	N	L1	L2
OUTDOOR UNIT			3WAY VALVE (B)			THERMOSTAT (Default : 230V AC)			

TERMINAL BLOCK : TB3

1	2		3	4	5
L	N		R	S	T
TO ELB FOR DHW TANK E/HEATER			POWER SUPPLY (3P, 380 ~ 415 V, 50 Hz)		

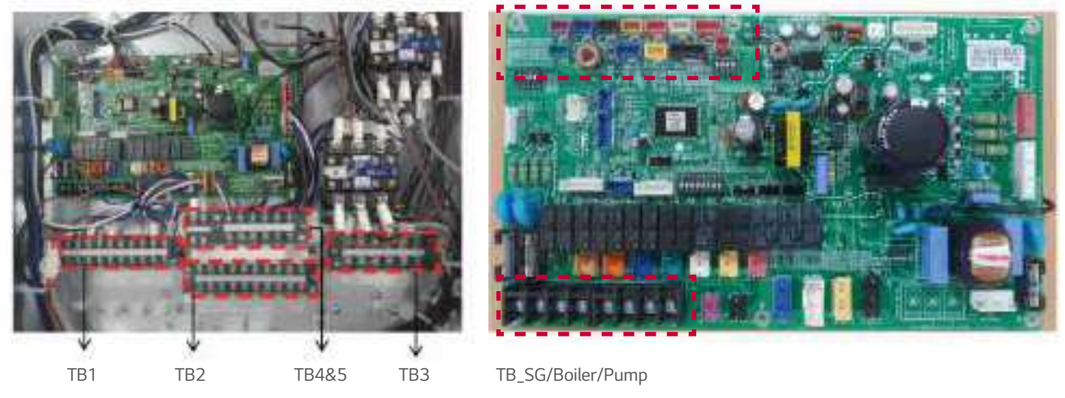
TERMINAL BLOCK : TB4 & 5

21	22		23	24	25	26	27
A	B		L	N	L1	L2	N
3rd PARTY CONTROLLER (5V DC)			MIX PUMP		MIXING VALVE		

PCB information

No	Name	Remark	Connection
1	Remote air sensor	-	CN_ROOM
2	Add remote air sensor	-	CN_LEAK_ROOM2
3	Mix kit water pipe sensor	-	CN_Mix_OUT
4	Water tank sensor	-	CN_TH4
5	Solar pipe sensor	-	CN_TH4
6	External pump	Contact	TB_EXT_Pump
7	Boiler	Contact	TB_Boiler
8	SG 1	L/N	TB_SG1
9	SG 2	L/N	TB_SG2

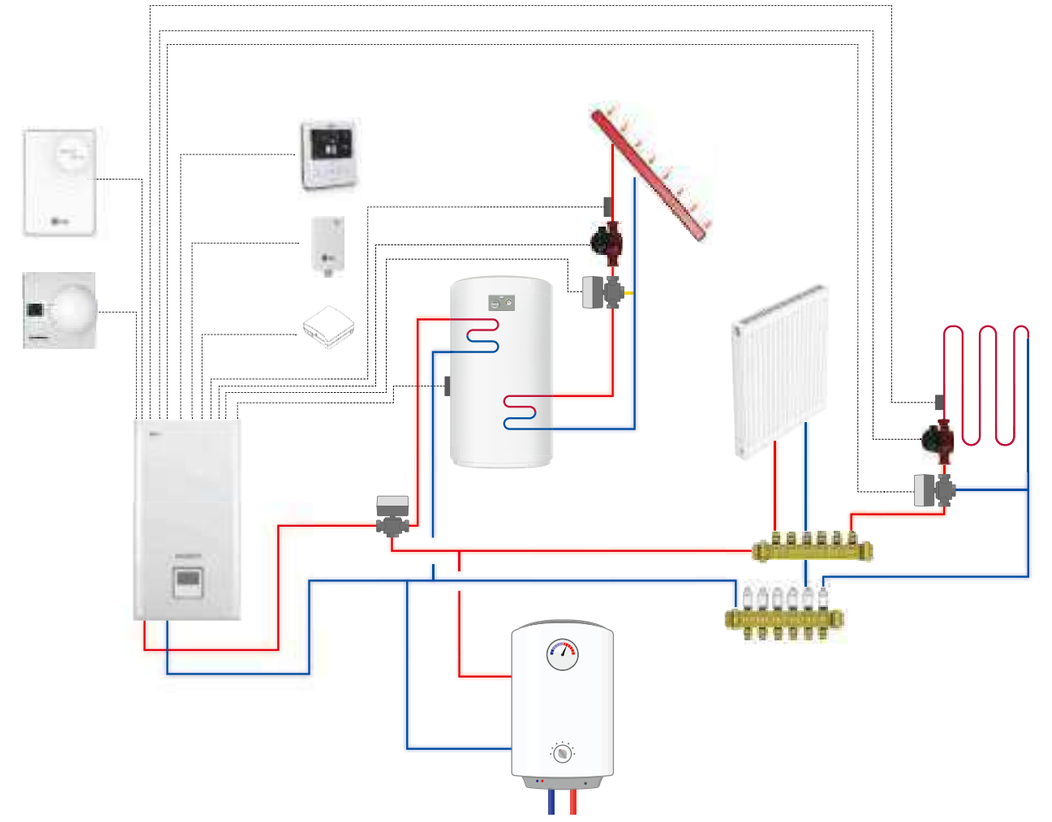
CN_Connection

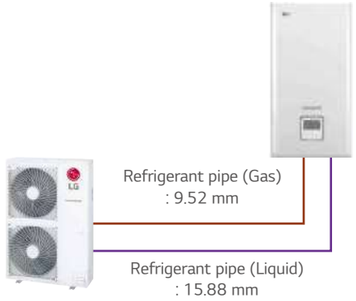


Product Information for Residential

THERMA V SPLIT - EXTERNAL DEVICE & WIRING

System schematic





	Pipe size (mm, Inch)		Length (m)		Elevation (m)		Add Ref.
kW	Gas	Liquid	Standard	Max	Standard	Max	
5	15.88 (5/8)	9.52 (3/8)	7.5	50	0	30	40 g/m
7							
9							
12							
14							
16							

Part Name	Part No.	Spec	Supply	Max Length
DHW kit	PHLTA (Split 1p) PHLTB (Monobloc) PHLTC (Split 3p)	5KΩ, Φ7, 12m ± 0.25m	Accessory DHW kit	12m
Temp sensor for DHW	PHRSTA0	5KΩ, Φ7, 12m ± 0.25m	Accessory	12m
Remote controller	AKB74855311	Wired RS3	Default : 10m	
Remote controller Extension	PZCWRC1	9.6m	Accessory : 10m	
3Way v/v Actuator Wire	-	AC 230V	Field scope	100m ↑
2Way v/v Actuator wire	-	AC 230V	Field scope	100m ↑
Mixing temp sensor	PRSTAT5K10		Accessory 3rd Party 5kΩ Thermistor	10m
Temp sensor for solar panel	PHLLA	Sensor 2EA 1) 5KΩ, Φ7, 12m 2) 5KΩ, Φ7, 12m	Accessory	10m
Remote sensor	PQRSTA0	Cable : 15m Sensor : 10KΩ	Accessory : 15m	15m
Wifi module	PWFMDD200		Accessory : 60cm Extension : 50cm	10m
Wifi module (USB Extension)	PWYREW000		Accessory : 10m	10m
Wire for thermostat	-	220 ~ 240V	Field scope	100m ↑
Wire for 3rd party boiler	-	Contact (H05RN-F) 0.75mm² x 2C	Field scope	
Dry contact	PDRYCB000 (Simple Dry Contact) PDRYCB300 (8 input)	~ 24V Harness : 0.7m		

Product Information for Residential

THERMA V R32 MONOBLOC

Outdoor unit

Controller

No	Contents	Remark
1	Wifi control	Need wifi module (accessory)
2	Control by room air temp sensor	Default
3	Temperature Control Definition	Leaving Water temperature
		Room Air Temperature base Control
		Simultaneous Control with Room Air and Water Temperature
4	Weather dependent operation	Auto operation
5	Solar water heating	Need accessory
6	Air purge operation	1 ~ 60 minutes (remote controller setting)
7	DHW tank anti-Legionella operation	Target temperature 60 ~ 80℃
		Operation maintain time : 1 ~ 12 hours
8	Pump setting	RPM control
9	LG Therma V Configuration	
10	2nd circuit	Need mixing valve system
11	External water pump	
12	3rd party boiler	on/off control
13	Meter interface	
14	Smart grid (SG)	
15	LG central controller	ACP, Ez touch
16	Dry contact mode	Accessory
17	Screed drying	
18	Programmable Digital Input Operation	
19	PI485	Accessory for central control

* Open Modbus NOT supported

Key features

No	Name	Remark
1	Water pump	Grundfos, INV
2	Expansion tank	8ℓ, Max 3bar
3	Electric heater	Option (3/6kW)
4	Strainer	STS, 28mesh
5	Flow switch	SIKA
6	Air vent valve	Max 3.5bar
7	Relief valve	3bar
8	Manometer	Max 4bar
9	Shut off valve	2ea

SmartThinQ Better Life with IoT — WiFi

SG Ready

Digital Input

Easy configuration

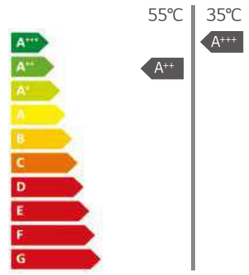
Therma V monobloc is an integrated type product made up of two parts; an outdoor unit and an indoor unit, with air as the heat source. Major water components are integrated in indoor unit.
It guarantees or assures convenience to installers with home heating and hot water system.

[Outdoor unit]

011-1W0244 · R32 · 65℃ · A+++ · Ocean Black Fin

* EHPA for Austria

• Heating



Main Components

PHE (Ref-Water) / Water pump
Strainer / Relief valve
Flow switch / Expansion tank
Remote controller

Line up

	Capacity (kW)	5	7	9	12	14	16
R32 Monobloc	1ø 220V	●	●	●	●	●	●
	3ø 380V				●	●	●

Product Information for Residential

THERMA V R32 MONOBLOC

Technical Specifications					ZHBW056A0 [HM051M.U43]	ZHBW076A0 [HM071M.U43]	ZHBW096A0 [HM091M.U43]	ZHBW126A0 [HM121M.U33]	ZHBW146A0 [HM141M.U33]	ZHBW166A0 [HM161M.U33]	ZHBW128A0 [HM123M.U33]	ZHBW148A0 [HM143M.U33]	ZHBW168A0 [HM163M.U33]
Water Side	Operation Range (Leaving Water Temperature)	Cooling	Min. ~ Max.	°CDB	5 ~ 27	5 ~ 27	5 ~ 27	5 ~ 27	5 ~ 27	5 ~ 27	5 ~ 27	5 ~ 27	5 ~ 27
		Heating	Min. ~ Max.	°CDB	15 ~ 65	15 ~ 65	15 ~ 65	15 ~ 65	15 ~ 65	15 ~ 65	15 ~ 65	15 ~ 65	15 ~ 65
		DHW	Min. ~ Max.	°CDB	15 ~ 80	15 ~ 80	15 ~ 80	15 ~ 80	15 ~ 80	15 ~ 80	15 ~ 80	15 ~ 80	15 ~ 80
	Water Pump	Model		-	UPM3K 20-75 CHBL	UPM3K 20-75 CHBL	UPM3K 20-75 CHBL	UPML GEO 20-105 CHBL	UPML GEO 20-105 CHBL	UPML GEO 20-105 CHBL	UPML GEO 20-105 CHBL	UPML GEO 20-105 CHBL	UPML GEO 20-105 CHBL
		Steps of Pumping speed		-	Variable speed 10% to 100%	Variable speed 10% to 100%	Variable speed 10% to 100%	Variable speed 10% to 100%	Variable speed 10% to 100%	Variable speed 10% to 100%	Variable speed 10% to 100%	Variable speed 10% to 100%	Variable speed 10% to 100%
		Power input	Min. / Rated	W	6 / 60	6 / 60	6 / 60	14 / 140	14 / 140	14 / 140	14 / 140	14 / 140	14 / 140
		Water Flow Rate	Min. / Rated	ℓ/min	2.3 / 25.9	2.3 / 25.9	2.3 / 25.9	5.0 / 46.0	5.0 / 46.0	5.0 / 46.0	5.0 / 46.0	5.0 / 46.0	5.0 / 46.0
	Heat Exchanger	Type		-	PHE	PHE	PHE	PHE	PHE	PHE	PHE	PHE	PHE
		Quantity		-	1	1	1	1	1	1	1	1	1
		Number of Plate		EA	54	54	54	76	76	76	76	76	76
		Water Volume		ℓ	0.7	0.7	0.7	1	1	1	1	1	1
		Water Flow Rate	Min. ~ Max.	ℓ/min	13 ~ 70	13 ~ 70	13 ~ 70	13 ~ 70	13 ~ 70	13 ~ 70	13 ~ 70	13 ~ 70	13 ~ 70
	Expansion Vessel	Volume	Max.	ℓ	8	8	8	8	8	8	8	8	8
		Water pressure	Max.	bar	3	3	3	3	3	3	3	3	3
		Water pressure	Pre-charged	bar	1	1	1	1	1	1	1	1	1
	Piping Connections	Inlet		mm	Male PT 25 (1)	Male PT 25 (1)	Male PT 25 (1)	Male PT 25 (1)	Male PT 25 (1)	Male PT 25 (1)	Male PT 25 (1)	Male PT 25 (1)	Male PT 25 (1)
		Outlet		mm	Male PT 25 (1)	Male PT 25 (1)	Male PT 25 (1)	Male PT 25 (1)	Male PT 25 (1)	Male PT 25 (1)	Male PT 25 (1)	Male PT 25 (1)	Male PT 25 (1)
	Strainer	Mesh size		-	28 mesh	28 mesh	28 mesh	28 mesh	28 mesh	28 mesh	28 mesh	28 mesh	28 mesh
		Material		-	Stainless Steel	Stainless Steel	Stainless Steel	Stainless Steel	Stainless Steel	Stainless Steel	Stainless Steel	Stainless Steel	Stainless Steel
	Safety Valve	Pressure Limit	Upper Limit	bar	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Refrigerant Side	Operation Range (Outdoor Temperature)	Cooling	Min. ~ Max.	°CDB	5 ~ 48	5 ~ 48	5 ~ 48	5 ~ 48	5 ~ 48	5 ~ 48	5 ~ 48	5 ~ 48	5 ~ 48
		Heating	Min. ~ Max.	°CDB	-25 ~ 35	-25 ~ 35	-25 ~ 35	-25 ~ 35	-25 ~ 35	-25 ~ 35	-25 ~ 35	-25 ~ 35	-25 ~ 35
	Compressor	Motor Type		-	Scroll	Scroll	Scroll	Scroll	Scroll	Scroll	Scroll	Scroll	Scroll
	Refrigerant	Type		-	R32	R32	R32	R32	R32	R32	R32	R32	R32
	Refrigerant Oil	Type		-	FW68D	FW68D	FW68D	FW68D	FW68D	FW68D	FW68D	FW68D	FW68D
	Fan	Type		-	Propeller	Propeller	Propeller	Propeller	Propeller	Propeller	Propeller	Propeller	Propeller
		Air Flow Rate	Rated	m^3/min × No.	60.0 × 1	60.0 × 1	60.0 × 1	60.0 × 2	60.0 × 2	60.0 × 2	60.0 × 2	60.0 × 2	60.0 × 2
	Fan Motor	Output		W × No.	124 × 1	124 × 1	124 × 1	124 × 2	124 × 2	124 × 2	124 × 2	124 × 2	124 × 2

Electrical Specifications			ZHBW056A0 [HM051M.U43]	ZHBW076A0 [HM071M.U43]	ZHBW096A0 [HM091M.U43]	ZHBW126A0 [HM121M.U33]	ZHBW146A0 [HM141M.U33]	ZHBW166A0 [HM161M.U33]	ZHBW128A0 [HM123M.U33]	ZHBW148A0 [HM143M.U33]	ZHBW168A0 [HM163M.U33]
Power Supply		V, Ø, Hz	220-240, 1, 50	220-240, 1, 50	220-240, 1, 50	220-240, 1, 50	220-240, 1, 50	220-240, 1, 50	380-415, 3, 50	380-415, 3, 50	380-415, 3, 50
Maximum Cut off Current	Cooling	A	27.6	27.6	27.6	42	42	42	18	18	18
	Heating	A	27.6	27.6	27.6	42	42	42	18	18	18
Maximum Running Current	Cooling	A	23.0	23.0	23.0	35.0	35.0	35.0	15.0	15.0	15.0
	Heating	A	23.0	23.0	23.0	35.0	35.0	35.0	15.0	15.0	15.0
Rated Running Current	Cooling	A	5.3	6.9	9.5	11.6	14.4	17.7	3.8	4.8	5.9
	Heating	A	5.4	6.9	9.6	11.6	13.8	16.1	3.8	4.6	5.4

Technical Specifications				ZHBW056A0 [HM051M.U43]	ZHBW076A0 [HM071M.U43]	ZHBW096A0 [HM091M.U43]	ZHBW126A0 [HM121M.U33]	ZHBW146A0 [HM141M.U33]	ZHBW166A0 [HM161M.U33]	ZHBW128A0 [HM123M.U33]	ZHBW148A0 [HM143M.U33]	ZHBW168A0 [HM163M.U33]
Sound Power Level	Heating	Max.	dB (A)	60	60	60	63	63	63	63	63	63
Dimensions	Unit	W × H × D	mm	1,239 x 834 x 330	1,239 x 834 x 330	1,239 x 834 x 330	1,239 x 1,380 x 330	1,239 x 1,380 x 330	1,239 x 1,380 x 330	1,239 x 1,380 x 330	1,239 x 1,380 x 330	1,239 x 1,380 x 330
	Packed Unit	W × H × D	mm	1,364 x 985 x 461	1,364 x 985 x 461	1,364 x 985 x 461	1,364 x 1,532 x 461	1,364 x 1,532 x 461	1,364 x 1,532 x 461	1,364 x 1,532 x 461	1,364 x 1,532 x 461	1,364 x 1,532 x 461
Weight	Unit		kg	90.8	90.8	90.8	124.8	124.8	124.8	124.8	124.8	124.8
	Packed Unit		kg	102.5	102.5	102.5	138.5	138.5	138.5	138.5	138.5	138.5

Product Information for Residential

THERMA V R32 MONOBLOC

Description				ZHBW056A0 (HM051M U43)	ZHBW076A0 (HM071M U43)	ZHBW096A0 (HM091M U43)
Nominal Capacity	Heating	LWT 35°C at OAT 7°C	kW	5.50	7.00	9.00
		LWT 55°C at OAT 7°C	kW	5.50	5.50	5.50
		LWT 35°C at OAT 2°C	kW	3.30	4.20	5.40
	Cooling	LWT 18°C at OAT 35°C	kW	5.50	7.00	9.00
		LWT 7°C at OAT 35°C	kW	5.50	7.00	9.00
Nominal Power Input	Heating	LWT 35°C at OAT 7°C	kW	1.22	1.56	2.15
		LWT 55°C at OAT 7°C	kW	2.04	2.04	2.04
		LWT 35°C at OAT 2°C	kW	0.94	1.20	1.54
	Cooling	LWT 18°C at OAT 35°C	kW	1.20	1.56	2.14
		LWT 7°C at OAT 35°C	kW	1.96	2.59	3.46
COP	Heating	LWT 35°C at OAT 7°C	W/W	4.50	4.50	4.18
		LWT 55°C at OAT 7°C	W/W	2.70	2.70	2.70
		LWT 35°C at OAT 2°C	W/W	3.52	3.51	3.50
EER	Cooling	LWT 18°C at OAT 35°C	W/W	4.60	4.50	4.20
		LWT 7°C at OAT 35°C	W/W	2.80	2.70	2.60

Description				ZHBW126A0 (HM121M U33)	ZHBW146A0 (HM141M U33)	ZHBW166A0 (HM161M U33)
Nominal Capacity	Heating	LWT 35°C at OAT 7°C	kW	12.00	14.00	16.00
		LWT 55°C at OAT 7°C	kW	12.00	12.00	12.00
		LWT 35°C at OAT 2°C	kW	11.00	12.00	13.80
	Cooling	LWT 18°C at OAT 35°C	kW	14.00	14.00	16.00
		LWT 7°C at OAT 35°C	kW	14.00	14.00	16.00
Nominal Power Input	Heating	LWT 35°C at OAT 7°C	kW	2.61	3.11	4.00
		LWT 55°C at OAT 7°C	kW	4.29	4.29	4.29
		LWT 35°C at OAT 2°C	kW	3.13	3.42	3.94
	Cooling	LWT 18°C at OAT 35°C	kW	3.04	3.26	4.00
		LWT 7°C at OAT 35°C	kW	5.19	5.38	6.40
COP	Heating	LWT 35°C at OAT 7°C	W/W	4.60	4.50	4.00
		LWT 55°C at OAT 7°C	W/W	2.80	2.80	2.80
		LWT 35°C at OAT 2°C	W/W	3.52	3.51	3.50
EER	Cooling	LWT 18°C at OAT 35°C	W/W	4.60	4.30	4.00
		LWT 7°C at OAT 35°C	W/W	2.70	2.60	2.50

Description				ZHBW128A0 (HM123M U33)	ZHBW148A0 (HM143M U33)	ZHBW168A0 (HM163M U33)
Nominal Capacity	Heating	LWT 35°C at OAT 7°C	kW	12.00	14.00	16.00
		LWT 55°C at OAT 7°C	kW	12.00	12.00	12.00
		LWT 35°C at OAT 2°C	kW	11.00	12.00	13.80
	Cooling	LWT 18°C at OAT 35°C	kW	14.00	14.00	16.00
		LWT 7°C at OAT 35°C	kW	14.00	14.00	16.00
Nominal Power Input	Heating	LWT 35°C at OAT 7°C	kW	2.61	3.11	4.00
		LWT 55°C at OAT 7°C	kW	4.29	4.29	4.29
		LWT 35°C at OAT 2°C	kW	3.13	3.42	3.94
	Cooling	LWT 18°C at OAT 35°C	kW	3.04	3.26	4.00
		LWT 7°C at OAT 35°C	kW	5.19	5.38	6.40
COP	Heating	LWT 35°C at OAT 7°C	W/W	4.60	4.50	4.00
		LWT 55°C at OAT 7°C	W/W	2.80	2.80	2.80
		LWT 35°C at OAT 2°C	W/W	3.52	3.51	3.50
EER	Cooling	LWT 18°C at OAT 35°C	W/W	4.60	4.30	4.00
		LWT 7°C at OAT 35°C	W/W	2.70	2.60	2.50

PERFORMANCE TABLE FOR COOLING OPERATION

MAXIMUM COOLING CAPACITY

ZHBW056A0 [HM051M U43]

Outdoor Temperature	Water flow rate 15.8 LPM													
	LWT 7°C		LWT 10°C		LWT 13°C		LWT 15°C		LWT 18°C		LWT 20°C		LWT 22°C	
	TC	COP	TC	COP	TC	COP	TC	COP	TC	COP	TC	COP	TC	COP
10°CDB	5.16	4.43	5.65	4.86	6.14	5.29	6.47	5.58	6.96	6.01	7.29	6.30	7.62	6.59
20°CDB	5.29	3.78	5.59	4.23	5.89	4.69	6.08	4.99	6.38	5.45	6.58	5.75	6.77	6.05
30°CDB	5.43	3.13	5.53	3.60	5.63	4.08	5.69	4.40	5.79	4.88	5.86	5.20	5.92	5.52
35°CDB	5.50	2.80	5.50	3.29	5.50	3.78	5.50	4.11	5.50	4.60	5.50	4.93	5.50	5.25
40°CDB	5.57	2.47	5.50	2.95	5.43	3.42	5.38	3.74	5.31	4.21	5.27	4.52	5.22	4.84
45°CDB	5.64	2.15	5.50	2.60	5.36	3.06	5.27	3.36	5.13	3.82	5.04	4.12	4.94	4.42

ZHBW076A0 [HM071M U43]

Outdoor Temperature	Water flow rate 20.1 LPM													
	LWT 7°C		LWT 10°C		LWT 13°C		LWT 15°C		LWT 18°C		LWT 20°C		LWT 22°C	
	TC	COP	TC	COP	TC	COP	TC	COP	TC	COP	TC	COP	TC	COP
10°CDB	6.56	4.33	7.19	4.75	7.82	5.18	8.24	5.46	8.86	5.88	9.28	6.16	9.70	6.44
20°CDB	6.74	3.68	7.11	4.13	7.49	4.58	7.74	4.88	8.12	5.33	8.37	5.63	8.62	5.93
30°CDB	6.91	3.03	7.04	3.50	7.16	3.98	7.25	4.30	7.37	4.78	7.46	5.09	7.54	5.41
35°CDB	7.00	2.70	7.00	3.19	7.00	3.68	7.00	4.01	7.00	4.50	7.00	4.83	7.00	5.15
40°CDB	7.09	2.37	7.00	2.85	6.91	3.32	6.85	3.63	6.76	4.10	6.70	4.42	6.65	4.73
45°CDB	7.18	2.05	7.00	2.50	6.82	2.95	6.70	3.25	6.53	3.70	6.41	4.01	6.29	4.31

ZHBW096A0 [HM091M U43]

Outdoor Temperature	Water flow rate 25.9 LPM													
	LWT 7°C		LWT 10°C		LWT 13°C		LWT 15°C		LWT 18°C		LWT 20°C		LWT 22°C	
	TC	COP	TC	COP	TC	COP	TC	COP	TC	COP	TC	COP	TC	COP
10°CDB	8.44	4.04	9.24	4.44	10.05	4.83	10.59	5.09	11.40	5.49	11.93	5.75	12.47	6.01
20°CDB	8.66	3.47	9.15	3.88	9.63	4.29	9.95	4.56	10.44	4.97	10.76	5.25	11.08	5.52
30°CDB	8.89	2.89	9.05	3.32	9.21	3.74	9.32	4.03	9.48	4.46	9.59	4.74	9.69	5.03
35°CDB	9.00	2.60	9.00	3.04	9.00	3.47	9.00	3.76	9.00	4.20	9.00	4.49	9.00	4.78
40°CDB	9.11	2.31	9.00	2.73	8.89	3.16	8.81	3.44	8.70	3.86	8.62	4.14	8.54	4.42
45°CDB	9.23	2.02	9.00	2.43	8.77	2.84	8.62	3.11	8.39	3.52	8.24	3.79	8.09	4.06

Note

1. DB : Dry bulb temperature (℃), LWT : Leaving water temperature (℃), LPM : Liters per minute (ℓ/m)
2. TC : Total capacity (kW), COP : Coefficient of performance (kW/kW)
3. Direct interpolation is permissible. Do not extrapolate.
4. Measuring procedure follows EN-14511.
   - Rated values are based on standard conditions, and it can be found on specifications.
   - Above table values may not be matched according to installation condition. Except for rated value, the performance is not guaranteed.
   - In accordance with the test standard (or nations), the rating will vary slightly.

Product Information for Residential

THERMA V R32 MONOBLOC

PERFORMANCE TABLE FOR COOLING OPERATION

MAXIMUM COOLING CAPACITY

ZHBW126A0 [HM121M U33] / ZHBW128A0 [HM123M U33]

Outdoor Temperature	Water flow rate 34.5 LPM													
	LWT 7°C		LWT 10°C		LWT 13°C		LWT 15°C		LWT 18°C		LWT 20°C		LWT 22°C	
	TC	COP	TC	COP	TC	COP	TC	COP	TC	COP	TC	COP	TC	COP
10°CDB	11.25	4.43	12.33	4.86	13.40	5.29	14.12	5.58	15.20	6.01	15.91	6.30	16.63	6.59
20°CDB	11.55	3.74	12.20	4.20	12.84	4.67	13.27	4.98	13.92	5.45	14.35	5.76	14.78	6.07
30°CDB	11.85	3.05	12.07	3.55	12.28	4.05	12.42	4.38	12.64	4.88	12.78	5.22	12.93	5.55
35°CDB	12.00	2.70	12.00	3.22	12.00	3.74	12.00	4.08	12.00	4.60	12.00	4.95	12.00	5.29
40°CDB	12.15	2.35	12.00	2.85	11.85	3.35	11.75	3.68	11.59	4.17	11.49	4.50	11.39	4.83
45°CDB	12.30	2.01	12.00	2.48	11.69	2.95	11.49	3.27	11.19	3.74	10.99	4.06	10.78	4.37

ZHBW146A0 [HM141M U33] / ZHBW148A0 [HM143M U33]

Outdoor Temperature	Water flow rate 40.3 LPM													
	LWT 7°C		LWT 10°C		LWT 13°C		LWT 15°C		LWT 18°C		LWT 20°C		LWT 22°C	
	TC	COP	TC	COP	TC	COP	TC	COP	TC	COP	TC	COP	TC	COP
10°CDB	13.13	4.14	14.38	4.54	15.64	4.95	16.47	5.22	17.73	5.62	18.57	5.89	19.40	6.16
20°CDB	13.48	3.52	14.23	3.95	14.98	4.38	15.48	4.66	16.24	5.09	16.74	5.38	17.24	5.66
30°CDB	13.83	2.91	14.08	3.36	14.33	3.81	14.49	4.11	14.75	4.56	14.91	4.87	15.08	5.17
35°CDB	14.00	2.60	14.00	3.06	14.00	3.53	14.00	3.84	14.00	4.30	14.00	4.61	14.00	4.92
40°CDB	14.18	2.29	14.00	2.74	13.82	3.18	13.70	3.48	13.53	3.93	13.41	4.22	13.29	4.52
45°CDB	14.35	1.98	14.00	2.41	13.64	2.84	13.41	3.13	13.05	3.55	12.82	3.84	12.58	4.13

ZHBW166A0 [HM161M U33] / ZHBW168A0[HM163M U33]

Outdoor Temperature	Water flow rate 46.0 LPM													
	LWT 7°C		LWT 10°C		LWT 13°C		LWT 15°C		LWT 18°C		LWT 20°C		LWT 22°C	
	TC	COP	TC	COP	TC	COP	TC	COP	TC	COP	TC	COP	TC	COP
10°CDB	15.00	3.85	16.43	4.23	17.87	4.60	18.83	4.85	20.26	5.23	21.22	5.48	22.17	5.73
20°CDB	15.40	3.31	16.26	3.70	17.12	4.09	17.70	4.35	18.56	4.74	19.13	5.00	19.70	5.26
30°CDB	15.80	2.77	16.09	3.17	16.37	3.57	16.57	3.84	16.85	4.25	17.04	4.51	17.23	4.78
35°CDB	16.00	2.50	16.00	2.91	16.00	3.32	16.00	3.59	16.00	4.00	16.00	4.27	16.00	4.55
40°CDB	16.20	2.23	16.00	2.63	15.80	3.02	15.66	3.29	15.46	3.68	15.32	3.95	15.19	4.21
45°CDB	16.40	1.96	16.00	2.34	15.59	2.73	15.32	2.98	14.92	3.37	14.65	3.62	14.38	3.88

Note

1. DB : Dry bulb temperature (℃), LWT : Leaving water temperature (℃), LPM : Liters per minute (ℓ/m)
2. TC : Total capacity (kW), COP : Coefficient of performance (kW/kW)
3. Direct interpolation is permissible. Do not extrapolate.
4. Measuring procedure follows EN-14511.
   - Rated values are based on standard conditions, and it can be found on specifications.
   - Above table values may not be matched according to installation condition. Except for rated value, the performance is not guaranteed.
   - In accordance with the test standard (or nations), the rating will vary slightly.

PERFORMANCE TABLE FOR HEATING OPERATION

MAXIMUM HEATING CAPACITY (INCLUDING DEFROST EFFECT)

ZHBW056A0 [HM051M U43]

Outdoor Temperature	Water flow rate 15.8 LPM								Water flow rate 9.9 LPM				Water flow rate 7.9 LPM			
	LWT 30°C		LWT 35°C		LWT 40°C		LWT 45°C		LWT 50°C		LWT 55°C		LWT 60°C		LWT 65°C	
	TC	COP	TC	COP	TC	COP	TC	COP	TC	COP	TC	COP	TC	COP	TC	COP
-25°CDB	3.79	1.88	3.67	1.75	3.54	1.63	3.42	1.50								
-20°CDB	4.22	2.51	4.09	2.01	3.96	1.86	3.83	1.72	3.70	1.57						
-15°CDB	4.66	2.42	4.52	2.27	4.38	2.10	4.25	1.93	4.11	1.77	3.97	1.60				
-7°CDB	5.50	3.18	5.50	2.99	5.50	2.79	5.50	2.60	5.50	2.41	5.50	2.21	5.50	2.02		
-4°CDB	5.50	3.36	5.50	3.14	5.50	2.93	5.50	2.71	5.50	2.49	5.50	2.28	5.50	2.06	5.50	1.91
-2°CDB	5.50	3.51	5.50	3.25	5.50	3.04	5.50	2.83	5.50	2.63	5.50	2.42	5.50	2.21	5.50	2.01
2°CDB	5.50	3.52	5.50	3.45	5.50	3.25	5.50	3.04	5.50	2.83	5.50	2.63	5.50	2.42	5.50	2.21
7°CDB	5.50	4.84	5.50	4.50	5.50	4.16	5.50	3.82	5.50	3.49	5.50	3.15	5.50	2.81	5.50	2.47
10°CDB	5.50	5.14	5.50	4.78	5.50	4.42	5.50	4.06	5.50	3.70	5.50	3.35	5.50	2.99	5.50	2.63
15°CDB	5.50	6.12	5.50	5.66	5.50	5.20	5.50	4.73	5.50	4.27	5.50	3.81	5.50	3.35	5.50	2.88
18°CDB	5.50	6.45	5.50	5.96	5.50	5.48	5.50	4.99	5.50	4.50	5.50	4.01	5.50	3.53	5.50	3.04
20°CDB	5.50	6.67	5.50	6.17	5.50	5.66	5.50	5.16	5.50	4.65	5.50	4.15	5.50	3.65	5.50	3.14
35°CDB	5.50	8.31	5.50	7.68	5.50	7.05	5.50	6.43	5.50	5.80	5.50	5.17	5.50	4.54	5.50	3.91

ZHBW076A0 [HM071M U43]

Outdoor Temperature	Water flow rate 20.1 LPM								Water flow rate 12.6 LPM				Water flow rate 10.0 LPM			
	LWT 30°C		LWT 35°C		LWT 40°C		LWT 45°C		LWT 50°C		LWT 55°C		LWT 60°C		LWT 65°C	
	TC	COP	TC	COP	TC	COP	TC	COP	TC	COP	TC	COP	TC	COP	TC	COP
-25°CDB	4.82	1.99	4.67	1.73	4.51	1.48	4.36	1.22								
-20°CDB	5.38	2.47	5.21	1.98	5.05	1.77	4.88	1.56	4.72	1.35						
-15°CDB	5.93	2.38	5.76	2.22	5.58	2.06	5.41	1.90	5.23	1.74	5.06	1.58				
-7°CDB	7.00	3.15	7.00	2.96	7.00	2.77	7.00	2.58	7.00	2.38	7.00	2.19	7.00	2.00		
-4°CDB	7.00	3.33	7.00	3.11	7.00	2.90	7.00	2.68	7.00	2.47	7.00	2.25	7.00	2.04	7.00	1.89
-2°CDB	7.00	3.51	7.00	3.21	7.00	3.01	7.00	2.81	7.00	2.60	7.00	2.40	7.00	2.19	7.00	1.99
2°CDB	7.00	3.52	7.00	3.42	7.00	3.21	7.00	3.01	7.00	2.81	7.00	2.60	7.00	2.40	7.00	2.19
7°CDB	7.00	4.69	7.00	4.50	7.00	4.16	7.00	3.82	7.00	3.47	7.00	3.13	7.00	2.79	7.00	2.45
10°CDB	7.00	5.14	7.00	4.78	7.00	4.42	7.00	4.05	7.00	3.69	7.00	3.33	7.00	2.96	7.00	2.60
15°CDB	7.00	6.02	7.00	5.57	7.00	5.12	7.00	4.67	7.00	4.21	7.00	3.76	7.00	3.31	7.00	2.86
18°CDB	7.00	6.34	7.00	5.87	7.00	5.39	7.00	4.92	7.00	4.44	7.00	3.96	7.00	3.49	7.00	3.01
20°CDB	7.00	6.56	7.00	6.07	7.00	5.57	7.00	5.08	7.00	4.59	7.00	4.10	7.00	3.60	7.00	3.11
35°CDB	7.00	8.17	7.00	7.56	7.00	6.95	7.00	6.33	7.00	5.72	7.00	5.10	7.00	4.49	7.00	3.88

ZHBW096A0 [HM091M U43]

Outdoor Temperature	Water flow rate 25.9 LPM								Water flow rate 16.2 LPM				Water flow rate 12.9 LPM			
	LWT 30°C		LWT 35°C		LWT 40°C		LWT 45°C		LWT 50°C		LWT 55°C		LWT 60°C		LWT 65°C	
	TC	COP	TC	COP	TC	COP	TC	COP	TC	COP	TC	COP	TC	COP	TC	COP
-25°CDB	6.20	1.95	6.00	1.70	5.80	1.45	5.60	1.20								
-20°CDB	6.91	2.45	6.70	1.96	6.49	1.75	6.28	1.54	6.06	1.33						
-15°CDB	7.63	2.39	7.40	2.22	7.18	2.05	6.95	1.89	6.73	1.72	6.50	1.55				
-7°CDB	9.00	3.09	9.00	2.90	9.00	2.71	9.00	2.53	9.00	2.34	9.00	2.15	9.00	1.96		
-4°CDB	9.00	3.26	9.00	3.05	9.00	2.84	9.00	2.63	9.00	2.42	9.00	2.21	9.00	2.00	9.00	1.85
-2°CDB	9.00	3.51	9.00	3.15	9.00	2.95	9.00	2.75	9.00	2.55	9.00	2.35	9.00	2.15	9.00	1.95
2°CDB	9.00	3.52	9.00	3.35	9.00	3.15	9.00	2.95	9.00	2.75	9.00	2.55	9.00	2.35	9.00	2.15
7°CDB	9.00	4.70	9.00	4.18	9.00	3.88	9.00	3.59	9.00	3.29	9.00	2.99	9.00	2.70	9.00	2.40
10°CDB	9.00	4.76	9.00	4.44	9.00	4.13	9.00	3.81	9.00	3.50	9.00	3.18	9.00	2.87	9.00	2.55
15°CDB	9.00	6.07	9.00	5.60	9.00	5.13	9.00	4.67	9.00	4.20	9.00	3.73	9.00	3.27	9.00	2.80
18°CDB	9.00	6.39	9.00	5.90	9.00	5.41	9.00	4.92	9.00	4.43	9.00	3.93	9.00	3.44	9.00	2.95
20°CDB	9.00	6.61	9.00	6.10	9.00	5.59	9.00	5.08	9.00	4.58	9.00	4.07	9.00	3.56	9.00	3.05
35°CDB	9.00	8.23	9.00	7.60	9.00	6.97	9.00	6.33	9.00	5.70	9.00	5.07	9.00	4.43	9.00	3.80

Note

1. DB : Dry bulb temperature (℃), LWT : Leaving water temperature (℃), LPM : Liters per minute (ℓ/m)
2. TC : Total capacity (kW), COP : Coefficient of performance (kW/kW)
3. Direct interpolation is permissible. Do not extrapolate.
4. Measuring procedure follows EN-14511.
   - Rated values are based on standard conditions, and it can be found on specifications.
   - Above table values may not be matched according to installation condition. Except for rated value, the performance is not guaranteed.
   - In accordance with the test standard (or nations), the rating will vary slightly.
5. The shaded areas are the operative areas.

Product Information for Residential

THERMA V R32 MONOBLOC

PERFORMANCE TABLE FOR HEATING OPERATION

MAXIMUM HEATING CAPACITY (INCLUDING DEFROST EFFECT)

ZHBW126A0 [HM121M U33] / ZHBW128A0 [HM123M U33]

Outdoor Temperature	Water flow rate 34.5 LPM								Water flow rate 21.6 LPM				Water flow rate 17.3 LPM			
	LWT 30°C		LWT 35°C		LWT 40°C		LWT 45°C		LWT 50°C		LWT 55°C		LWT 60°C		LWT 65°C	
	TC	COP	TC	COP	TC	COP	TC	COP	TC	COP	TC	COP	TC	COP	TC	COP
-25°CDB	8.75	2.13	8.50	1.85	8.25	1.58	8.00	1.30								
-20°CDB	10.13	2.34	10.00	2.13	9.88	1.91	9.75	1.70	9.63	1.49						
-15°CDB	11.50	2.55	11.50	2.40	11.50	2.25	11.50	2.10	11.50	1.95	11.50	1.80				
-7°CDB	12.00	3.15	12.00	3.00	12.00	2.85	12.00	2.70	12.00	2.55	12.00	2.40	12.00	2.25		
-4°CDB	12.00	3.36	12.00	3.17	12.00	2.97	12.00	2.78	12.00	2.59	12.00	2.39	12.00	2.20	12.00	2.05
-2°CDB	12.00	3.47	12.00	3.28	12.00	3.09	12.00	2.90	12.00	2.71	12.00	2.53	12.00	2.34	12.00	2.15
2°CDB	12.00	3.69	12.00	3.50	12.00	3.31	12.00	3.12	12.00	2.93	12.00	2.73	12.00	2.54	12.00	2.35
7°CDB	12.00	4.93	12.00	4.60	12.00	4.27	12.00	3.93	12.00	3.60	12.00	2.80	12.00	2.60	12.00	2.60
10°CDB	12.00	5.22	12.00	4.87	12.00	4.51	12.00	4.16	12.00	3.81	12.00	3.46	12.00	3.10	12.00	2.75
15°CDB	12.00	5.99	12.00	5.56	12.00	5.13	12.00	4.71	12.00	4.28	12.00	3.85	12.00	3.43	12.00	3.00
18°CDB	12.00	6.29	12.00	5.84	12.00	5.39	12.00	4.94	12.00	4.49	12.00	4.05	12.00	3.60	12.00	3.15
20°CDB	12.00	6.49	12.00	6.02	12.00	5.56	12.00	5.10	12.00	4.64	12.00	4.17	12.00	3.71	12.00	3.25
35°CDB	12.00	7.98	12.00	7.41	12.00	6.84	12.00	6.28	12.00	5.71	12.00	5.14	12.00	4.57	12.00	4.00

ZHBW146A0 [HM141M U33] / ZHBW148A0 [HM143M U33]

Outdoor Temperature	Water flow rate 40.3 LPM								Water flow rate 25.2 LPM				Water flow rate 20.1 LPM			
	LWT 30°C		LWT 35°C		LWT 40°C		LWT 45°C		LWT 50°C		LWT 55°C		LWT 60°C		LWT 65°C	
	TC	COP	TC	COP	TC	COP	TC	COP	TC	COP	TC	COP	TC	COP	TC	COP
-25°CDB	9.25	2.08	9.00	1.80	8.75	1.53	8.50	1.25								
-20°CDB	10.63	2.26	10.50	2.05	10.38	1.84	10.25	1.63	10.13	1.41						
-15°CDB	12.00	2.45	12.00	2.30	12.00	2.15	12.00	2.00	12.00	1.85	12.00	1.70				
-7°CDB	14.00	3.12	14.00	2.95	14.00	2.79	14.00	2.63	14.00	2.46	14.00	2.30	14.00	2.14		
-4°CDB	14.00	3.30	14.00	3.10	14.00	2.90	14.00	2.70	14.00	2.50	14.00	2.30	14.00	2.10	14.00	1.95
-2°CDB	14.00	3.39	14.00	3.20	14.00	3.01	14.00	2.82	14.00	2.63	14.00	2.43	14.00	2.24	14.00	2.05
2°CDB	14.00	3.65	14.00	3.40	14.00	3.21	14.00	3.02	14.00	2.83	14.00	2.63	14.00	2.44	14.00	2.25
7°CDB	14.00	4.83	14.00	4.50	14.00	4.17	14.00	3.83	14.00	3.50	14.00	2.78	14.00	2.50	14.00	2.50
10°CDB	14.00	5.12	14.00	4.77	14.00	4.42	14.00	4.06	14.00	3.71	14.00	3.36	14.00	3.00	14.00	2.65
15°CDB	14.00	6.02	14.00	5.57	14.00	5.13	14.00	4.68	14.00	4.24	14.00	3.79	14.00	3.35	14.00	2.90
18°CDB	14.00	6.33	14.00	5.86	14.00	5.39	14.00	4.92	14.00	4.45	14.00	3.99	14.00	3.52	14.00	3.05
20°CDB	14.00	6.53	14.00	6.05	14.00	5.57	14.00	5.08	14.00	4.60	14.00	4.12	14.00	3.63	14.00	3.15
35°CDB	14.00	8.09	14.00	7.49	14.00	6.89	14.00	6.29	14.00	5.70	14.00	5.10	14.00	4.50	14.00	3.90

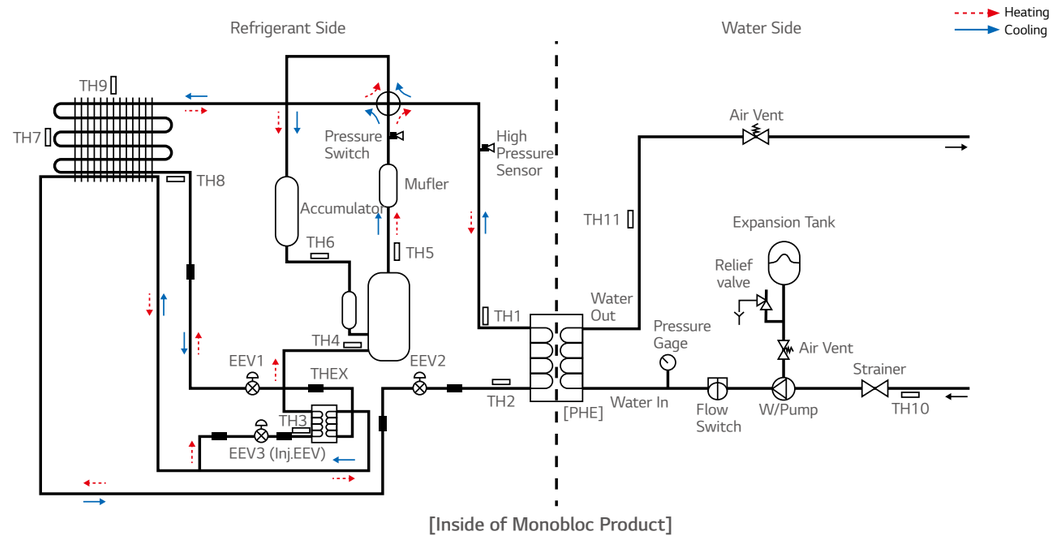
ZHBW166A0 [HM161M U33] / ZHBW168A0[HM163M U33]

Outdoor Temperature	Water flow rate 46.0 LPM								Water flow rate 28.8 LPM				Water flow rate 23.0 LPM			
	LWT 30°C		LWT 35°C		LWT 40°C		LWT 45°C		LWT 50°C		LWT 55°C		LWT 60°C		LWT 65°C	
	TC	COP	TC	COP	TC	COP	TC	COP	TC	COP	TC	COP	TC	COP	TC	COP
-25°CDB	10.50	1.96	10.00	1.70	9.50	1.44	9.00	1.18								
-20°CDB	12.30	2.33	11.75	1.94	11.44	1.74	11.13	1.55	10.81	1.35						
-15°CDB	14.10	2.70	13.50	2.18	13.38	2.05	13.25	1.92	13.13	1.78	13.00	1.65				
-7°CDB	16.00	2.96	16.00	2.80	16.00	2.64	16.00	2.48	16.00	2.31	16.00	2.15	16.00	1.99		
-4°CDB	16.00	3.18	16.00	2.98	16.00	2.79	16.00	2.59	16.00	2.40	16.00	2.20	16.00	2.01	16.00	1.79
-2°CDB	16.00	3.51	16.00	3.11	16.00	2.90	16.00	2.70	16.00	2.50	16.00	2.30	16.00	2.10	16.00	1.90
2°CDB	16.00	3.52	16.00	3.35	16.00	3.14	16.00	2.93	16.00	2.73	16.00	2.52	16.00	2.31	16.00	2.10
7°CDB	16.00	4.74	16.00	4.40	16.00	4.06	16.00	3.72	16.00	3.38	16.00	2.75	16.00	2.40	16.00	2.36
10°CDB	16.00	5.05	16.00	4.69	16.00	4.33	16.00	3.96	16.00	3.60	16.00	3.24	16.00	2.88	16.00	2.51
15°CDB	16.00	5.67	16.00	5.54	16.00	5.08	16.00	4.62	16.00	4.16	16.00	3.69	16.00	3.23	16.00	2.77
18°CDB	16.00	6.34	16.00	5.85	16.00	5.36	16.00	4.87	16.00	4.39	16.00	3.90	16.00	3.41	16.00	2.93
20°CDB	16.00	6.56	16.00	6.05	16.00	5.55	16.00	5.05	16.00	4.54	16.00	4.04	16.00	3.53	16.00	3.03
35°CDB	16.00	8.23	16.00	7.60	16.00	6.96	16.00	6.33	16.00	5.70	16.00	5.07	16.00	4.43	16.00	3.80

Note

1. DB : Dry bulb temperature (℃), LWT : Leaving water temperature (℃), LPM : Liters per minute (ℓ/m)
2. TC : Total capacity (kW), COP : Coefficient of performance (kW/kW)
3. Direct interpolation is permissible. Do not extrapolate. 4. Measuring procedure follows EN-14511.
   - Rated values are based on standard conditions, and it can be found on specifications.
   - Above table values may not be matched according to installation condition. Except for rated value, the performance is not guaranteed.
   - In accordance with the test standard (or nations), the rating will vary slightly.
5. The shaded areas are the operative areas.

Product schematic

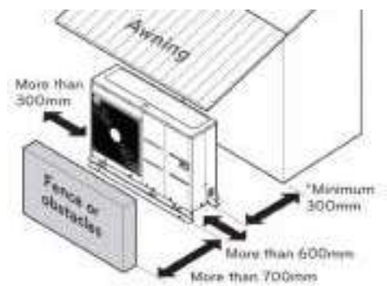


[Inside of Monobloc Product]

Water pipe

[Outdoor Unit]

Product schematic



[Outdoor unit SVC Space]

Product Information for Residential

THERMA V R32 MONOBLOC

Terminal block information

No	Name	Remark	Connection
1	Thermostat	230V AC, H/C	TB1 (17/18/19/20)
2	3Way valve (A) for hot water	3wire, SPDT, 230V AC	TB1 (8/9/10)
3	2Way valve	2wire, 230V AC	TB2 (14/15/16)
4	Solar pump	-	TB1 (4/5)
5	3Way valve (B) for solar pump	3wire, SPDT, 230V AC	TB1 (1/2/3)
6	Back-up heater	-	TB3 23/24/25/26
7	Temp sensor for Back-up heater	-	TB4 31/32
8	Mixing pump	-	TB5 (23/24)
9	Mixing valve	3wire, SPDT, 230V AC	TB5 (25/26/27)
10	3rd Party controller	LG Central	TB2 11/12
11	Booster heater kit	PHLTB	TB1 (6/7)

TERMINAL BLOCK : TB1

1	2	3	4	5	6	7	8	9	10
BR	WH	BL	BR	BL	BR	BL	BR	WH	BL
L	L1	N	L	N	L	N	L	L1	N
3WAY VALVE (B)			WATER PUMP (B)		WATER TANK HEATER		3WAY VALVE (A)		

TERMINAL BLOCK : TB2

11	12	13	14	15	16	17	18	19	20
BK	WH	BR	BL	BR	BR	BL	BR	WH	BL
A	B	L	N	L1	L2	N	L	L1	N
3rd PARTY CONTROLLER		MIX PUMP		MIXING VALVE			2WAY VALVE (A)		

TERMINAL BLOCK : TB3

21	22	23	24	25	26	27	28	29	30
		BR	BL	BR	BL	BR	BL	WH	BK
		L	N	L	N	L	N	L1	L2
		HEATER (A)		HEATER (B)		THERMOSTAT (Default : 230V AC)			

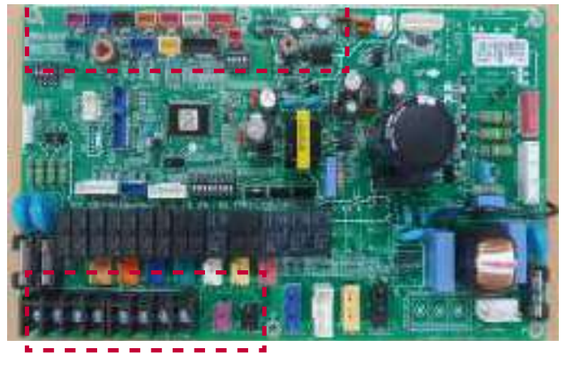
TERMINAL BLOCK : TB4 (ACCESSORY)

31	32
BK	BK
A	B
E/HEATER OUTSENSOR (5V DC)	

PCB Information

No	Name	Remark	Connection
1	Remote air sensor	-	CN_ROOM
2	Add remote air sensor	-	CN_LEAK_ROOM2
3	Mix kit water pipe sensor	-	CN_Mix_OUT
4	Water tank sensor	-	CN_TH4
5	Solar pipe sensor	-	CN_TH4
6	External pump	Contact	TB_EXT_Pump
7	Boiler	Contact	TB_Boiler
8	SG 1	L/N	TB_SG1
9	SG 2	L/N	TB_SG2

CN_Connection



TB_SG/Boiler/Pump

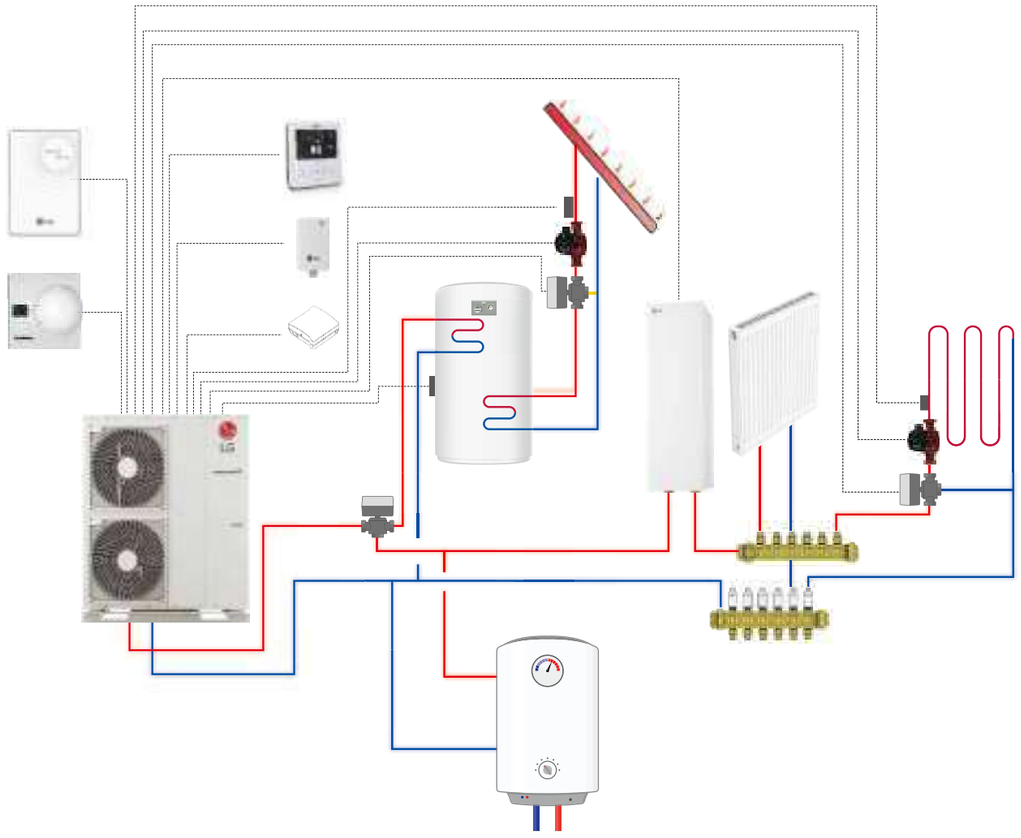
[Main PCB]

[Terminal block]

Product Information for Residential

THERMA V R32 MONOBLOC - EXTERNAL DEVICE & WIRING

System schematic



After calculating the water pipe head, additional pump should be installed if necessary.

Part Name	Part No.	Spec	Supply	Max Length
DHW Kit	PHLTA (Split 1p) PHLTB (Monobloc) PHLTC (Split 3p)	5KΩ, Φ7, 12m ± 0.25m	Accessory DHW kit	12m
Temp sensor for DHW	PHRSTA0	5KΩ, Φ7, 12m ± 0.25m	Accessory	12m
Remote controller	AKB74855311	Wired RS3	Default : 10m	
Remote controller Extension	PZCWRC1	9.6m	Accessory : 10m	
3Way v/v actuator wire	-	AC 230V	Field scope	100m ↑
2Way v/v actuator wire	-	AC 230V	Field scope	100m ↑
Mixing temp sensor	PRSTAT5K10		Accessory 3rd Party 5kΩ Thermistor	10m
Temp sensor for solar panel	PHLLA	Sensor 2EA 1) 5KΩ, Φ7, 12m 2) 5KΩ, Φ7, 12m	Accessory	10m
Remote sensor	PQRSTA0	Cable : 15m Sensor : 10KΩ	Accessory : 15m	15m
Wifi Module	PWFMDD200		Accessory : 60cm Extension : 50cm	10m
Wifi Module (USB Extension)	PWYREW000		Accessory : 10m	10m
Wire for thermostat	-	220 ~ 240V	Field scope	100m ↑
Backup heater temp sensor	-	0.75mm² x 4C (H05RN-F)	Field scope	
Wire for Backup heater signal	-	0.75mm² x 2C (3kW) 0.75mm² x 4C (6kW) (H05RN-F)	Field scope	
Wire for 3rd party boiler	-	Contact (H05RN-F) 0.75mm² x 2C	Field scope	100m ↑
Dry contact	PDRYCB000 (Simple Dry Contact) PDRYCB300 (8 input)	~ 24V Harness : 0.7m		

Product Information for Residential

THERMA V HIGH TEMP

Outdoor unit

Hydro Kit

Controller

No	Contents	Remark
1	Remote Air Sensor Connection	Room air sensor sold separately, PQRSTA0
2	Temperature Control Definition	Leaving Water temperature Room Air Temperature base Control DHW tank temperature
3	Weather Dependent Operation	outdoor Temp. range : Max. (10 ~ 20℃), Min. (-20 ~ 5℃) indoor air Temp. range : Max. (20 ~ 30℃), Min. (16 ~ 19℃) / leaving water Temp. : High Temp : Max. (65 ~ 80℃), Min. (40 ~ 54℃)
4	Disinfection Operation	Starting Date: 01 ~ 07 (01: Sun, 02: Mon, ···, 07: Sat) Starting Time in 24 hours: 00 ~ 23 hours Target temperature 40 ~ 70℃ Operation maintain time : 05 ~ 60 Minutes
5	Sanitary Water Heating Operation	Max.Temperature, Temperature gap, Priority of tank heating and floor heating (Water tank temperature sensor connection is needed)
6	Low Noise Mode	Setting by remote controller
7	Defrost Mode (only High Temp. Model)	Not use (STEP0) Forced snow removal (STEP1) Fast defrost setting (STEP2) Forced snow removal + fast defrost (STEP3)
8	External water pump control	DIP S/W setting
9	Emergency operation	DIP S/W setting
10	Dry Contact Mode	Accessory (PDRYCB000)
11	Water Pump Test Run	Setting by remote controller
12	PHEX anti-freezing control	Default

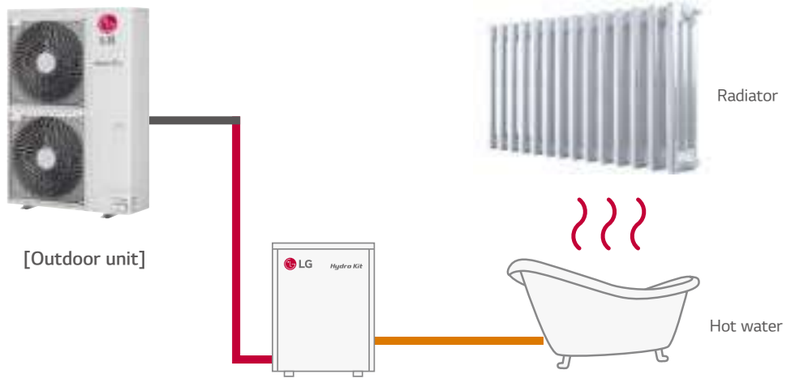
Key features

- Inverter compressor
- 80℃ Leaving water temperature
- 4Way piping installation (ODU)
- Compact design
- High reliability by flow switch
- NF-PAC / MCS Certification

Main Components

PHE (Ref.-Water)
Flow switch
Remote controller
Strainer (packed inside box)
DHW sensor (packed inside box)

Therma V High temp is a product made up of two units of outdoor unit and indoor unit, with air as the heat source. Major water components are integrated in indoor unit
It provides convenience to installers with home heating and hot water system.



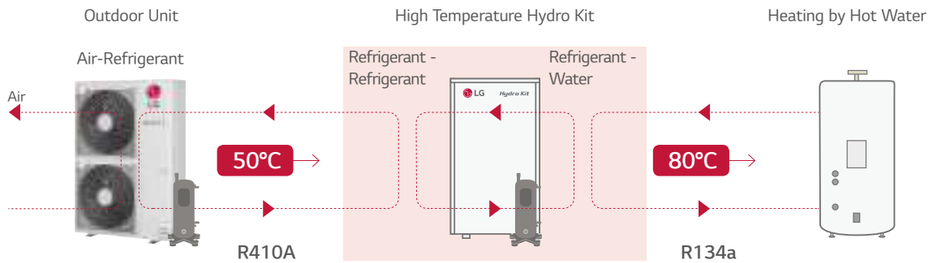
[Pipe length]

Chargeless : 10m
Min : 5m
Standard : 7.5m
Max : 50m
Level difference : 30m

R410A / R134a

80℃

High Temperature of Hydro Kit Cycle Diagram



Line up

Outdoor unit

	Capacity (kW)	16
Power	1ø 220V	●

Indoor unit

	Capacity (kW)	16
Power	1ø 220V	●

Single unit

Product Information for Residential

THERMA V HIGH TEMP

Hydro Kit High Temp. model

Type				AHWP (High Temp)
Model				AHNW166T0
Power Supply			Ø / V / Hz	220-240, 1, 50
Input (Indoor Unit)	Cooling	Rated	kW	-
	Heating	Rated	kW	6.13
Casing			-	Painted Steel Plate
Dimensions	Body	W × H × D	mm	520 x 1,080 x 330
			inch	20-15 / 32 x 42-17 / 32 x 13
Net Weight	Body		kg (lbs)	94.0 (207.2)
Heat Exchanger	Refrigerant to Water	Type	-	Blazed Plate HEX
		Quantity	EA	1
		Number of Plate	EA	76
		Rated Water Flow	ℓ/min	23
		Minimum Water Flow	ℓ/min	15.0 ± 1.5
		Maximum Pressure Resistance	kgf/cm²	45
	Refrigerant to Refrigerant	Type	-	Blazed Plate HEX
		Quantity	EA	1
		Number of Plate	EA	50
Compressor	Type		-	Twin Rotary inverter
	Model		Model x No.	EPT525DBA x 1
	Motor Type		-	BLDC
	Motor Output	Rated	W x No.	4,000 x 1
	Oil Type		-	FVC68D (PVE)
	Charged oil volume		CC	1,300
Refrigerant	Refrigerant to Water	Refrigerant name	-	R134a
		Precharged Amount	kg (lbs)	2.3 (5.1)
		TCO2eq	-	4.8
		GWP	-	2,078.50
		Control	-	Electronic Expansion Valve
Sound Absorbing Thermal Insulation Material			-	Foamed polystrene
Safety Device			-	Fuse
Piping Connections	Water Side	Entering Side	mm (inch)	Male PT 25 (1)
		Leaving Side	mm (inch)	Male PT 25 (1)
	Refrigerant Side	Liquid Side	mm (inch)	9.52 (3/8)
		Gas Side	mm (inch)	15.88 (5/8)
Drain Piping Connection			mm (inch)	Male PT 25 (1)
Sound Pressure Level	Cooling		dB (A)	-
	Heating		dB (A)	43
Power Supply Cable			No. x mm²	2C x CV4.0
Communication cable			No. x mm²	2C x VCTF-SB 1.0~1.5

Note

1. Capacities are based on the following conditions :
   - Heating Temperature : Outdoor 7℃ (44.6℉) DB / 6℃ (42.8℉) WB Water Inlet 55℃ (131℉) / Outlet 65℃ (149℉)
   - Piping Length : Interconnected Pipe Length = 7.5m
   - Difference Limit of Elevation (Outdoor ~ Indoor Unit) is Zero.
2. Wiring cable size must comply with the applicable local and national codes.
3. Due to our policy of innovation some specifications may be changed without notification.
4. Sound Level Values are measured at Anechoic chamber. Therefore, these values can be increased owing to ambient conditions during operation.

Nominal Capacity and Nominal Input				AHUW166T0
Capacity [1]	Heating	Rated	kW	16
Power Input [1]	Cooling	Rated	kW	-
	Heating	Rated	kW	6.13
EER	Cooling		W/W	-
COP	Heating		W/W	2.61

Outdoor Units				AHUW166T0
Operation Range (Outdoor Temperature)	Heating	Min. ~ Max.	℃ (℉) DB	-15 (5) ~ 35 (95)
	Domestic Hot Water	Min. ~ Max.	℃ (℉)	25 (77) ~ 80 (176)
Compressor	Type		-	Hermetic Motor Compressor
	Model		Model x No.	GPT442MBA x 1
	Motor Type		-	BLDC
	Motor Output	Rated	W x No.	4,000 x 1
Refrigerant	Type		-	R410A
	Precharged Amount		kg (lbs)	3.5 (7.7)
	Chargeless-Pipe Length		m (ft)	10.0 (32.8)
	Additional Charging Volume		g/m (oz/ft)	60 (0.645)
	Control		-	Electronic Expansion Valve
Refrigerant Oil	Type		-	FVC68D (PVE)
	Charged Volume		CC x No.	1,300
Heat Exchanger	Quantity		EA	2
	Specifications	Row	EA	2
		Column	EA	32
		Fins per Inch	EA	14
Fan	Type		-	Propeller
	Air Flow Rate	Rated	m³/ min x No.	110
Fan Motor	Type		-	BLDC
	Output		W x No.	124 x 2
Sound Pressure Level	Cooling	Rated	dB (A)	-
	Heating	Rated	dB (A)	53
Piping Connections	Liquid	Type	-	Flare
		Outer Dia.	mm (inch)	9.52 (3/8)
	Gas	Type	-	Flare
		Outer Dia.	mm (inch)	15.88 (5/8)
Piping Length		Min.	m (ft)	5 (16.4)
		Standard	m (ft)	7.5 (24.6)
		Max.	m (ft)	50 (164)
Piping Level Difference	Outdoor ~ Indoor Unit	Max.	m (ft)	30 (98.4)
Dimensions	Body	W × H × D	mm	950 X 1,380 X 330
			inch	37-13 / 32 X 54-11 / 32 X 13
Weight	Body		kg (lbs)	105.0 (231.4)

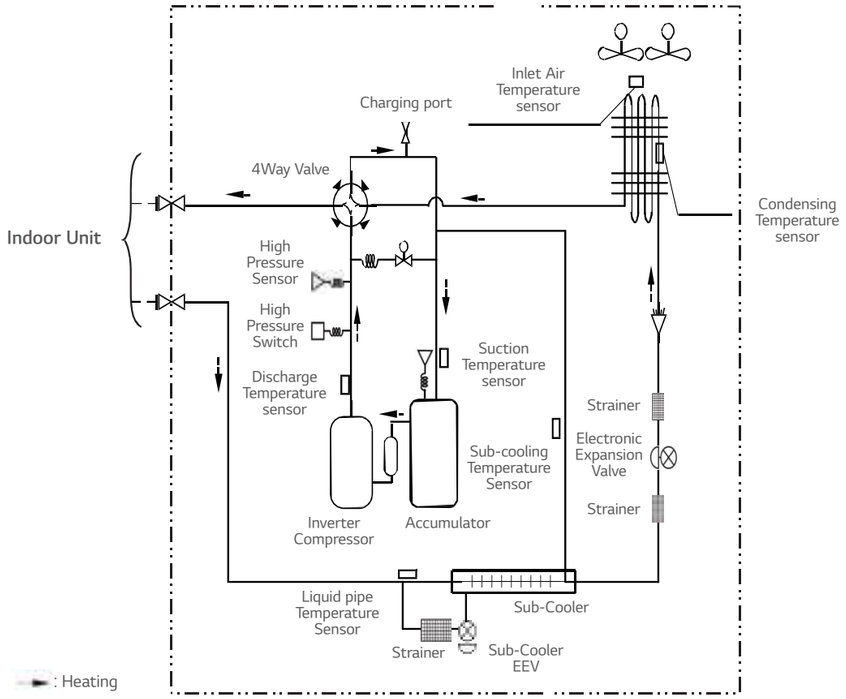
Electrical Specification			AHUW166T0
Power Supply		V, Ø, Hz	220-240, 1, 50
Power	Heating	A	19
Wiring Connections	Power Supply Cable (Included Earth)	No. x mm²	3C x H05RN-F 6.0

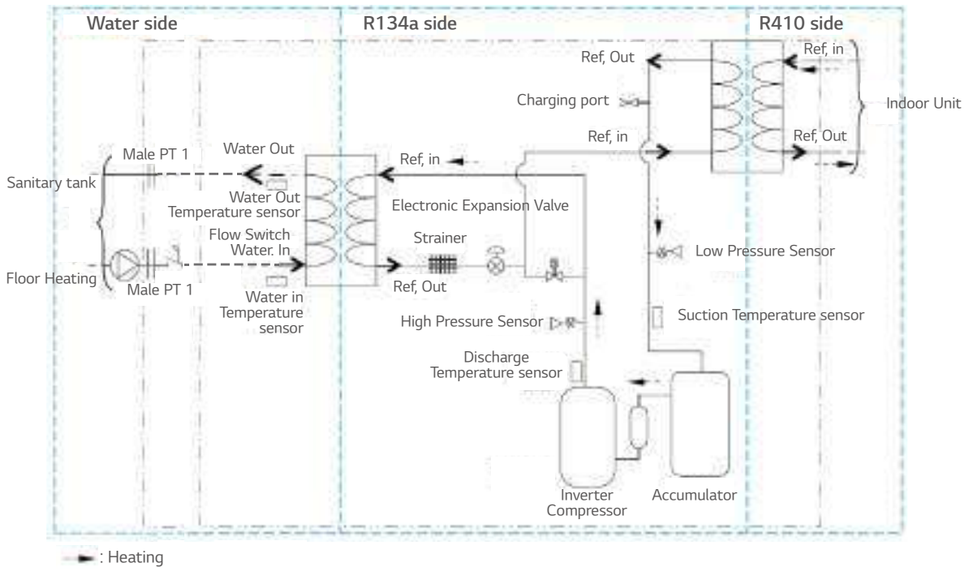
Note

1. Capacities are based on the following conditions :
   - Heating Temperature : Outdoor 7℃ (44.6℉) DB / 6℃ (42.8℉) WB Water Inlet 55℃ (131℉) / Outlet 65℃ (149℉)
   - Piping Length : Interconnected Pipe Length = 7.5m
   - Difference Limit of Elevation (Outdoor ~ Indoor Unit) is Zero.
2. Wiring cable size must comply with the applicable local and national codes.
3. Due to our policy of innovation some specifications may be changed without notification.
4. Sound Level Values are measured at Anechoic chamber. Therefore, these values can be increased owing to ambient conditions during operation.
5. This product contains Fluorinated Greenhouse Gases.

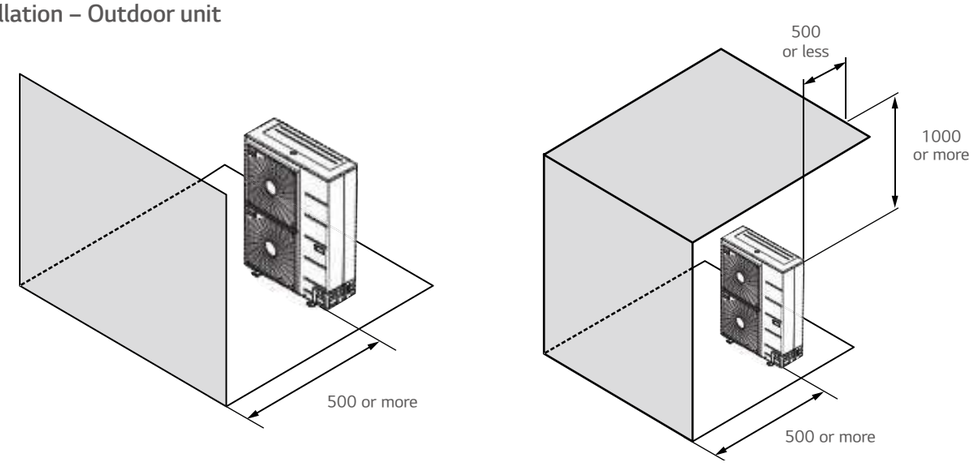
Product Information for Residential

THERMA V HIGH TEMP

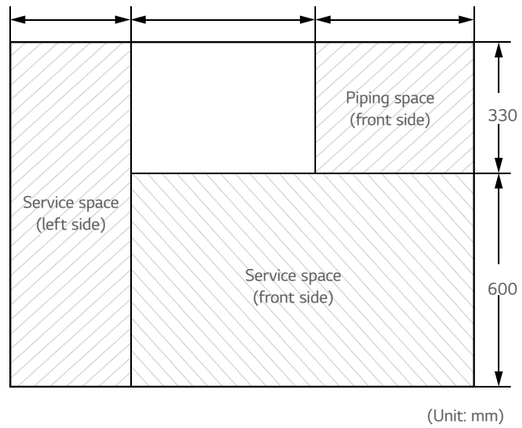




Installation – Outdoor unit



- For more information, please check the installation manual.
- Sufficient measures are required in a snow area or severe cold area in winter so that product can be operated well.
- Get ready for seasonal wind or snow in winter even in other areas.
- Install a suction and discharge duct not to let in snow or rain.
- Install the outdoor unit not to come in contact with snow directly. If snow piles up and freezes on the air suction hole, the system may malfunction. If it is installed at snowy area, attach the hood to the system.
- Install the outdoor unit at the higher installation console by 50cm than the average snowfall (annual average snowfall) if it is installed at the area with much snowfall.



The following values are the least space for installation. If any service area is needed for service according to field circumstance, obtain enough service space.

- The unit of values is mm.

Product Information for Residential

THERMA V HIGH TEMP

Terminal block of indoor unit							
Outdoor unit		Indoor unit		-	-	DRY1	DRY2	GND	12V
A	B	A	B	-	-	-	-	-	-

Terminal block of indoor unit			
1 (L)	2 (L)		⏚

Terminal block of indoor unit	
3 (A)	4 (B)

PCB information

No	Name	Remark	Connection
1	Dry contact		CN-CC
2	Remote controller	-	CN_REMO
3	DHW Temp sensor	-	CN_TH4

Terminal block information

L	N		L	L1	N	L	N	L1	L2
PUMP (A)			3WAY VALVE (A)			THERMOSTAT (Default : 230V AC)			

Installation – Outdoor unit

No	Name	Remark	Connection
1	Pump (A)	230V AC	L/N
2	3Way Valve (A) for hot water	3wire, SPDT, 230V AC	L/L1/N
3	Thermostat	230V AC	L/N/L1/L2

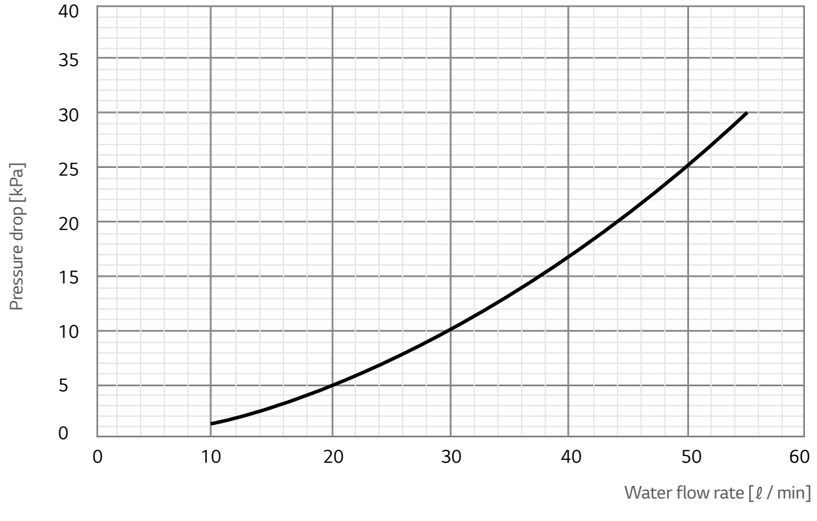
THERMOSTAT (Default : 1 ~ 230V)			
7	8	9	10
L	N	1L	2N
BR	BL	WH	BK
↓ (L)	↓ (N)		↑ (H)
THERMOSTAT			

3WAY VALVE (A)		
4	5	6
L	L1	N
BR	WH	BL
↓ (W)	↓ (U)	↓ (N)
3WAY VALVE		

(L) : Live signal from PCB to Thermostat
(N) : Neutral signal from PCB to Thermostat
(H) : Heating signal from Thermostat to PCB

(W) : Live signal (Water tank heating) from PCB to 3Way valve
(U) : Live signal (Under floor heating) from PCB to 3Way valve
(N) : Neutral signal from PCB to 3Way valve

PHE Head loss



Product Information for Residential

MULTI V S HYDRO KIT

Outdoor unit

Hydro Kit

No	Contents	Remark
1	Remote Air Sensor Connection	Room air sensor sold separately, PQRSTA0
2	Temperature Control Definition	Leaving water temperature Room air temperature base Control DHW tank temperature
3	Weather Dependent Operation	Outdoor Temp. range : Max. (10 ~ 20°C), Min. (-20 ~ 5°C) Indoor air Temp. range : Max. (20 ~ 30°C), Min. (16 ~ 19°C) Leaving Water Temp. : Medium Temp : Max. (35 ~ 50°C), Min. (20 ~ 34°C) High Temp : Max. (65 ~ 80°C), Min. (40 ~ 54°C)
4	Disinfection Operation	Starting date : 01 ~ 07 (01: Sun, 02: Mon, ····, 07: Sat) Starting time in 24 hours : 00 ~ 23 hours Target temperature 40 ~ 70°C Operation maintain time : 05 ~ 60 Minutes
5	Sanitary Water Heating Operation	Max. Temperature, Temperature gap, Priority of tank heating and floor heating (Water tank temperature sensor connection is needed)
6	Low Noise Mode	Setting by remote controller
7	Defrost Mode (only High Temp. Model)	Not use (STEP0) Forced snow removal (STEP1) Fast defrost setting (STEP2) Forced snow removal + fast defrost (STEP3)
8	External water pump control	DIP S/W setting
9	LG Central Control	ACP, AC Ez touch, AC Smart 5, AC Manager 5
10	Emergency operation	DIP S/W setting
11	Dry Contact Mode	Accessory (PDRYCB000 / PDRYCB100)
12	Water Pump Test Run	Setting by remote controller
13	PHEX anti-freezing control	Default

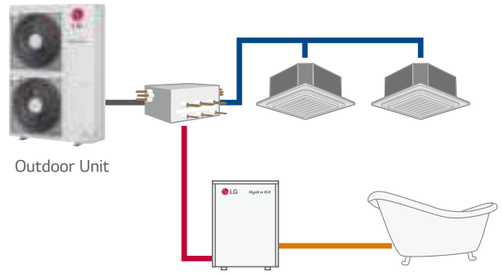
Key Features

- Inverter compressor
- 4Way piping installation (ODU)
- Compact design
- High reliability by flow switch
- Multi units installation
- combination with High temp and Mid temp Hydro Kit
- LG Central controller

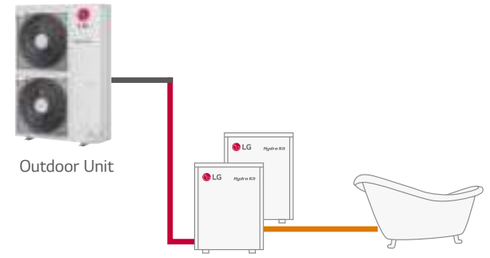
Main Components

PHE (Ref.-Water)
Flow switch
Remote controller

Multi V Hydro Kit consists of two units; an outdoor unit and an indoor one. with air as the heat source. Major water components are integrated in indoor unit.
It guarantees or assures convenience to installers with home heating and hot water system.



[HR Unit]



[Multi IDU]

Outdoor Unit Type	Maximum Combination Ratio	
	Hydro Kit	Total (Hydro Kit + Indoor Unit)
Multi V S (Heat Pump , Heat Recovery)	100%	100%

[HR Unit]

2 Branches	3 Branches	4 Branches	6 Branches	8 Branches
PRHR023	PRHR033	PRHR043	PRHR063	PRHR083

Line up

[Hydro Kit]

*(Heating Capa.)

System	Power	Capacity (kW)	
		12.3	28
Mid Temp.	1ø 220V	● 12.3 (13.8)	● 28 (31.5)

System	Power	Capacity (kW)	
		13.8	25.2
High Temp.	1ø 220V	●	●

[Outdoor unit]

Power	Capacity (kW)					
	12	14	16	22	28	34
1ø 220V	● 12.3 (13.8)	● 14 (16)	● 15.5 (18)			
3ø 380V	●	●	●	● 22.4 (24.5)	● 28 (30.6)	● 33.6 (36.7)

[Heat recovery unit]

Power	Capacity (kW)
	16
1ø 220V	● 15.5 (18)

Product Information for Residential

MULTI V S HYDRO KIT

Hydro Kit Middle Temp. Model

Type				Mid Temp.	
Model				ARNH04GK2A4	ARNH10GK2A4
Power Supply			Ø / V / Hz	1 / 220 ~ 240 / 50	1 / 220 ~ 240 / 50
				1 / 220 / 60	1 / 220 / 60
Capacity (Rated)	Cooling		kW	12.3	28
	Heating		kW	13.8	31.5
Power Input	Cooling	Normal	kW	0.01	0.01
	Heating	Normal	kW	0.01	0.01
Water Temperature Outlet	Cooling	Min	℃	5℃	5℃
	Heating	Max	℃	50℃	50℃
Casing			-	Painted Steel Plate	Painted Steel Plate
Dimensions	Body	W × H × D	mm	520 × 631 × 330	520 × 631 × 330
			inch	20-15 / 32 × 24-27 / 32 ×13	20-15 / 32 × 24-27 / 32 × 13
Net Weight			kg (lbs)	30.5 (67)	35.0 (77.2)
Heat Exchanger	Refrigerant to Water	Type	-	Brazed Plate HEX	Brazed Plate HEX
		Rated Water Flow	ℓ/min	39.6	92.0
		Head Loss	kPa	41.0	69.0
	Refrigerant to Refrigerant	Type	-	-	-
Compressor		Type	-	-	-
Piping Connections	Water Side	Inlet	inch	Male PT1	Male PT1
		Outlet	inch	Male PT1	Male PT1
	Refrigerant Side	Liquid Side	mm (inch)	9.52 (3/8)	9.52 (3/8)
		Gas Side	mm (inch)	15.88 (5/8)	22.2 (7/8)
Drain Piping Connection			mm (inch)	Male PT 1	Male PT 1
Sound Pressure Level	Cooling		dB (A)	26	26
	Heating		dB (A)	26	26
Refrigerant	Refrigerant to Refrigerant	Refrigerant Type	-	-	-
		Control	-	-	-
	Refrigerant to Water	Refrigerant Type	-	R410A	R410A
		Precharged Amount	kg (lbs)	-	-
		Control	-	EEV	EEV
Operation Range	Connected to Heat Pump	Cooling	℃ (DB)	10℃ ~ 43℃	10℃ ~ 43℃
		Heating	℃ (DB)	-20℃ ~ 35℃	-20℃ ~ 35℃
	Connected to Heat Recovery	Cooling	℃ (DB)	10℃ ~ 43℃	10℃ ~ 43℃
		Heating	℃ (DB)	-20℃ ~ 43℃	-20℃ ~ 43℃
Combination Ratio	Only Hydro Kit	Min ~ Max	%	50 ~ 100	50 ~ 100
	Hydro Kit + Standard IDUs	Min ~ Max	%	50 ~ 130	50 ~ 130

Hydro Kit High Temp. Model

Type				High Temp.	
Model				ARNH04GK3A4	ARNH08GK3A4
Power Supply			Ø / V / Hz	1 / 220 ~ 240 / 50	1 / 220 ~ 240 / 50
				1 / 220 / 60	1 / 220 / 60
Capacity (Rated)	Cooling		kW	-	-
	Heating		kW	13.8	25.2
Power Input	Cooling	Normal	kW	-	-
	Heating	Normal	kW	2.3	5.0
Water Temperature Outlet	Cooling	Min	℃	-	-
	Heating	Max	℃	80℃	80℃
Casing			-	Painted Steel Plate	Painted Steel Plate
Dimensions	Body	W × H × D	mm	520 × 1,080 × 330	520 × 1,080 × 330
			inch	20-15 / 32 × 42-17 / 32 × 13	20-15 / 32 × 42-17 / 32 × 13
Net Weight			kg (lbs)	88.0 (194.0)	94.0 (207.2)
Heat Exchanger	Refrigerant to Water	Type	-	Brazed Plate HEX	Brazed Plate HEX
		Rated Water Flow	ℓ/min	19.8	36.0
		Head Loss	kPa	5.0	20.0
	Refrigerant to Refrigerant	Type	-	Brazed Plate HEX	Brazed Plate HEX
Compressor		Type	-	Twin Rotary Inverter	Twin Rotary Inverter
Piping Connections	Water Side	Inlet	inch	Male PT1	Male PT1
		Outlet	inch	Male PT1	Male PT1
	Refrigerant Side	Liquid Side	mm (inch)	9.52 (3/8)	9.52 (3/8)
		Gas Side	mm (inch)	15.88 (5/8)	19.05 (3/4)
Drain Piping Connection			mm (inch)	Male PT 1	Male PT 1
Sound Pressure Level	Cooling		dB (A)	-	-
	Heating		dB (A)	43	43
Refrigerant	Refrigerant to Refrigerant	Refrigerant Type	-	R410A	R410A
		Control	-	EEV	EEV
	Refrigerant to Water	Refrigerant Type	-	E134A	E134A
		Precharged Amount	kg (lbs)	2.3 (5.1)	3.0 (6.6)
		Control	-	EEV	EEV
Operation Range	Connected to Heat Pump	Cooling	℃ (DB)	-	-
		Heating	℃ (DB)	-20℃ ~ 35℃	-20℃ ~ 35℃
	Connected to Heat Recovery	Cooling	℃ (DB)	-	-
		Heating	℃ (DB)	-20℃ ~ 43℃	-20℃ ~ 43℃
Combination Ratio	Only Hydro Kit	Min ~ Max	%	50 ~ 100	50 ~ 100
	Hydro Kit + Standard IDUs	Min ~ Max	%	50 ~ 130	50 ~ 130

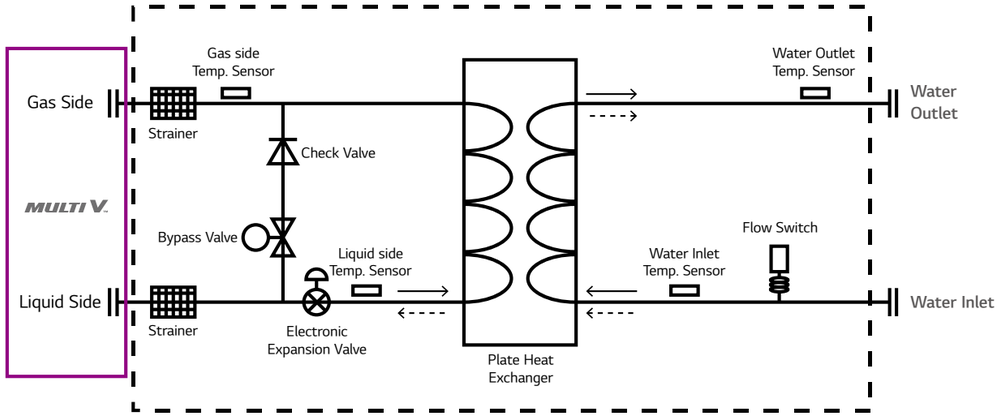
Product Information for Residential

MULTI V S HYDRO KIT

DIAGRAM - HYDRO KIT REFRIGERANT PIPING

ARNH04GK2A4 / ARNH10GK2A4 (Medium Temperature)

→ Cooling operation
⇢ Heating operation



ARNH04GK3A4 / ARNH10GK3A4 (High Temperature)

⇢ Heating operation

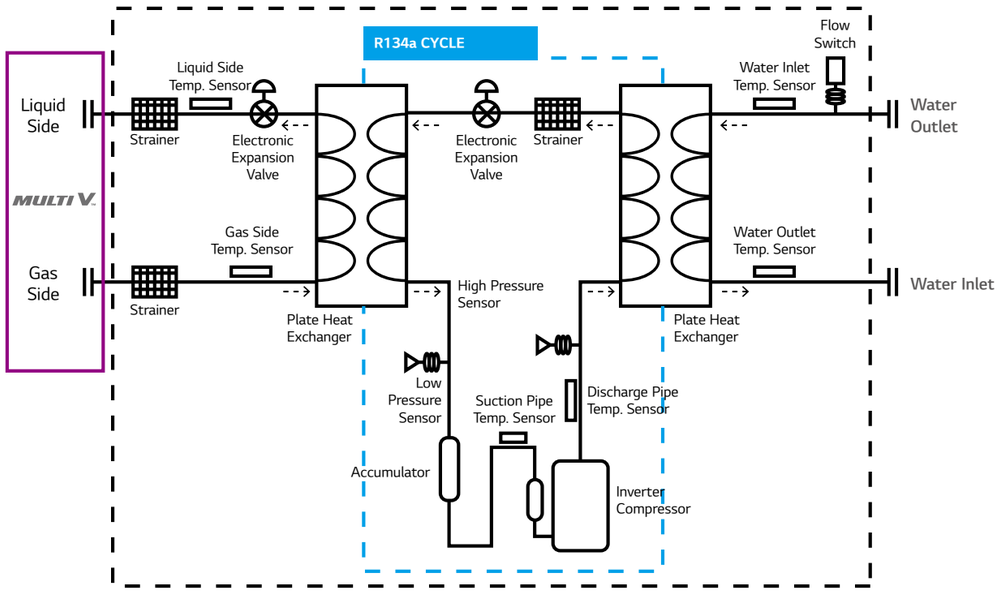


DIAGRAM - MULTI V S

Concept with HR unit

Piping length Limits

When designing and installing refrigerant piping, refer to the following guidelines

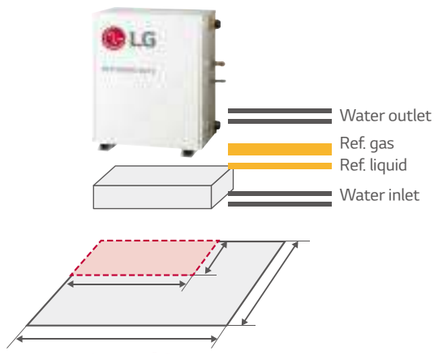
Total Piping Length	300m
Actual longest piping length (Equivalent)	150m (175m)
Longest piping length after 1st branch (conditional application)	40m (90m)
Height between ODU ~ IDU	40m* (50m**)
Height between IDU ~ IDU	15m

Product Information for Residential

MULTI V S HYDRO KIT

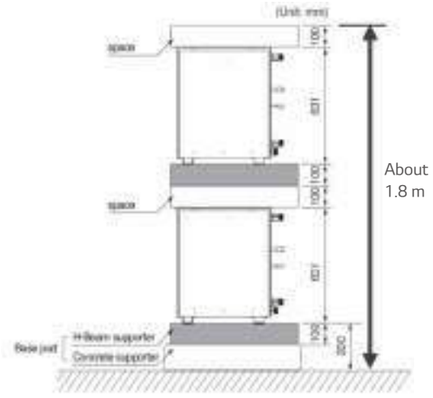
INSTALLATION - HYDRO KIT SPACE

Hydro Kit Medium (Low) Temperature



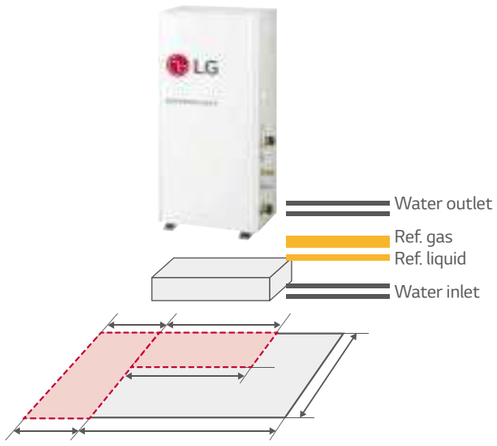
Less than 1m² footprint area

Double Deck



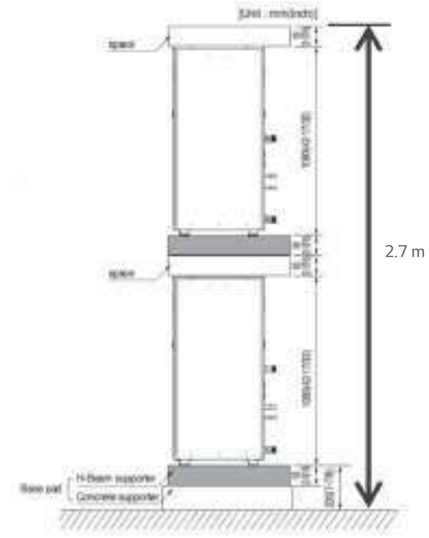
Note : The above images are sample drawings.
Depending on field installation condition, it may be changed.

Hydro Kit Medium (Low) Temperature



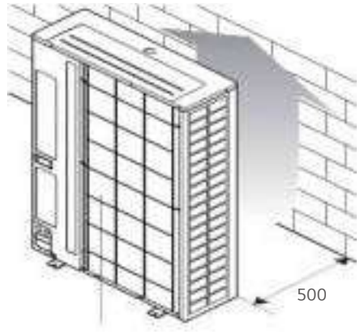
Additional service space for compressor

Double Deck



Note : The above images are sample drawings.
Depending on field installation condition, it may be changed.

INSTALLATION - MULTI V

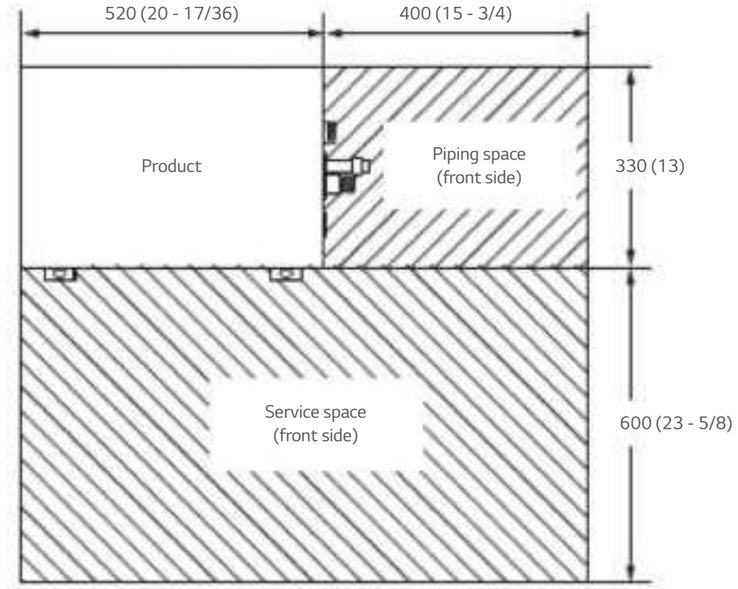


Air inlet grille

- Sufficient measures are required in a snow area or severe cold area in winter so that product can be operated well.
- Get ready for seasonal wind or snow in winter even in other areas.
- Install a suction and discharge duct not to let in snow or rain.
- Install the outdoor unit not to come in contact with snow directly.
  If snow piles up and freezes on the air suction hole, the system may malfunction. If it is installed at snowy area, attach the hood to the system.
- Install the outdoor unit at the higher installation console by 50cm than the average snowfall (annual average snowfall) if it is installed at the area with much snowfall.

The following values describe / draw the least space for installation. If any service area is needed for service according to field circumstance, obtain enough service space.

- The unit of values are in (units of) mm.

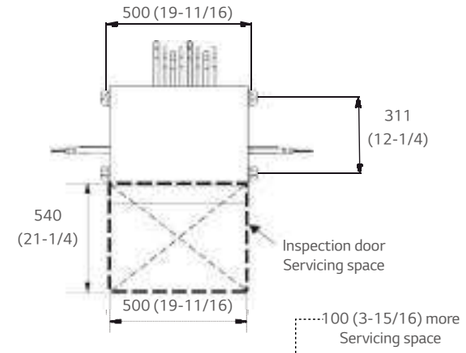


Product Information for Residential

MULTI V S HYDRO KIT

INSTALLATION - HEAT RECOVERY BOX

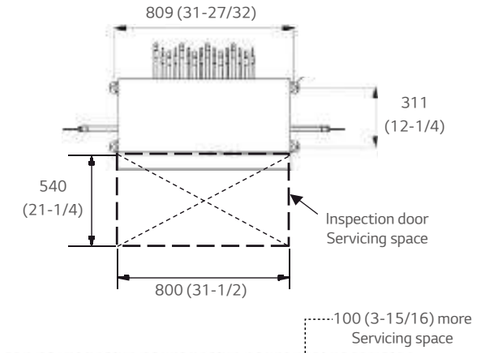
PRHR023 / PRHR033 / PRHR043



300 (11-13/16) more
(Servicing space)

PRHR063 / PRHR083

[Unit : mm (inch)]



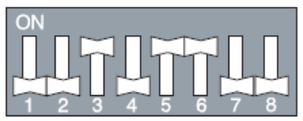
300 (11-13/16) more
(Servicing space)

300 (11-13/16) more
(Servicing space)

450 (17-23/32) more
(Servicing space)

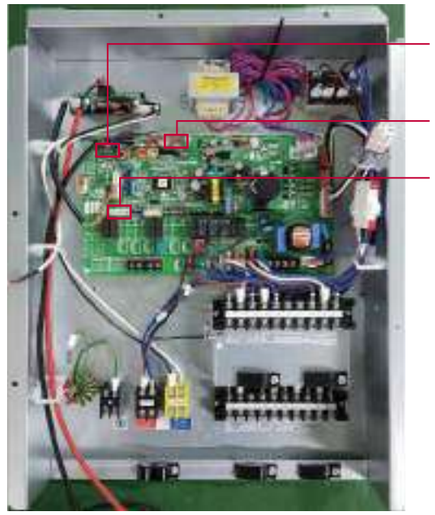
Dip S/W Setting

- Turn off electric power supply before setting DIP switch.
- There is a risk of an electric shock.
  - Always set DIP switch #6 to ON.
  - If DIP switch is not set as below, the unit may not operate properly.



Description	DIP switch setting								Function	Default
	1	2	3	4	5	6	7	8		
Group Control	X								Master	○
	○								Slave	
Installation Scene		X	X						Floor heating only	
		○	X						Floor heating + Hot water + Solar booster	
		X	○						Floor heating + Hot water	○
		○	○						Hot water only	
Emergency Operation				X					High temperature operation	○
				○					Low temperature operation	
Water Pump Control					X				Water pump controlled with Hydro Kit	
					○				Water pump NOT controlled with Hydro Kit	○
Antifreeze Operation Mode						○	X		Normal operation mode (connect short key)	○
						○	○		Antifreeze operation mode (disconnect short key)	
Thermostat Connection								X	Thermostat NOT installed	○
								○	Thermostat installed	

LOCATION OF ACCESSORIES AND EXTERNAL PARTS CONNECTION



Accessories	Information	Connection
3Way Valve (A)	SPDT 3-wire / 1 ~ 230V For sanitary water (DHW) tank	8L, 9L1, 10N
3Way Valve (B)	SPDT 3-wire / 1 ~ 230V For under floor water circuit	1L, 2L1, 3N
Pump (A)	flow rate i36LPM.	11L, 12N
Water Pump (B)	1 ~ 230V, external power	4L, 5N
2Way Valve (A)	NO 2-wire / 1 ~ 230V	14L1, 15L2, 16N
Thermostat	1 ~ 230V	17L, 18N ,19L1, 20L2

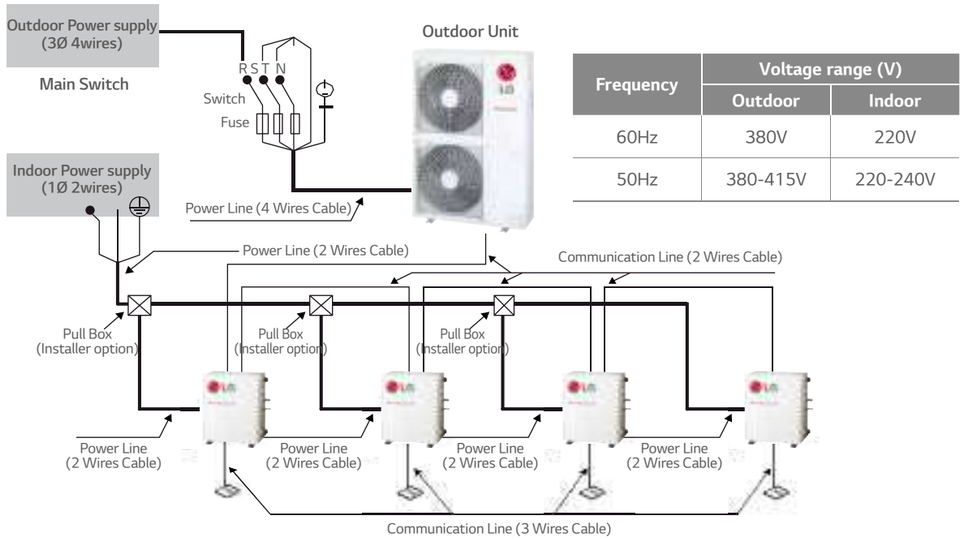
- Connect a 3Way valve, if both floor heating and hot water systems are used.
- Connect the separately purchased thermostat.
- 3Way valve, thermostat and pump are external parts for installation, which are not included in supplied by LG.
  After checking each part carefully, install external parts respectively.
- Connect the cable of each accessory to the terminal block of the control box in the Hydro Kit.
- Check the label attached on the terminal block to prevent wrong connection.
- Use the pump of 220 voltage and maximum operation current of 4A or less.

Product Information for Residential

MULTI V S HYDRO KIT

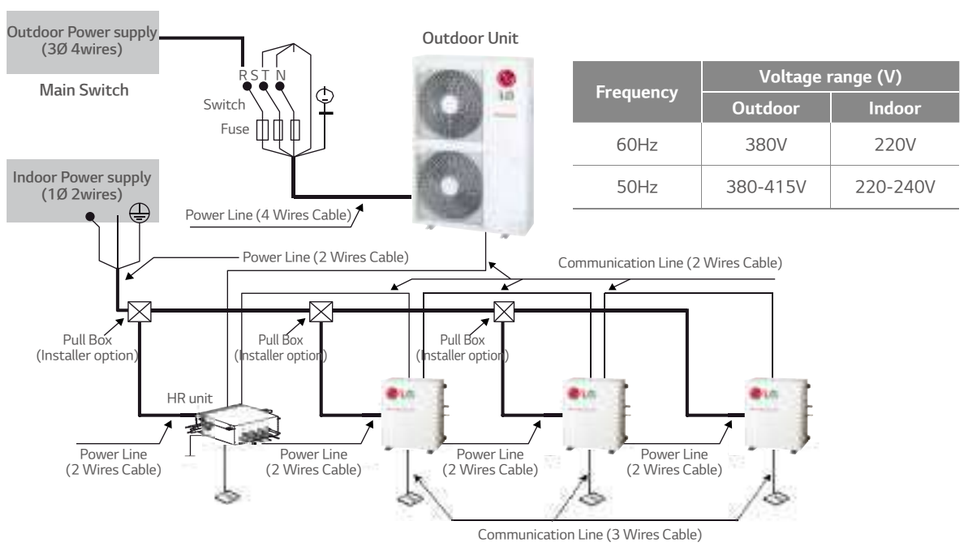
ELECTRICAL WIRING - MULTI V

Heat Pump System



Frequency	Voltage range (V)	
	Outdoor	Indoor
60Hz	380V	220V
50Hz	380-415V	220-240V

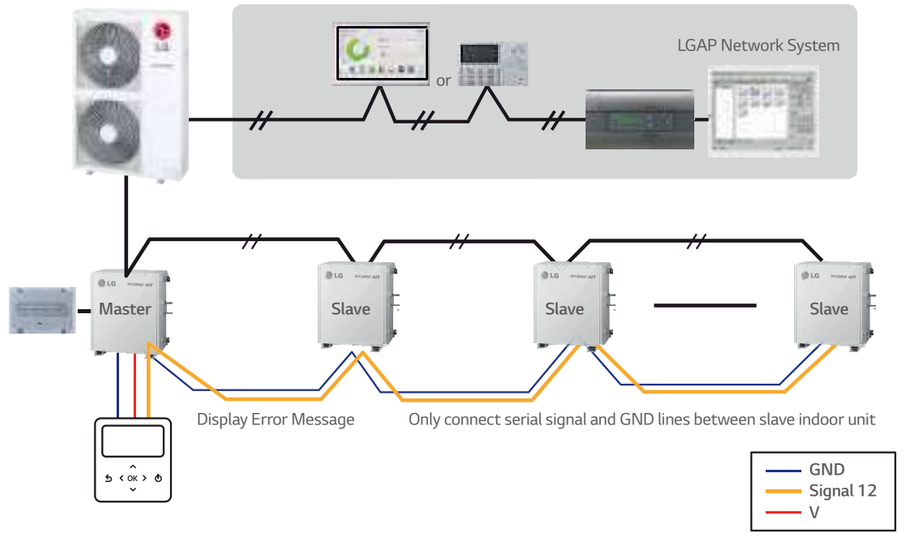
Heat Recovery System



Frequency	Voltage range (V)	
	Outdoor	Indoor
60Hz	380V	220V
50Hz	380-415V	220-240V

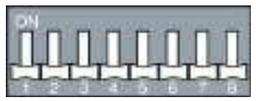
GROUP CONTROL

Wired remote controller 1 + several Hydro Kits

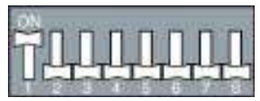


DIP Switch in PCB

Master Setting-No.1 Off



Slave Setting-No.1 Off



	Category	Product	ETC	Compatibility
				ARNH04GK2A4 ARNH10GK2A4
Central Controller	Simple	PQCSZ250S0	AC EZ	X
	AC Ez Touch	PACEZA000	AC Ez Touch	O
	AC Smart	PACS4B000	AC Smart IV	O
	ACP	PACP4B000	ACP IV	O
	AC Manager	PACM4B000	AC Manager IV	O
		PACM5A000	AC Manager 5	O
Gateway	BACnet	PQNFB17C0	ACP BACnet	O
	Lonworks	PLNWKB000	ACP Lonworks	O
ETC	PDI	PPWRDB000	PDI Standard	O
		PQNUD1S40	PDI Premium	O

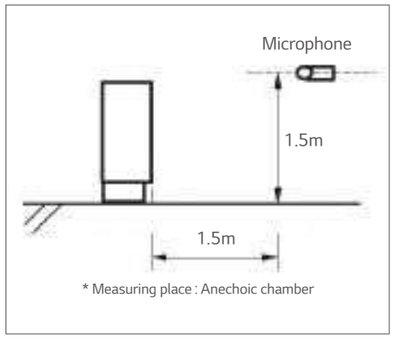
1. O : Applied, X : Not applied
   • Accessory model name : Installed at field, ordered and purchased separately by the corresponding model name, supplied with separated package.

Product Information for Residential

MULTI V S HYDRO KIT

SOUND LEVEL

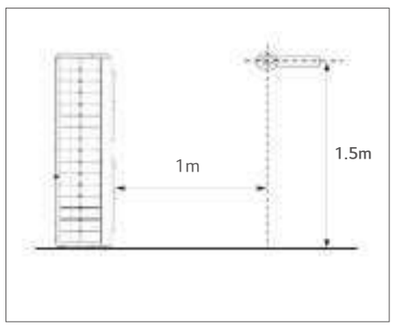
Hydro Kit



Note

- Sound measured at some distance away from the center of the unit.
- Data is valid at free field condition.
- Reference acoustic pressure 0dB = 20μPa.
- Data is valid at nominal operation condition.
- Refer to the Model Specifications for nominal conditions (Power source and Ambient temperature, etc)

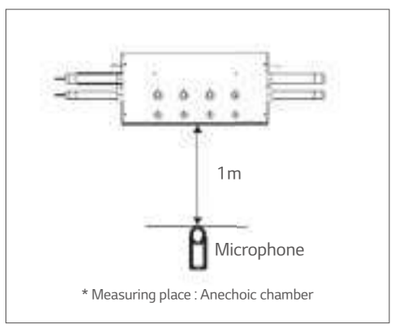
Model	Sound Level [dB(A)]
ARNH04GK2A4	26
ARNH10GK2A4	



Note

- Data is valid at free field condition.
- Data is valid at nominal operating condition.
- Sound level will vary depending on a range of factors such as the construction (acoustic absorption coefficient) of particular room in which the equipment is installed.

Model (ARUB060GSS4)	Cooling	Heating
Sound Pressure Levels [dB(A)]	56	58
Sound Power Levels [dB(A)]	69	71



Note

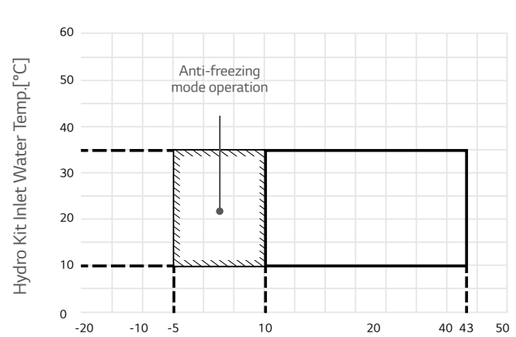
- Sound measured at 1.5m away from the center of the unit.
- Reference acoustic pressure 0dB=20μPa.
- Sound level will vary depending on a range of factors such as the construction (acoustic absorption coefficient) of particular room in which the equipment is installed.

Operation Mode	50Hz, 220-240V
	Sound pressure Levels [dB(A)]
Cooling	30
Heating	30
Changeover : Cooling Heating	33
Changeover : Heating Cooling	38

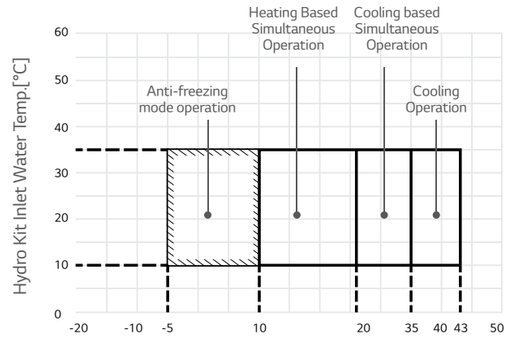
OPERATION LIMITS

ARNH04GK2A4 / ARNH10GK2A4 (Cooling)

ARUM- series (Heat Pump)

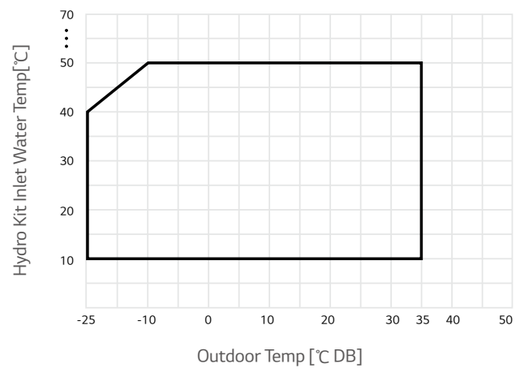


ARUM- series (Heat Recovery)

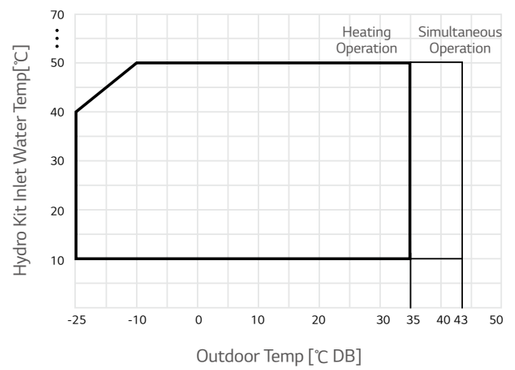


ARNH04GK2A4 / ARNH10GK2A4 (Heating)

ARUM- series (Heat Pump)



ARUM- series (Heat Recovery)



Product Information for Residential

THERMA V SPLIT (IWT TYPE INDOOR UNIT)

Indoor unit

Outdoor unit

Temp sensor

No	Contents	Remark
1	Plug&play (all in one)	Default
2	Leaving water temperature control	Default
3	Weather dependent operation	Default
4	Water pump setting	3 step control (Max./Mid./Min.)
5	1 mixing circuit	Mixing valve to be installed at field
6	2 mixing circuits	With extension kit (T3003)
7	3rd party boiler	Default
8	Solar panel connection	Default
9	Screed drying	Default
10	Modbus communication	PP485B00K (Modbus Converter (PI485))
11	Web cloud service connection	with web module (option)
12	Room thermostat with curve correction	with KT1 (option)
13	Tap water recirculation	With extension kit (T3003)

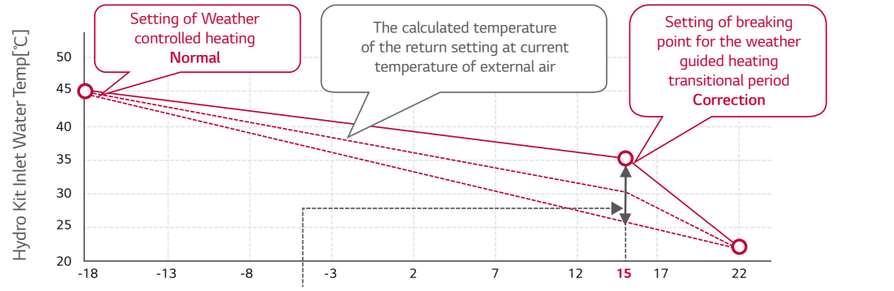
No	Name	Remark
1	Water pump	Wilo
2	DHW tank	200ℓ, Max 10bar
3	Buffer tank	40ℓ, 3bar
4	Electric heater	2kW (1Ø) 4kW (1Ø) 6kW (3Ø)
5	Flow switch	SIKA
6	Air vent valve	
7	Relief valve	3bar
8	Manometer	
9	Shut off valve	2ea

Key Features

- All in One design
  (IDU + DHW tank + Buffer tank + pipe)
- Hot water supply Up to 58℃ for heating
- Cold water supply Up to 7℃ for cooling
- 2nd Heating circuit control
  (Max. 4th with extension module)
- Weather Dependent Operation
- Quite operation
- Combination with Solar thermal system
- Combination with Gas/Oil boiler
- High efficiency water pump
- Embedded flow switch
- 3Way Valve integrated for mode change

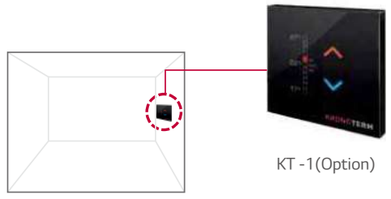
All in one

Weather Dependent Operation



The slope of heating curve can be adjusted by changing the correction factor at an outdoor temperature of 15C.

Room Remote Controller

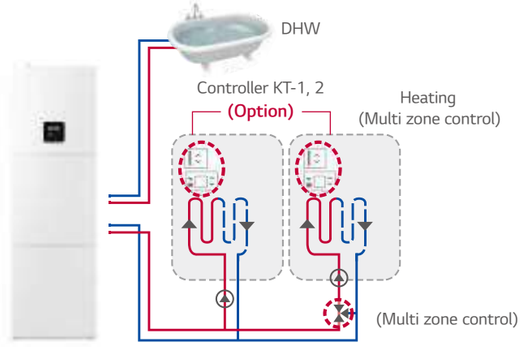


KT -1(Option)

Circuit Extension Module

Max 4 heating circuits to control individually (option)

2nd Heating Circuit



Line up

	Capacity (kW)	9	12	14	16
DHW Integrated	1ø 220V	●	●	●	●
	3ø 380V		●	●	●

Product Information for Residential

THERMA V SPLIT (IWT TYPE INDOOR UNIT)

IWT Indoor unit

Indoor Unit Technical Specifications				AHNW16606B0 [HN1616T NB0]
Operation Range (Leaving Water)	Cooling (Min.~Max.)	For Fan Coil Unit	℃	7 ~ 25
		For Under Floor	℃	7 ~ 25
	Heating (Min.~Max.)	For Fan Coil Unit /Radiator	℃	25 ~ 58
		For under floor	℃	25 ~ 58
	Domestic Hot Water (Min.~Max.)		℃	10 ~ 60
Operation Range (Ambient)			℃	5 ~ 35
DHW Tank	Type			Hydro module with integrated boiler
	Material		-	Enameled steel
	Water Volume	Rated	ℓ	200
	Internal Thermal Protect limit		℃	95
	Maximum water temperature		℃	52
	Maximum water pressure limit		bar	10
	Insulation	Material	-	Polyurethane foam
		Thickness	mm	50
		Heat loss (for 24hr)	kWh	1.67
Buffer Tank	Water Volume	Rated	ℓ	40
	Material		-	Steel powder coated
	Insulation Material		-	Closed cell foamed rubber
Water Pump	Type		-	Canned type for hot water circulation
	Model		-	Yonos PARA RS25/7 PWM1
	Motor type		-	BLDC
	Steps of Speed		EA	Variable speed 13% to 100%
	Power input		W	3 ~ 45
	Water Flow Rate	Min.	ℓ / min	16
		Rated	ℓ / min	46
Heat Exchange (Water Side)	Pressure drop	Max.	kPa	70
	Type		-	Brazed Plate HEX
	Quantity		-	1
	Water Volume		ℓ	3.3
	Water Flow Rate (Min. ~ Max.)		ℓ / min	13 ~ 70
	Insulation Material		-	Closed cell foamed rubber
Safety Valve	Pressure Limit		bar	3
Devices for Water Circuit			-	Manometer
			-	Drain Valve / Fill Valve
			-	Shut Off Valve
			-	Air Vent
Piping Connections	Refrigerant Circuit	Gas (Outer Dia.)	mm (inch)	Ø 15.88 (5/8)
		Liquid (Outer Dia.)	mm (inch)	Ø 9.52 (3/8)
	Water Circuit	Inlet (Inner Dia.)	mm (inch)	Male PT 25 (1)
		Outlet (Inner Dia.)	mm (inch)	Male PT 25 (1)
	DHW Tank Water Circuit	Cold Inlet (Outer Dia.)	mm (inch)	Male PT 19.05 (3/4)
		Hot Outlet (Outer Dia.)	mm (inch)	Male PT 25 (1)
		Recirculation (Outer Dia.)	mm (inch)	Male PT 19.05 (3/4)
Sound Pressure Level			dB (A)	27
Sound Power Level			dB (A)	36
Dimensions (W × H × D)	Unit		mm	607 × 2,079 × 725
	Shipping		mm	640 × 2,195 × 790
Weight (Without Water)	Unit		kg	228
	Shipping		kg	238

IWT outdoor unit

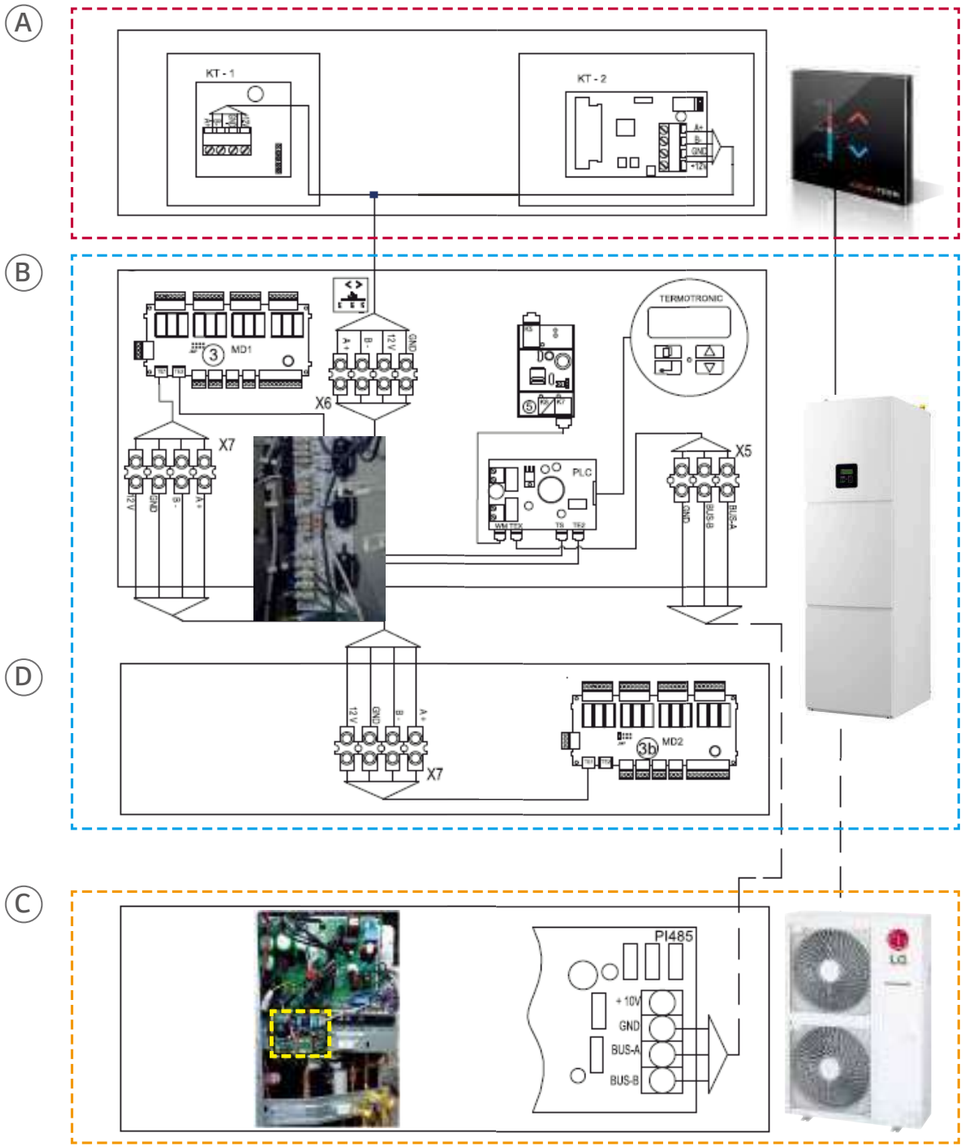
Outdoor Units				AHUW096A3 [HU091 U43]	AHUW126A3 [HU121 U33]	AHUW146A3 [HU141 U33]	AHUW166A3 [HU161 U33]
Operation Range (Outdoor Temperature)	Cooling	Min. ~ Max.	℃ DB	5 ~ 48	5 ~ 48	5 ~ 48	5 ~ 48
	Heating	Min. ~ Max.	℃ DB	-20 ~ 35	-20 ~ 35	-20 ~ 35	-20 ~ 35
Compressor	Type		-	Hermetic Motor	Hermetic Motor	Hermetic Motor	Hermetic Motor
Refrigerant	Type		-	R410A	R410A	R410A	R410A
Sound Power Level	Heating	Rated	dB (A)	65	66	66	66
Piping Connections	Liquid	Type	-	Flare	Flare	Flare	Flare
		Outer Dia.	mm (inch)	Ø 9.52 (3/8)	Ø 9.52 (3/8)	Ø 9.52 (3/8)	Ø 9.52 (3/8)
	Gas	Type	-	Flare	Flare	Flare	Flare
		Outer Dia.	mm (inch)	Ø 15.88 (5/8)	Ø 15.88 (5/8)	Ø 15.88 (5/8)	Ø 15.88 (5/8)
Pipe		Standard	m	7.5	7.5	7.5	7.5
		Max.	m	50	50	50	50
Piping Level Difference	Outdoor Unit ~ Indoor Unit	Max.	m	30	30	30	30
Dimensions	Unit	W x H x D	mm	950 x 834 x 330	950 x 1,380 x 330	950 x 1,380 x 330	950 x 1,380 x 330
	Packed Unit	W x H x D	mm	1,065 x 918 x 461	1,140 x 1,462 x 461	1,140 x 1,462 x 461	1,140 x 1,462 x 461
Weight	Unit		kg	59	94	94	94
	Packed Unit		kg	65	107	107	107
Power Supply			V, Ø, Hz	220-240 / 1 / 50	220-240 / 1 / 50	220-240 / 1 / 50	220-240 / 1 / 50
Maximum Running Current	Cooling		A	19	25	25	25
	Heating		A	19	25	25	25
Wiring Connections	Power Supply Cable (Included Earth)		No. x mm^2	3 x 4.0(H07RN-F)	3 x 6.0 (H07RN-F)	3 x 6.0 (H07RN-F)	3 x 6.0 (H07RN-F)

Outdoor Units				AHUW128A3 [HU123 U33]	AHUW148A3 [HU143 U33]	AHUW168A3 [HU163 U33]
Operation Range (Outdoor Temperature)	Cooling	Min. ~ Max.	℃ DB	5 ~ 48	5 ~ 48	5 ~ 48
	Heating	Min. ~ Max.	℃ DB	-20 ~ 35	-20 ~ 35	-20 ~ 35
Compressor	Type		-	Hermetic Motor	Hermetic Motor	Hermetic Motor
Refrigerant	Type		-	R410A	R410A	R410A
Sound Power Level	Heating	Rated	dB (A)	66	66	66
Piping Connections	Liquid	Type	-	Flare	Flare	Flare
		Outer Dia.	mm (inch)	Ø 9.52 (3/8)	Ø 9.52 (3/8)	Ø 9.52 (3/8)
	Gas	Type	-	Flare	Flare	Flare
		Outer Dia.	mm (inch)	Ø 15.88 (5/8)	Ø 15.88 (5/8)	Ø 15.88 (5/8)
Pipe		Standard	m	7.5	7.5	7.5
		Max.	m	50	50	50
Piping Level Difference	Outdoor Unit ~ Indoor Unit	Max.	m	30	30	30
Dimensions	Unit	W x H x D	mm	950 x 1,380 x 330	950 x 1,380 x 330	950 x 1,380 x 330
	Packed Unit	W x H x D	mm	1,140 x 1,462 x 461	1,140 x 1,462 x 461	1,140 x 1,462 x 461
Weight	Unit		kg	94	94	94
	Packed Unit		kg	107	107	107
Power Supply			V, Ø, Hz	380-415 / 3 / 50	380-415 / 3 / 50	380-415 / 3 / 50
Maximum Running Current	Cooling		A	16.1	16.1	16.1
	Heating		A	16.1	16.1	16.1
Wiring Connections	Power Supply Cable (Included Earth)		No. x mm^2	5 x 2.5 (H07RN-F)	5 x 2.5 (H07RN-F)	5 x 2.5 (H07RN-F)

Product Information for Residential

THERMA V SPLIT (IWT TYPE INDOOR UNIT)

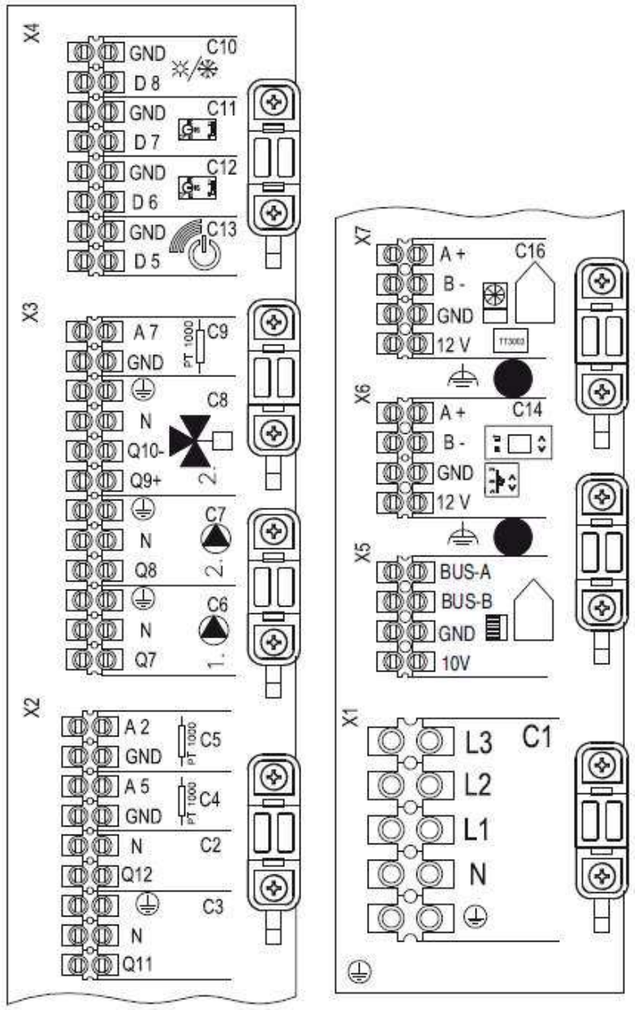
Wiring Schematic



ELEMENTS MARK	CONNECTING TERMINALS	CHARACTERISTICS
A		Spatial corrector KT-1(2)
KT-1		Spatial corrector KT-1 (optional)
	A +, B-	Communication
	GND, 12 V	Power supply
KT-2		Spatial corrector KT-2 (optional, KRONOTERM Brand)
	A +, B-	Communication
	GND, 12 V	Power supply
B		Indoor unit TT3000
3		Basic input/output module MD1
	TE1	Communication with I/O module MD2
	TE2	Communication with the control electronics of the PLC screen module
JMP		Set-up of bridges (without)
X7		Connecting terminal for communication with expansion module MD2
	A +, B-	Communication
	GND, 12 V	Power supply
X6		Connecting terminal for the spatial correctors (optional)
	A +, B-	Communication
	GND, 12 V	Power supply
X5		Connecting terminal for communication with external module Gateway PI485 in WPLV device
	BUS-A, BUS-B	Communication
	GND	Power supply
5		Web module
	TW MODBUS	Communication with PLC
	TX MODUBUS	Not in use
	Ethernet	Ethernet
PLC		Process module
	WM	Communication with Web module
	TEX	Communication with outdoor unit – PI485 Gateway
	TS	Communication with the spatial corrector
	TE2	Communication with the basic V/I module MD1
D		Expansion wall unit TT3003 (Option)
3b		Expansion input/output module MD2
	TE1	Not in use
	TE2	Communication with the basic V/I module MD1
JMP		Set-up of bridges (in first position)
X7		Connecting terminal for communication with I/O module MD1
	A +, B-	Communication
	GND, 12 V	Power supply
C		Gateway PI485 in the outdoor unit
PI485		External module Gateway PI485
	BUS–A , BUS–B	Communication with the control electronics of the Process module PLC
	GND	Power supply
	+ 10 V	Not in use

Product Information for Residential

THERMA V SPLIT (IWT TYPE INDOOR UNIT)



[Connection board]

Terminal information

MARK	CONNECTING TERMINALS	DIMENSIONS OF CABLE	DESCRIPTION
X1	L1, L2, L3, N		Power cable
X2	A5, GND	2 x 0.75 mm²	Temperature sensor of outdoor temperature
	Q12, N	2 x 0.75 mm²	Additional external source
	N, Q11	3 x 0.75 mm²	Cooling valve
X3	Q7, N	3 x 0.75 mm²	Circulation pump of heating cycle 1 (optional)
	Q8, N	3 x 0.75 mm²	Circulation pump of heating cycle 2 (optional)
	N, Q9+, Q10-	3 x 0.75 mm²	Mixing valve of heating cycle 2 (optional)
	A7, GND	2 x 0.75 mm²	Temperature sensor of mixing-heating cycle 2 (optional)
X4	D8, GND	2 x 0.75 mm²	Switch for heating/cooling (optional)
	D7, GND	2 x 0.75 mm²	Thermostat of mixing cycle 2 (optional)
	D6, GND	2 x 0.75 mm²	Thermostat of mixing cycle 1 (optional)
	D5, GND	2 x 0.75 mm²	Remote on/off (optional)
X5	BUS–A, BUS – B, GND	2	Communication of the external control unit in the WPLV device
X6	A+, B-, 12 V, GND	4 x 0.75 mm²	Communication spatial corrector (optional)
X7	A+, B-, 12 V, GND	4 x 0.75 mm²	Communication with the expansion unit TT3003

- Power supply + electrical heater
  - X1: L1, L2, L3, N, G
- Communication to ODU
  - X5: BUS-A, BUS-B, GND
- Temp. sensors, digital outputs & inputs
  - X2: DHW temp. – A2, external temp. - A5, output external heat source - Q12, output cooling
  - Q11 - X3: supply temp. loop #2 - A7, output opening/closing mixing valve loop #2, - Q9 / Q10, output pump loop #1 - Q7, output pump loop #2 - Q8 - X4: input remote deactivation - D5, input thermostat loop #1 - D6, input thermostat loop #2 D7, input mode switch - D8
- Room corrector KT-1 / KT-2
  - X6: A+, B-, GND, 12 V
- Extended module TT3003
  - X7: A+, B-, GND, 12 V

Product Information for Residential

THERMA V SPLIT (IWT TYPE INDOOR UNIT)

PERFORMANCE TABLE FOR COOLING OPERATION

MAXIMUM COOLING CAPACITY

AHUW096A3 [HU091 U43] + AHNW16606B0 [HN1616T NB0]

Outdoor Temperature	LWT 7°C		LWT 10°C		LWT 13°C		LWT 15°C		LWT 18°C		LWT 20°C		LWT 22°C	
	TC	PI	TC	PI	TC	PI	TC	PI	TC	PI	TC	PI	TC	PI
20℃ DB	7.30	2.51	8.09	2.54	8.89	2.57	9.42	2.59	10.21	2.61	10.75	2.63	-	-
30℃ DB	6.72	2.68	7.45	2.71	8.18	2.74	8.67	2.76	9.40	2.79	9.89	2.81	-	-
35℃ DB	6.43	2.76	7.13	2.79	7.83	2.83	8.30	2.85	9.00	2.88	9.47	2.90	9.94	2.92
40℃ DB	6.14	2.85	6.81	2.88	7.48	2.91	7.93	2.94	8.60	2.97	9.04	2.99	9.49	3.01
45℃ DB	5.85	2.93	6.49	2.97	7.13	3.00	7.55	3.02	8.19	3.06	8.62	3.08	9.04	3.10

AHUW126A3 [HU121 U33] + AHNW16606B0 [HN1616T NB0]

Outdoor Temperature	LWT 7°C		LWT 10°C		LWT 13°C		LWT 15°C		LWT 18°C		LWT 20°C		LWT 22°C	
	TC	PI	TC	PI	TC	PI	TC	PI	TC	PI	TC	PI	TC	PI
20℃ DB	7.03	2.41	8.06	2.43	9.10	2.45	9.79	2.47	10.82	2.49	11.51	2.50	-	-
30℃ DB	6.85	2.93	7.85	2.96	8.86	2.99	9.53	3.00	10.54	3.03	11.21	3.05	-	-
35℃ DB	6.75	3.20	7.75	3.22	8.74	3.25	9.41	3.27	10.40	3.30	11.06	3.32	11.73	3.34
40℃ DB	6.66	3.46	7.64	3.49	8.62	3.52	9.28	3.54	10.26	3.57	10.91	3.59	11.57	3.61
45℃ DB	6.57	3.72	7.54	3.75	8.50	3.79	9.15	3.81	10.12	3.84	10.76	3.86	11.41	3.89

AHUW146A3 [HU141 U33] + AHNW16606B0 [HN1616T NB0]

Outdoor Temperature	LWT 7°C		LWT 10°C		LWT 13°C		LWT 15°C		LWT 18°C		LWT 20°C		LWT 22°C	
	TC	PI	TC	PI	TC	PI	TC	PI	TC	PI	TC	PI	TC	PI
20℃ DB	7.43	2.58	8.53	2.60	9.62	2.62	10.35	2.64	11.45	2.66	12.18	2.68	-	-
30℃ DB	7.24	3.14	8.31	3.17	9.37	3.19	10.08	3.21	11.15	3.24	11.86	3.26	-	-
35℃ DB	7.14	3.42	8.19	3.45	9.25	3.48	9.95	3.50	11.00	3.53	11.70	3.55	12.40	3.57
40℃ DB	7.05	3.70	8.08	3.73	9.12	3.77	9.81	3.79	10.85	3.82	11.54	3.84	12.23	3.86
45℃ DB	6.95	3.98	7.97	4.02	8.99	4.05	9.68	4.07	10.70	4.11	11.38	4.13	12.06	4.16

AHUW166A3 [HU161 U33] + AHNW16606B0 [HN1616T NB0]

Outdoor Temperature	LWT 7°C		LWT 10°C		LWT 13°C		LWT 15°C		LWT 18°C		LWT 20°C		LWT 22°C	
	TC	PI	TC	PI	TC	PI	TC	PI	TC	PI	TC	PI	TC	PI
20℃ DB	8.11	2.92	9.30	2.95	10.50	2.97	11.30	2.99	12.49	3.02	13.29	3.03	-	-
30℃ DB	7.90	3.56	9.06	3.59	10.22	3.62	11.00	3.64	12.16	3.67	12.94	3.69	-	-
35℃ DB	7.79	3.87	8.94	3.91	10.09	3.94	10.85	3.97	12.00	4.00	12.77	4.02	13.53	4.05
40℃ DB	7.69	4.19	8.82	4.23	9.95	4.27	10.70	4.29	11.84	4.33	12.59	4.35	13.35	4.38
45℃ DB	7.58	4.51	8.70	4.55	9.81	4.59	10.56	4.62	11.67	4.66	12.42	4.68	13.16	4.71

AHUW128A3 [HU123 U33] + AHNW16606B0 [HN1616T NB0]

Outdoor Temperature	LWT 7°C		LWT 10°C		LWT 13°C		LWT 15°C		LWT 18°C		LWT 20°C		LWT 22°C	
	TC	PI	TC	PI	TC	PI	TC	PI	TC	PI	TC	PI	TC	PI
20℃ DB	7.03	2.41	8.06	2.43	9.10	2.45	9.79	2.47	10.82	2.49	11.51	2.50	-	-
30℃ DB	6.85	2.93	7.85	2.96	8.86	2.99	9.53	3.00	10.54	3.03	11.21	3.05	-	-
35℃ DB	6.75	3.20	7.75	3.22	8.74	3.25	9.41	3.27	10.40	3.30	11.06	3.32	11.73	3.34
40℃ DB	6.66	3.46	7.64	3.49	8.62	3.52	9.28	3.54	10.26	3.57	10.91	3.59	11.57	3.61
45℃ DB	6.57	3.72	7.54	3.75	8.50	3.79	9.15	3.81	10.12	3.84	10.76	3.86	11.41	3.89

AHUW148A3 [HU143 U33] + AHNW16606B0 [HN1616T NB0]

Outdoor Temperature	LWT 7°C		LWT 10°C		LWT 13°C		LWT 15°C		LWT 18°C		LWT 20°C		LWT 22°C	
	TC	PI	TC	PI	TC	PI	TC	PI	TC	PI	TC	PI	TC	PI
20℃ DB	7.43	2.58	8.53	2.60	9.62	2.62	10.35	2.64	11.45	2.66	12.18	2.68	-	-
30℃ DB	7.24	3.14	8.31	3.17	9.37	3.19	10.08	3.21	11.15	3.24	11.86	3.26	-	-
35℃ DB	7.14	3.42	8.19	3.45	9.25	3.48	9.95	3.50	11.00	3.53	11.70	3.55	12.40	3.57
40℃ DB	7.05	3.70	8.08	3.73	9.12	3.77	9.81	3.79	10.85	3.82	11.54	3.84	12.23	3.86
45℃ DB	6.95	3.98	7.97	4.02	8.99	4.05	9.68	4.07	10.70	4.11	11.38	4.13	12.06	4.16

AHUW168A3 [HU163 U33] + AHNW16606B0 [HN1616T NB0]

Outdoor Temperature	LWT 7°C		LWT 10°C		LWT 13°C		LWT 15°C		LWT 18°C		LWT 20°C		LWT 22°C	
	TC	PI	TC	PI	TC	PI	TC	PI	TC	PI	TC	PI	TC	PI
20℃ DB	8.11	2.92	9.30	2.95	10.50	2.97	11.30	2.99	12.49	3.02	13.29	3.03	-	-
30℃ DB	7.90	3.56	9.06	3.59	10.22	3.62	11.00	3.64	12.16	3.67	12.94	3.69	-	-
35℃ DB	7.79	3.87	8.94	3.91	10.09	3.94	10.85	3.97	12.00	4.00	12.77	4.02	13.53	4.05
40℃ DB	7.69	4.19	8.82	4.23	9.95	4.27	10.70	4.29	11.84	4.33	12.59	4.35	13.35	4.38
45℃ DB	7.58	4.51	8.70	4.55	9.81	4.59	10.56	4.62	11.67	4.66	12.42	4.68	13.16	4.71

Note

1. DB : Dry bulb temperature (℃), LWT : Leaving water temperature (℃)
2. TC : Total capacity (kW), PI : Power Input (kW)
3. Direct interpolation is permissible. Do not extrapolate.
4. Measuring procedure follows EN-14511.
   - Rated values are based on standard conditions, and it can be found on specifications.
   - The above table values may not match the site values according to installation condition. Except for rated value, the performance is not guaranteed.
   - In accordance with the test standard (or nations), the rating will vary slightly.

Product Information for Residential

THERMA V SPLIT (IWT TYPE INDOOR UNIT)

PERFORMANCE TABLE FOR HEATING OPERATION

MAXIMUM HEATING CAPACITY (INCLUDING DEFROST EFFECT)

AHUW096A3 [HU091 U43] + AHNW16606B0 [HN1616T NB0]

Outdoor Temperature	LWT 30℃		LWT 35℃		LWT 40℃		LWT 45℃		LWT 50℃		LWT 55℃	
	TC	PI	TC	PI	TC	PI	TC	PI	TC	PI	TC	PI
-20 ℃ DB	7.00	3.52	6.58	3.76	6.24	4.35	5.89	4.95	-	-	-	-
-15 ℃ DB	7.39	3.24	6.95	3.46	6.59	3.98	6.22	4.53	5.84	4.88	-	-
-7 ℃ DB	8.01	2.79	7.53	2.98	7.14	3.40	6.74	3.87	6.33	4.16	5.90	3.89
-4 ℃ DB	7.95	2.56	7.47	2.74	7.15	3.14	6.82	3.59	6.46	3.88	6.07	3.66
-2 ℃ DB	7.89	2.41	7.42	2.58	7.15	2.96	6.86	3.40	6.54	3.69	6.19	3.50
2 ℃ DB	7.77	2.13	7.30	2.27	7.14	2.64	6.94	3.04	6.70	3.32	6.42	3.19
7 ℃ DB	9.58	2.09	9.00	2.23	8.43	2.37	7.85	2.55	7.28	2.72	6.70	2.79
10 ℃ DB	9.82	1.91	9.23	2.04	8.64	2.17	8.05	2.30	7.46	2.42	6.87	2.55
15 ℃ DB	10.22	1.61	9.61	1.72	8.99	1.83	8.38	1.94	7.77	2.05	7.15	2.16
18 ℃ DB	10.46	1.43	9.84	1.53	9.21	1.63	8.58	1.73	7.95	1.82	7.32	1.92

AHUW126A3 [HU121 U33] + AHNW16606B0 [HN1616T NB0]

Outdoor Temperature	LWT 30℃		LWT 35℃		LWT 40℃		LWT 45℃		LWT 50℃		LWT 55℃	
	TC	PI	TC	PI	TC	PI	TC	PI	TC	PI	TC	PI
-20 ℃ DB	10.29	2.66	10.39	3.28	10.72	5.19	10.61	5.63	-	-	-	-
-15 ℃ DB	10.32	2.62	10.41	3.23	10.75	3.90	11.07	5.42	10.53	5.66	-	-
-7 ℃ DB	10.34	2.54	10.44	3.14	10.79	3.80	11.15	4.80	11.23	5.31	10.63	5.54
-4 ℃ DB	10.12	2.49	10.23	3.07	10.61	3.99	10.99	4.52	11.33	5.11	10.87	5.40
-2 ℃ DB	10.01	2.45	10.11	3.03	10.51	3.84	10.91	4.35	11.31	4.99	11.04	5.35
2 ℃ DB	9.71	2.38	9.81	3.12	10.25	3.56	10.70	4.20	11.15	4.86	11.37	5.42
7 ℃ DB	11.88	2.25	12.00	2.78	12.13	3.31	12.25	3.84	12.38	4.36	12.50	4.89
10 ℃ DB	12.38	2.07	12.51	2.56	12.64	3.05	12.77	3.53	12.90	4.02	13.03	4.51
15 ℃ DB	13.23	1.78	13.37	2.19	13.50	2.61	13.64	3.03	13.78	3.45	13.92	3.86
18 ℃ DB	13.73	1.60	13.88	1.97	14.02	2.35	14.17	2.73	14.31	3.10	14.46	3.48

AHUW146A3 [HU141 U33] + AHNW16606B0 [HN1616T NB0]

Outdoor Temperature	LWT 30℃		LWT 35℃		LWT 40℃		LWT 45℃		LWT 50℃		LWT 55℃	
	TC	PI	TC	PI	TC	PI	TC	PI	TC	PI	TC	PI
-20 ℃ DB	11.72	3.57	11.42	3.99	11.12	5.38	10.61	5.63	-	-	-	-
-15 ℃ DB	11.94	3.48	11.63	3.89	11.46	4.34	11.07	5.42	10.53	5.66	-	-
-7 ℃ DB	12.29	3.33	11.97	3.73	11.79	4.16	11.61	4.99	11.23	5.31	10.63	5.54
-4 ℃ DB	11.76	3.14	11.45	3.51	11.45	4.30	11.42	4.70	11.33	5.11	10.87	5.40
-2 ℃ DB	11.51	3.03	11.21	3.39	11.29	4.12	11.35	4.53	11.39	5.03	11.04	5.35
2 ℃ DB	10.65	2.76	10.37	3.30	10.72	3.72	11.04	4.33	11.32	4.93	11.37	5.42
7 ℃ DB	14.38	3.07	14.00	3.43	13.63	3.80	13.25	4.16	12.88	4.54	12.50	4.89
10 ℃ DB	15.02	2.94	14.63	3.29	14.23	3.64	13.84	3.99	13.45	4.34	13.06	4.69
15 ℃ DB	16.09	2.73	15.67	3.05	15.25	3.37	14.83	3.70	14.41	4.02	13.99	4.35
18 ℃ DB	16.73	2.60	16.29	2.91	15.86	3.22	15.42	3.53	14.98	3.83	14.55	4.14

AHUW166A3 [HU161 U33] + AHNW16606B0 [HN1616T NB0]

Outdoor Temperature	LWT 30℃		LWT 35℃		LWT 40℃		LWT 45℃		LWT 50℃		LWT 55℃	
	TC	PI	TC	PI	TC	PI	TC	PI	TC	PI	TC	PI
-20 ℃ DB	12.25	4.92	11.61	5.14	11.12	5.38	10.61	5.63	-	-	-	-
-15 ℃ DB	12.78	4.73	12.12	4.94	11.61	5.18	11.07	5.42	10.53	5.66	-	-
-7 ℃ DB	13.64	4.44	12.93	4.64	12.38	4.86	11.81	5.08	11.23	5.31	10.63	5.54
-4 ℃ DB	13.15	4.11	12.47	4.29	12.13	4.56	11.75	4.83	11.33	5.11	10.87	5.40
-2 ℃ DB	12.81	3.89	12.14	4.07	11.95	4.36	11.70	4.67	11.40	5.03	11.04	5.35
2 ℃ DB	12.07	3.48	11.45	3.64	11.56	4.01	11.58	4.54	11.52	5.02	11.37	5.42
7 ℃ DB	16.88	4.00	16.00	4.18	15.13	4.36	14.25	4.53	13.38	4.72	12.50	4.89
10 ℃ DB	17.79	3.88	16.87	4.06	15.94	4.23	15.02	4.40	14.10	4.58	13.18	4.75
15 ℃ DB	19.31	3.69	18.31	3.86	17.31	4.02	16.31	4.19	15.30	4.35	14.30	4.52
18 ℃ DB	20.22	3.58	19.17	3.74	18.12	3.90	17.08	4.06	16.03	4.22	14.98	4.38

AHUW128A3 [HU123 U33] + AHNW16606B0 [HN1616T NB0]

Outdoor Temperature	LWT 30℃		LWT 35℃		LWT 40℃		LWT 45℃		LWT 50℃		LWT 55℃	
	TC	PI	TC	PI	TC	PI	TC	PI	TC	PI	TC	PI
-20 ℃ DB	10.29	2.66	10.39	3.28	10.72	5.19	10.61	5.63	-	-	-	-
-15 ℃ DB	10.32	2.62	10.41	3.23	10.75	3.90	11.07	5.42	10.53	5.66	-	-
-7 ℃ DB	10.34	2.54	10.44	3.14	10.79	3.80	11.15	4.80	11.23	5.31	10.63	5.54
-4 ℃ DB	10.12	2.49	10.23	3.07	10.61	3.99	10.99	4.52	11.33	5.11	10.87	5.40
-2 ℃ DB	10.01	2.45	10.11	3.03	10.51	3.84	10.91	4.35	11.31	4.99	11.04	5.35
2 ℃ DB	9.71	2.38	9.81	3.12	10.25	3.56	10.70	4.20	11.15	4.86	11.37	5.42
7 ℃ DB	11.88	2.25	12.00	2.78	12.13	3.31	12.25	3.84	12.38	4.36	12.50	4.89
10 ℃ DB	12.38	2.07	12.51	2.56	12.64	3.05	12.77	3.53	12.90	4.02	13.03	4.51
15 ℃ DB	13.23	1.78	13.37	2.19	13.50	2.61	13.64	3.03	13.78	3.45	13.92	3.86
18 ℃ DB	13.73	1.60	13.88	1.97	14.02	2.35	14.17	2.73	14.31	3.10	14.46	3.48

AHUW148A3 [HU143 U33] + AHNW16606B0 [HN1616T NB0]

Outdoor Temperature	LWT 30℃		LWT 35℃		LWT 40℃		LWT 45℃		LWT 50℃		LWT 55℃	
	TC	PI	TC	PI	TC	PI	TC	PI	TC	PI	TC	PI
-20 ℃ DB	11.72	3.57	11.42	3.99	11.12	5.38	10.61	5.63	-	-	-	-
-15 ℃ DB	11.94	3.48	11.63	3.89	11.46	4.34	11.07	5.42	10.53	5.66	-	-
-7 ℃ DB	12.29	3.33	11.97	3.73	11.79	4.16	11.61	4.99	11.23	5.31	10.63	5.54
-4 ℃ DB	11.76	3.14	11.45	3.51	11.45	4.30	11.42	4.70	11.33	5.11	10.87	5.40
-2 ℃ DB	11.51	3.03	11.21	3.39	11.29	4.12	11.35	4.53	11.39	5.03	11.04	5.35
2 ℃ DB	10.65	2.76	10.37	3.30	10.72	3.72	11.04	4.33	11.32	4.93	11.37	5.42
7 ℃ DB	14.38	3.07	14.00	3.43	13.63	3.80	13.25	4.16	12.88	4.54	12.50	4.89
10 ℃ DB	15.02	2.94	14.63	3.29	14.23	3.64	13.84	3.99	13.45	4.34	13.06	4.69
15 ℃ DB	16.09	2.73	15.67	3.05	15.25	3.37	14.83	3.70	14.41	4.02	13.99	4.35
18 ℃ DB	16.73	2.60	16.29	2.91	15.86	3.22	15.42	3.53	14.98	3.83	14.55	4.14

AHUW168A3 [HU163 U33] + AHNW16606B0 [HN1616T NB0]

Outdoor Temperature	LWT 30℃		LWT 35℃		LWT 40℃		LWT 45℃		LWT 50℃		LWT 55℃	
	TC	PI	TC	PI	TC	PI	TC	PI	TC	PI	TC	PI
-20 ℃ DB	12.25	4.92	11.61	5.14	11.12	5.38	10.61	5.63	-	-	-	-
-15 ℃ DB	12.78	4.73	12.12	4.94	11.61	5.18	11.07	5.42	10.53	5.66	-	-
-7 ℃ DB	13.64	4.44	12.93	4.64	12.38	4.86	11.81	5.08	11.23	5.31	10.63	5.54
-4 ℃ DB	13.15	4.11	12.47	4.29	12.13	4.56	11.75	4.83	11.33	5.11	10.87	5.40
-2 ℃ DB	12.81	3.89	12.14	4.07	11.95	4.36	11.70	4.67	11.40	5.03	11.04	5.35
2 ℃ DB	12.07	3.48	11.45	3.64	11.56	4.01	11.58	4.54	11.52	5.02	11.37	5.42
7 ℃ DB	16.88	4.00	16.00	4.18	15.13	4.36	14.25	4.53	13.38	4.72	12.50	4.89
10 ℃ DB	17.79	3.88	16.87	4.06	15.94	4.23	15.02	4.40	14.10	4.58	13.18	4.75
15 ℃ DB	19.31	3.69	18.31	3.86	17.31	4.02	16.31	4.19	15.30	4.35	14.30	4.52
18 ℃ DB	20.22	3.58	19.17	3.74	18.12	3.90	17.08	4.06	16.03	4.22	14.98	4.38

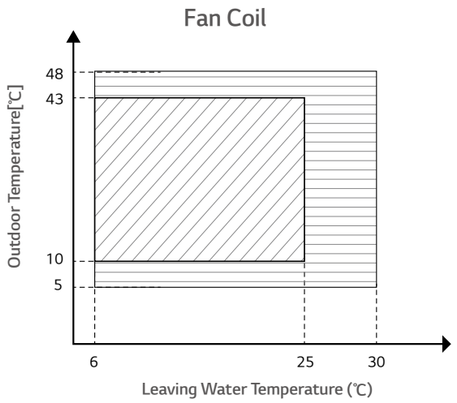
Note

1. DB : Dry bulb temperature (℃), LWT : Leaving water temperature (℃)
2. TC : Total capacity (kW), PI : Power Input (kW)
3. Direct interpolation is permissible. Do not extrapolate.
4. Measuring procedure follows EN-14511.
   - Rated values are based on standard conditions, and it can be found on specifications.
   - Above table values may not be matched according to installation condition. Except for rated value, the performance is not guaranteed.
   - In accordance with the test standard (or nations), the rating will vary slightly.

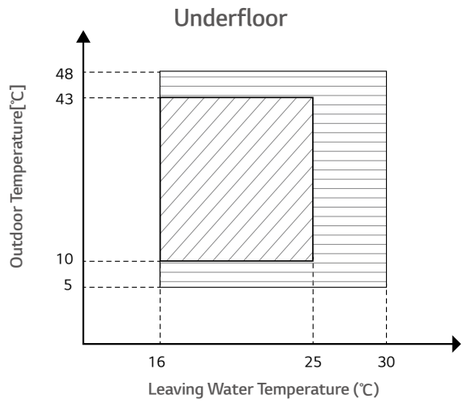
Product Information for Residential

THERMA V SPLIT (IWT TYPE INDOOR UNIT)

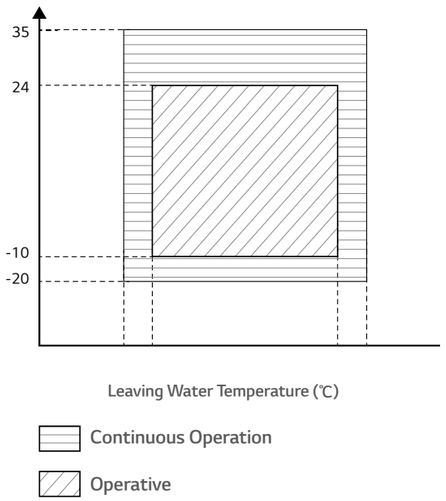
OPERATION RANGE



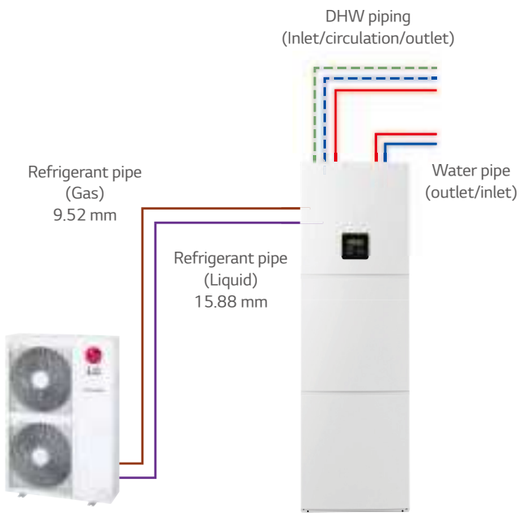
[Cooling Mode]



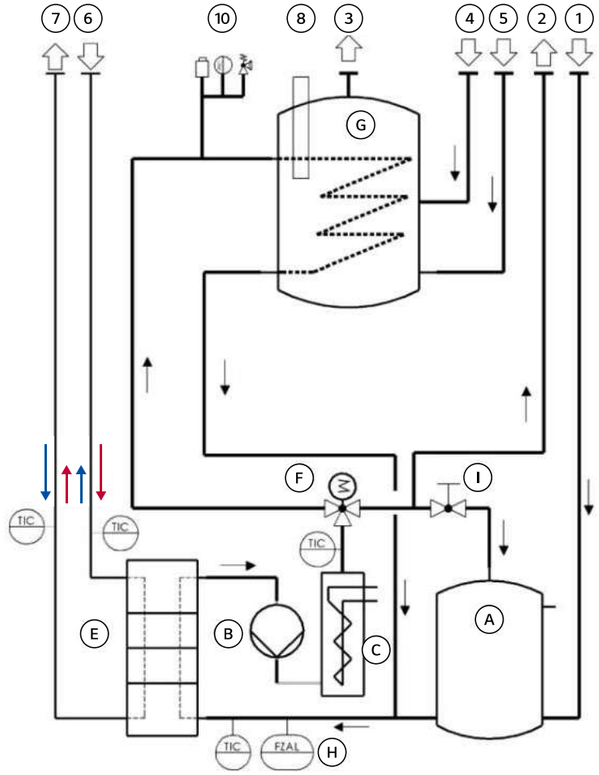
[Cooling Mode]



[Heating Mode]



IWT SCHEMATIC



No	Name	Description
①	Water inlet	Male PT 25 (1inch)
②	Water outlet	Male PT 25 (1inch)
③	Hot water supply	
④	Hot water recircle	
⑤	Cold inlet	
⑥	Refrigerant inlet	Ø 9.52 (3/8)
⑦	Refrigerant outlet	Ø 15.88 (5/8)
⑧	Anode bar	D33 x 480 mm / M8 x 10 mm
⑩	Air vent v/v, Relief valve	3bar

No	Name	Description
Ⓐ	Buffer tank	40 ℓ
Ⓑ	Water pump	
Ⓒ	Electric heater	1P (2+2) / 3P (2+2+2)
Ⓔ	Plate heat exchanger	
Ⓕ	3Way Valve	
Ⓗ	Expansion tank	
Ⓘ	Shut-off valve	

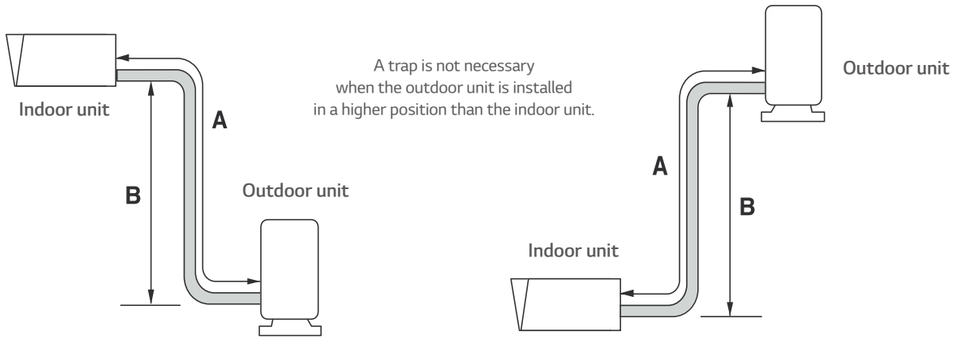
Product Information for Residential

THERMA V SPLIT (IWT TYPE INDOOR UNIT)

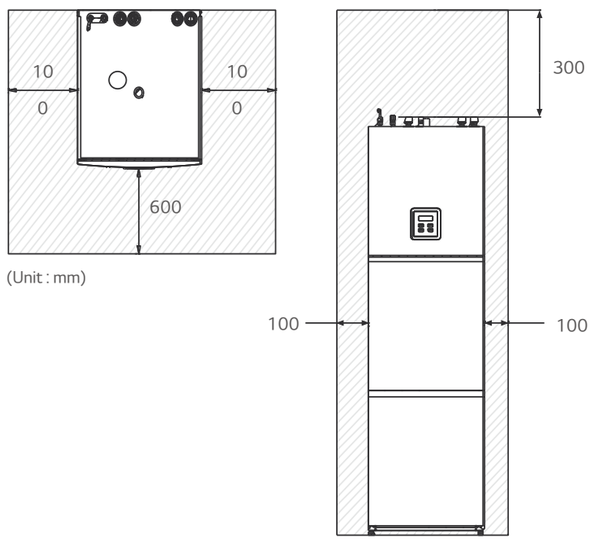
INSTALLATION & SVC SPACE

Pipe Size (mm : inch) (Diameter : Ø)		Length A (m)		Elevation B (m)		* Additional Refrigerant (g/m)
Gas	Liquid	Standard	Max.	Standard	Max.	
15.88(5/8")	9.52 (3/8")	7.5	50	0	30	40

Constraints in Pipe Length and Elevation

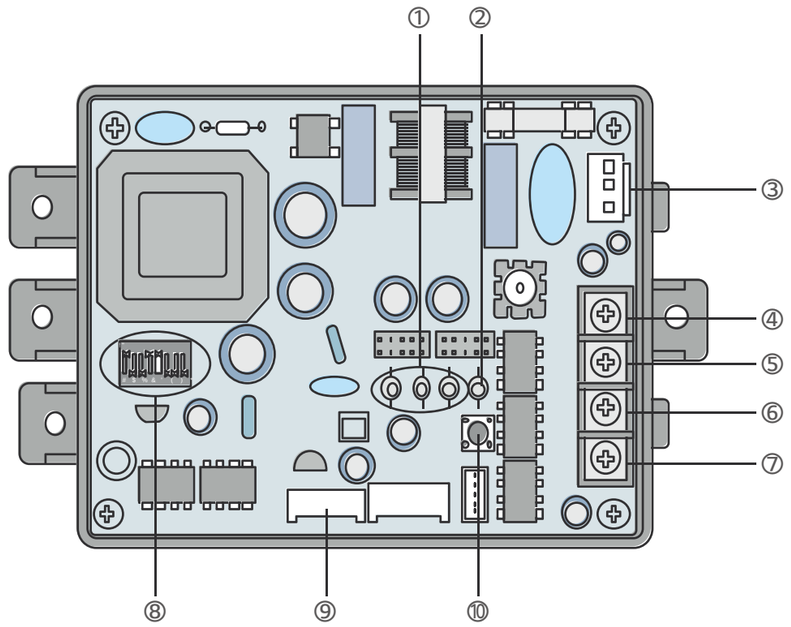


Required Minimum Clearances



MODBUS CONVERTER (PP485B00K)

It is installed to bridge communication between outdoor units and indoor units.



- **Modbus Gateway For Indoor Unit**
  - ① LED01G, 02G, 03G: Communication Status LED
  - ② LED1:RS-485 Status LED
  - ③ CN_PWR: 220V~ Connector
  - ④ +10V: DC 10 V Terminal
  - ⑤ GND: Ground
  - ⑥ BUS_A: *RS-485 (+) Terminal (Refer to note)
  - ⑦ BUS_B: *RS-485 (-) Terminal
  - ⑧ DIP Switch: Product Selection (Refer to the\DIP Switch Configuration\)
  - ⑨ CN_OUT: Outdoor Unit Connector
  - ⑩ Reset Switch: Modbus Converter Reset

Note

: RS-485 is one of the international interface standards for serial communication.

Commercial Offices

1. Cooling and hot water
2. Heating and Cooling by heat pump
3. Thermal storage system by heat pump
4. Heating system combined cassette unit

Commercial Applications

APPLICATION OVERVIEW FOR COMMERCIAL

As a heating, cooling and hot water system for commercial purposed buildings, the following products offer advantages such as environmentally friendly and economical operation cost. In addition, various degrees of design freedom and design of various application systems are possible. Inverter scroll Compressor and heat pump system using air as heat source enables stable operation and Implement high performance with low energy consumption

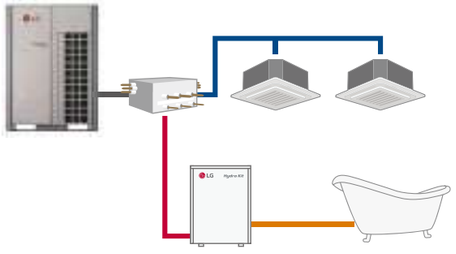
MULTI V™ + Hydro Kit

- Supply water Up to 80℃ for heating (High Temp.)
- Supply water Up to 50℃ for heating (Low Temp.)
- Supply water Up to 5℃ for cooling (Low Temp.)
- Radiant system design
- Space heating/cooling design with FCU
- Hot water system

INVERTER SCROLL CHILLER HEAT PUMP

- Wide Lineup for single unit(20 ~ 67 RT, 8 Models)
- All heat pump type
- All inverter compressor with high efficiency
- Wide operation range
  (Cooling -15 ~ 48℃ / Heating -30 ~ 35℃)
- Wide water temperature range
  (Chilled water 5~ 20℃ / Hot water 30 ~ 55℃)
- Low footprint & Light weight
- Continuous heating operation
- Back up operation
- Compact HEX (Plate type heat exchanger)

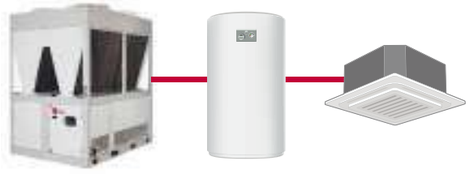
Available application



Combination VRF & Water

Hot water / Radiant

Thermal accumulatiom



FCU / Radiator / Convector

Commercial Applications

HOT WATER
BY HEAT PUMP

Available Product

MULTI V™

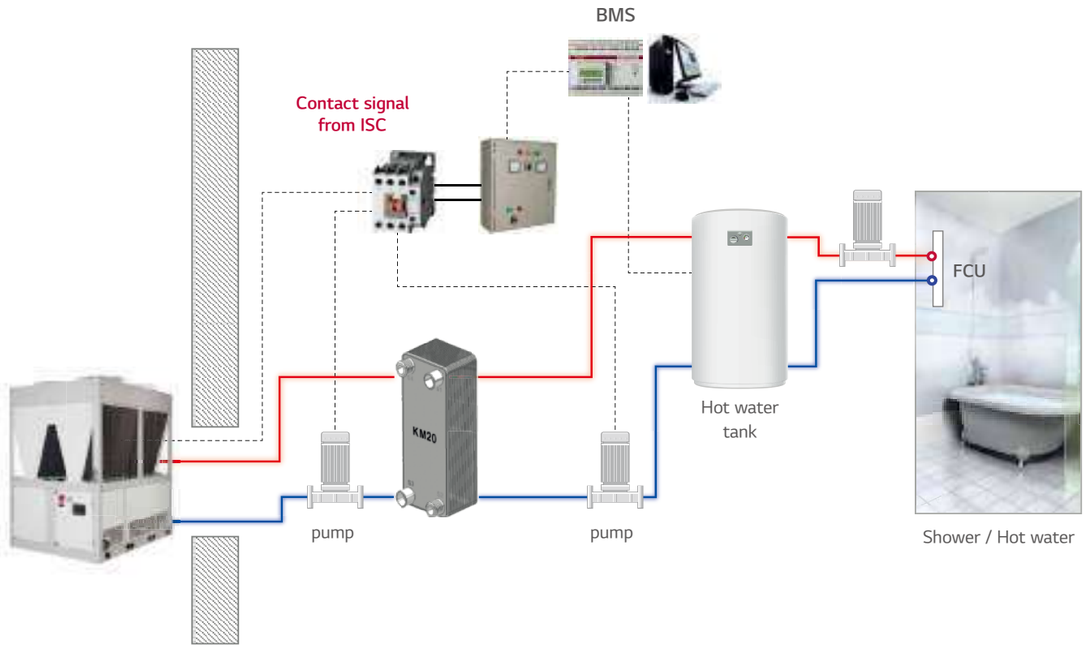
INVERTER SCROLL CHILLER HEAT PUMP

Design Purpose

- Large scale hot water supply required (Hotel, Dormitory etc.)
- Separate heat exchanger required to prevent pollution of drinking water

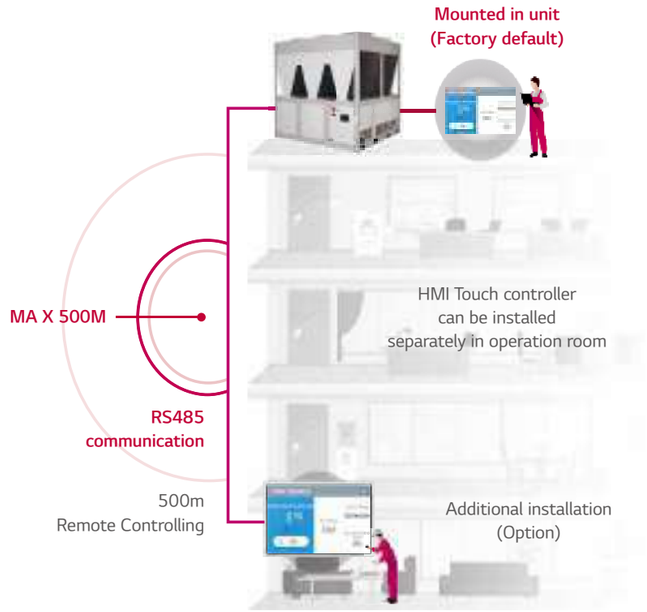
Preparation

- MCC (Field scope)
- BMS (Option, Field scope)
- PHE (Plate heat exchanger) (Field scope)
- DHW Temp sensor (Field scope)



Control

- Integrated in ISC
- Up to 5 Chillers by 1 HMI
- 5 inch
- installation length Max 500m
- Additional installation available (Option)



• HMI + MCC for Pump

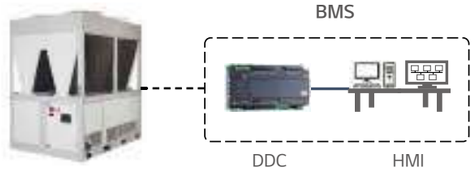
- Installation of ISC alone
- Controlled by HMI+MCC (Field scope)

• ACP + MCC for Pump

- Installation of Multi ISCs
- Group control by ACP + Chiller kit (option)
- Up to 10 Chillers by ACP

• BMS + MCC for Pump

- Typical building solution
- If required to use Modbus communication
- If BMS required to manage all heat source, terminal units and hydronic systems



Commercial Applications

HOT WATER BY HEAT PUMP

Available Product

MULTI V™

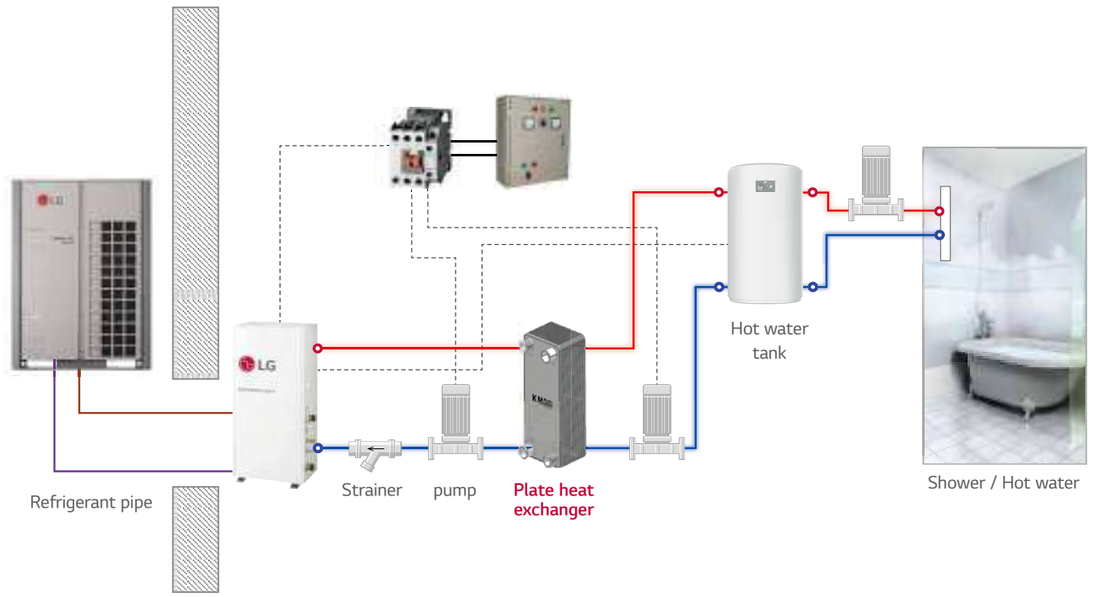
INVERTER SCROLL CHILLER HEAT PUMP

Design Purpose

- Large scale hot water supply required (Hotel, Dormitory etc.)
- Separate heat exchanger required to prevent pollution of drinking water

Preparation

- MCC (Field scope)
- BMS (Option, Field scope)
- PHE (Plate heat exchanger) (Field scope)



Accessory

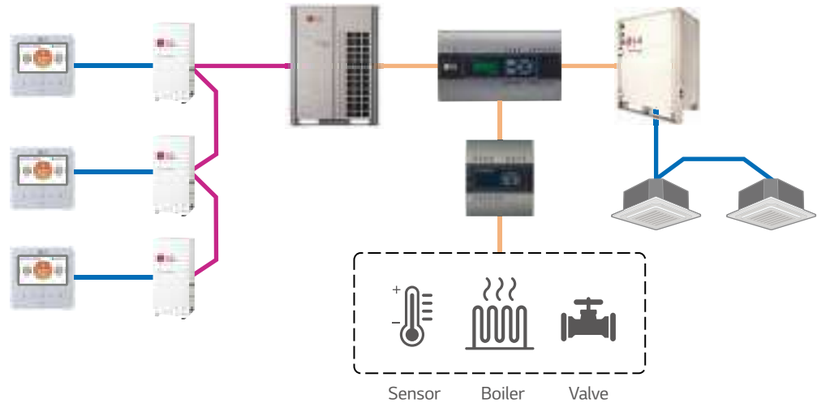
Model name	Feature
DHW Kit (Relay, Sensor, Holder)	• Accessory PHLTA (Split 1p) / PHLTB (Mono) PHLTC (Split 3p)
DHW temp sensor (RHRSTA0)	• Accessory • 5kΩ, 7PI, 12m
DHW Sensor Holder	• Field scope

• ACP + BMS + MCC for Pump

- Typical building solution
- If required to use Modbus communication
- If BMS required to manage all heat source, terminal units and hydronic systems

• ACP +I/O Module + MCC for Pump

- Typical building solution
- If required to use only LG Brand
- I/O module required to manage all heat source, terminal units and hydronic systems



Commercial Applications

HEATING AND COOLING BY HEAT PUMP

Available Product

MULTI V™

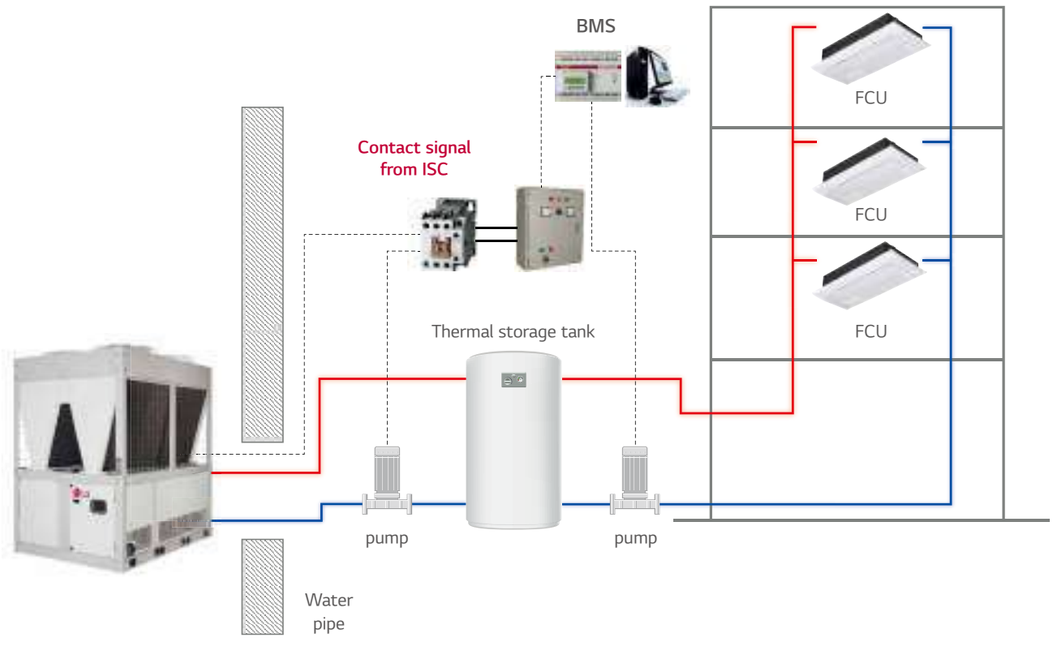
INVERTER SCROLL CHILLER HEAT PUMP

Design Purpose

- For water system design with Fan coil unit, Radiant
- If the machine room is narrow and the large chiller system is not applicable

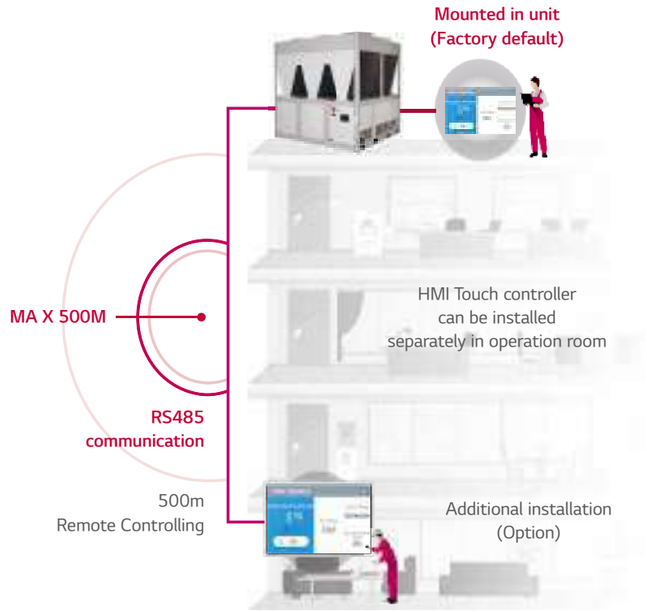
Preparation

- LG Central controller (Option, with Chiller kit)
- MCC (Field scope)
- BMS (Field scope)



Control

- Integrated in ISC
- Up to 5 Chillers by 1 HMI
- 5 inch
- installation length Max 500m
- Additional installation available (Option)



• HMI + MCC for Pump

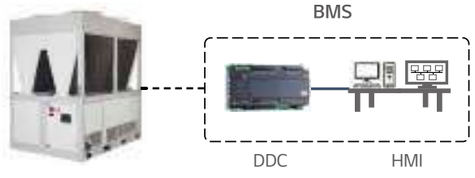
- Installation of ISC alone
- Controlled by HMI+MCC (Field scope)

• ACP + MCC for Pump

- Installation of Multi ISCs
- Group control by ACP + Chiller kit (option)
- Up to 10 Chillers by ACP

• BMS + MCC for Pump

- Typical building solution
- If required to use Modbus communication
- If BMS required to manage all heat source, terminal units and hydronic systems



Commercial Applications

HEATING AND COOLING BY HEAT PUMP

Available Product

MULTI V™

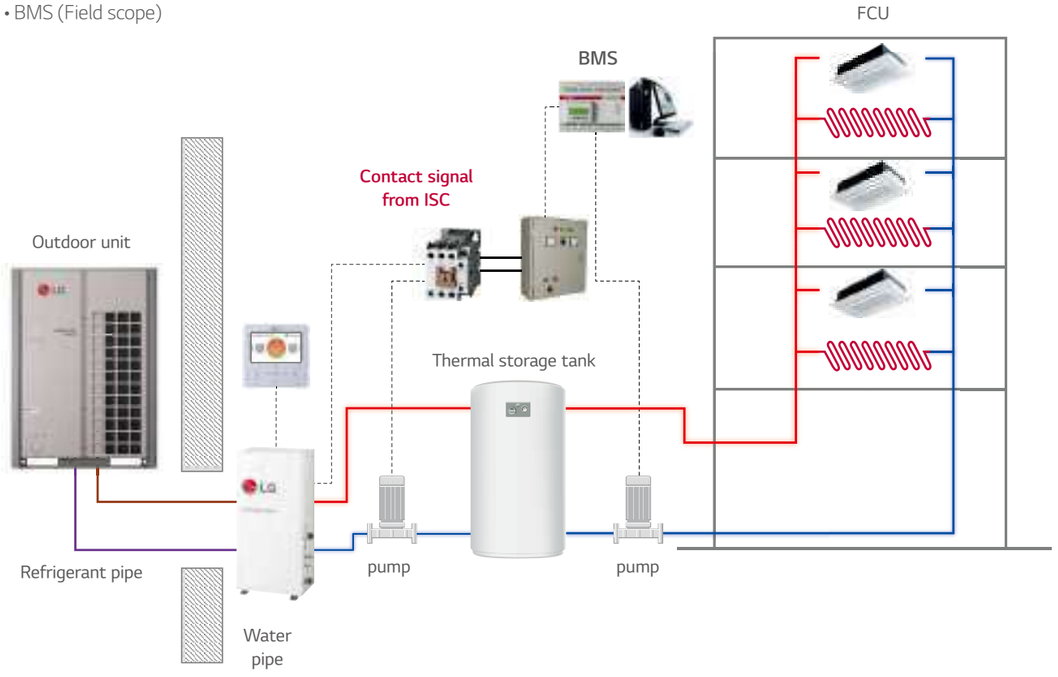
INVERTER SCROLL CHILLER HEAT PUMP

Design Purpose

- For water system design with Fan coil unit, Radiant
- If the machine room is narrow and the large chiller system is not applicable

Preparation

- LG Central controller (Option)
- MCC (Field scope)
- BMS (Field scope)



Control

[LG Individual]

[LG Central]

ACP

AC Smart

AC Ez Touch

[BMS GW]

ACP 5
ACP BACnet

AC Smart 5
AC Smart BACnet

ACP Lonworks

• Remote controller + MCC for Pump

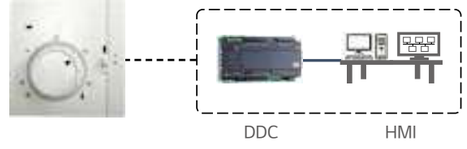
- Installation of Hydro Kit alone
- 1 remote controller for Group control (Max 16 units)
- Controlled by Remote controllern + MCC (Field scope)

• ACP + MCC for Pump

- Installation of Multi Hydro Kits
- Group control by ACP
- Up to 10 Chillers by ACP

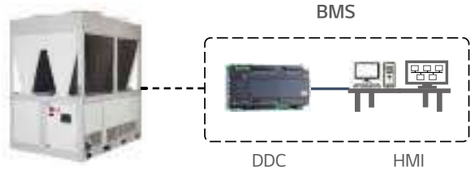
• Dry contact/Thermostat + BMS + MCC for Pump

- Controlled by contact signal from BMS



• ACP + BMS + MCC for Pump

- Typical building solution
- If required to use Modbus communication
- If BMS required to manage all heat source, terminal units and hydronic systems



Commercial Applications

THERMAL STORAGE SYSTEM BY HEAT PUMP

Available Product

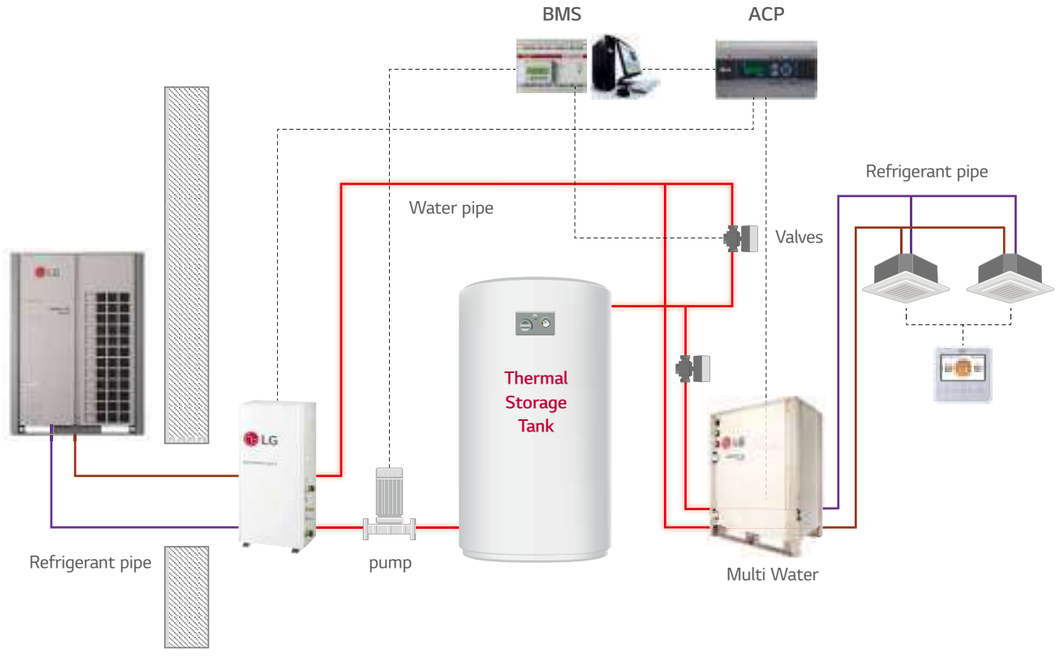
MULTI V™

Design Purpose

- Thermal storage system with Heat pump
- If difficult to install Cooling tower

Preparation

- MCC (Field scope)
- BMS (Option, Field scope)
- Water source heat pump, Hydronic components



Control

[LG Individual]

[LG Central]

ACP

AC Smart

AC Ez Touch

[BMS GW]

ACP 5
ACP BACnet

AC Smart 5
AC Smart BACnet

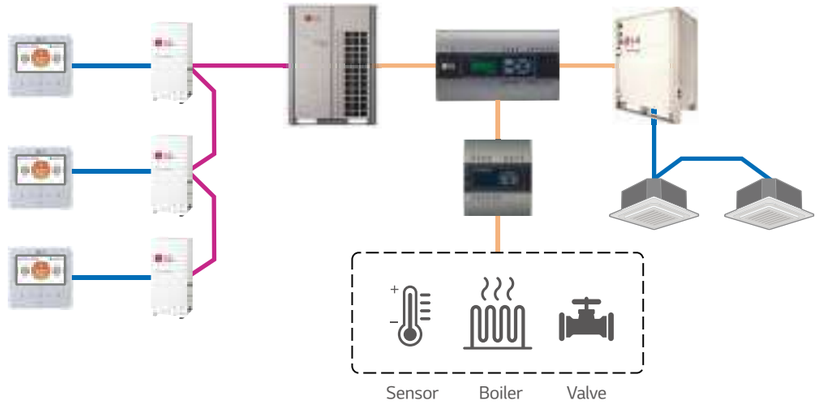
ACP Lonworks

• ACP + BMS + MCC for Pump

- Typical building solution
- If required to use Modbus communication
- If BMS required to manage all heat source, terminal units and hydronic systems

• ACP +I/O Module + MCC for Pump

- Typical building solution
- If required to use only LG Brand
- I/O module required to manage all heat source, terminal units and hydronic systems



Commercial Applications

COMBINATION WITH HR

Available Product

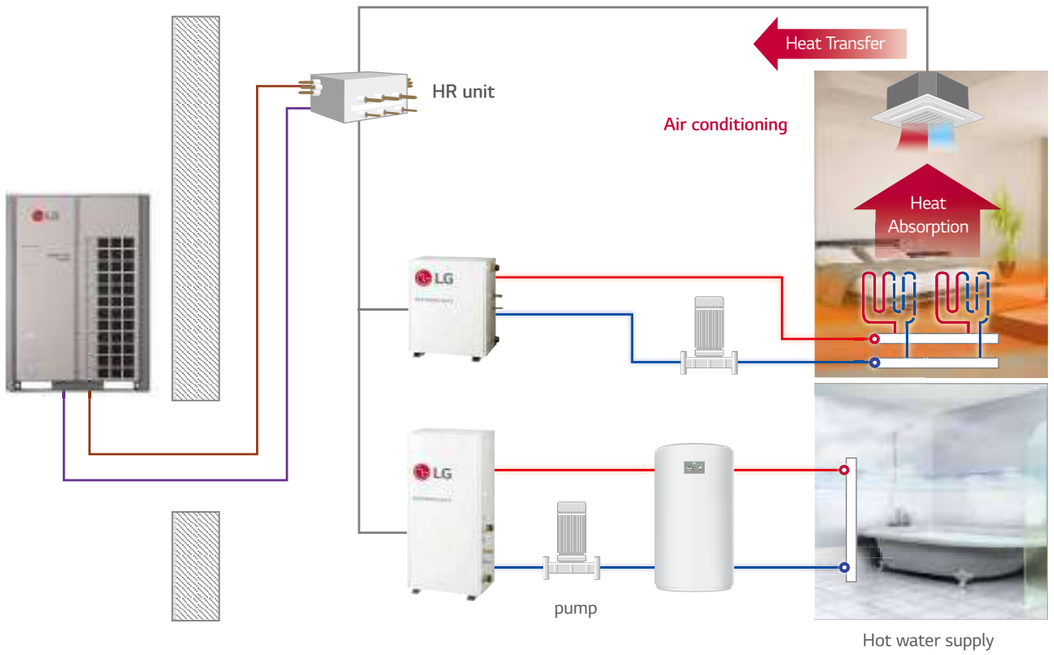
MULTI V™

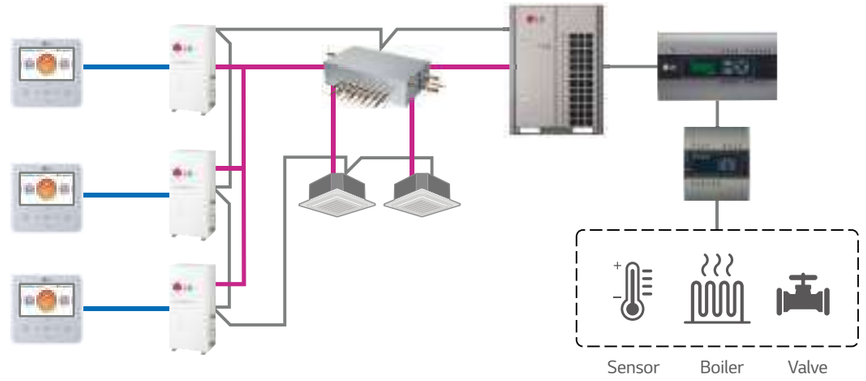
Design Purpose

- Need Heating and Cooling in multiple room
- Need Space heating/cooling and hot water supply

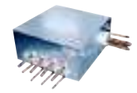
Preparation

- HR unit (Option)
- MCC (Field scope)
- BMS (Option, Field scope)





HR Unit

Name		PRHR 023	PRHR 033	PRHR 043	PRHR 063	PRHR 083
Image	Image					
Size (WxHxD)	Body	486 x 218 x 480			795 x 218 x 480	
	Including Pipes	786 x 218 x 657			1113 x 218 x 657	
Number of Ports		2	3	4	6	8
Max. Connectable No. of IDUs		16	24	32	48	64
Max. Connectable No. of IDUs per Port		8				
Max. Connectable Capacity of IDUs per Port		60kBtu				
Total Connectable Capacity of IDUs		120kBtu	180kBtu	230kBtu		
Casing		Galvanized steel plate				
Sound Absorbing Insulation Material		Polyethylene Foam				
Current	MCA	0.2				
	MFA	15				
Power Supply		1Φ, 220 ~ 240V, 50/60Hz				
High/Low Pressure Valve		EEV type Solenoid Valve				
Balancing Valve		EEV (Noise ↓)				
Pipe detection		Auto (Time↓, Accuracy↑) / Manual				
Sound Pressure Level		45 dB(A)				

Product information for Commercial

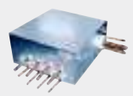
1. Multi V Hydro Kit
2. Inverter scroll Chiller heat pump

Product Information for Commercial

MULTI V + HYDRO KIT

IDU
(Hydro Kit 4rd Gen.)

ODU (Multi V 5)



Accessory
HR Box

No	Contents	Remark
1	Remote Air Sensor Connection	Room air sensor sold separately, PQRSTA0
2	Temperature Control Definition	Leaving Water temperature Room Air Temperature base Control DHW tank temperature
3	Weather dependent operation	Outdoor Temp. range : Max. (10 ~ 20°C), Min. (-20 ~ 5°C) Indoor air Temp. range : Max. (20 ~ 30°C), Min. (16 ~ 19°C) Leaving Water Temp. : Medium Temp : Max. (35 ~ 50°C), Min. (20 ~ 34°C) High Temp : Max. (65 ~ 80°C), Min. (40 ~ 54°C)
4	Disinfection operation	Starting Date : 01 ~ 07 (01: Sun, 02: Mon, ····, 07: Sat) Starting Time in 24 hours : 00 ~ 23 hours Target temperature 40 ~ 70°C Operation maintain time : 05 ~ 60 Minutes
5	Sanitary water heating operation	Max.Temperature, Temperature gap, Priority of tank heating and floor heating (Water tank temperature sensor connection is needed)
6	Low Noise Mode	Setting by remote controller
7	Defrost Mode (only High Temp. Model)	Not use (STEP0) Forced snow removal (STEP1) Fast defrost setting (STEP2) Forced snow removal + fast defrost (STEP3)
8	External water pump control	DIP S/W setting
9	LG central control	ACP, AC Ez touch, AC Smart 5, AC Manager 5
10	Emergency operation	DIP S/W setting
11	Dry Contact Mode	Accessory (PDRYCB000 / PDRYCB100)
12	Water Pump Test Run	Setting by remote controller
13	PHEX anti-freezing control	Default

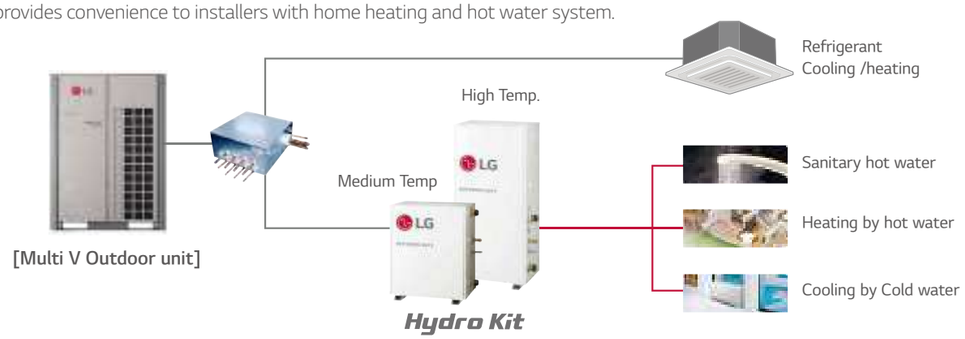
Main Features

- Inverter Compressor & Smart Load Control
- Ocean Black Fin & Biomimetic Technology Fan
- Continuous Heating & Low-Noise Operation
- Flexible Installation Space with Large Capacity Units
- Energy Management & Smart Individual Controller

Main Components

PHE (Ref.-Water)
Flow switch
Remote controller

Multi V Hydro kit is a product made up of two units of outdoor unit and indoor unit, with air as the heat source. Major water components are integrated in indoor unit
It provides convenience to installers with home heating and hot water system.

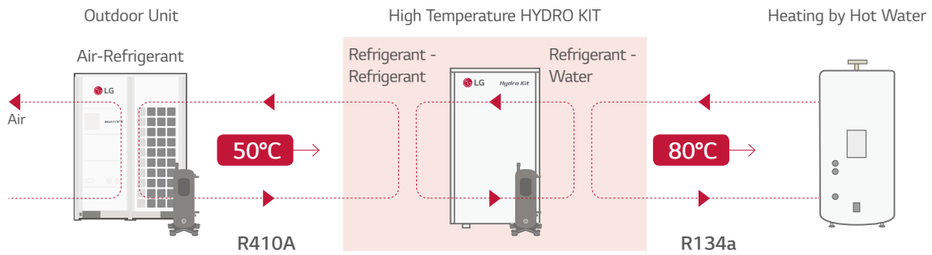


Outdoor Unit Type	Maximum Combination Ratio	
	Hydro Kit	Total (Hydro Kit + Indoor Unit)
Multi V S (Heat Pump , Heat Recovery)	100%	100%

[HR Unit]

	PRHR 023	PRHR 033	PRHR 043	PRHR 063	PRHR 083
Number of Ports	2	3	4	6	8
Max. Connectable No. of IDUs	16	24	32	48	64
Max. Connectable No. of IDUs per Port	8				

Line up - Outdoor unit



Line up - Hydro Kit

*(Heating Capa.)

System	Power	Capacity (kW)	
		12.3	28
Mid Temp.	1ø 220V	● 12.3 (13.8)	● 28 (31.5)

System	Power	Capacity (kW)	
		13.8	25.2
High Temp.	1ø 220V	●	●

Product Information for Commercial

MULTI V + HYDRO KIT

Hydro Kit Middle Temp. Model

Type				Mid Temp.	
Model				ARNH04GK2A4	ARNH10GK2A4
Power Supply			Ø / V / Hz	1 / 220 ~ 240 / 50 1 / 220 / 60	1 / 220 ~ 240 / 50 1 / 220 / 60
Capacity (Rated)	Cooling		kW	12.3	28
	Heating		kW	13.8	31.5
Power Input	Cooling	Normal	kW	0.01	0.01
	Heating	Normal	kW	0.01	0.01
Water Temperature Outlet	Cooling	Min	℃	5℃	5℃
	Heating	Max	℃	50℃	50℃
Casing			-	Painted Steel Plate	Painted Steel Plate
Dimensions	Body	W × H × D	mm	520 × 631 × 330	520 × 631 × 330
			inch	20-15 / 32 x 24-27 / 32 x13	20-15 / 32 x 24-27 / 32 x13
Net Weight			kg (lbs)	30.5 (67)	35.0 (77.2)
Heat Exchanger	Refrigerant to Water	Type	-	Brazed Plate HEX	Brazed Plate HEX
		Rated Water Flow	ℓ/min	39.6	92.0
		Head Loss	kPa	41.0	69.0
	Refrigerant to Refrigerant	Type	-	-	-
Compressor		Type	-	-	-
Piping Connections	Water Side	Inlet	inch	Male PT1	Male PT1
		Outlet	inch	Male PT1	Male PT1
	Refrigerant Side	Liquid Side	mm (inch)	9.52 (3/8)	9.52 (3/8)
		Gas Side	mm (inch)	15.88 (5/8)	22.2 (7/8)
Drain Piping Connection			mm (inch)	Male PT 1	Male PT 1
Sound Pressure Level	Cooling		dB (A)	26	26
	Heating		dB (A)	26	26
Refrigerant	Refrigerant to Refrigerant	Refrigerant Type	-	-	-
		Control	-	-	-
	Refrigerant to Water	Refrigerant Type	-	R410A	R410A
		Precharged Amount	kg (lbs)	-	-
		Control	-	EEV	EEV
Operation Range	Connected to Heat Pump	Cooling	℃ (DB)	10℃ ~ 43℃	10℃ ~ 43℃
		Heating	℃ (DB)	-20℃ ~ 35℃	-20℃ ~ 35℃
	Connected to Heat Recovery	Cooling	℃ (DB)	10℃ ~ 43℃	10℃ ~ 43℃
		Heating	℃ (DB)	-20℃ ~ 43℃	-20℃ ~ 43℃
Combination Ratio	Only Hydro Kit	Min ~ Max	%	50 ~ 100	50 ~ 100
	Hydro Kit + Standard IDUs	Min ~ Max	%	50 ~ 130	50 ~ 130

Hydro Kit High Temp. Model

Type				High Temp.	
Model				ARNH04GK3A4	ARNH08GK3A4
Power Supply			Ø / V / Hz	1 / 220 ~ 240 / 50 1 / 220 / 60	1 / 220 ~ 240 / 50 1 / 220 / 60
Capacity (Rated)	Cooling		kW	-	-
	Heating		kW	13.8	25.2
Power Input	Cooling	Normal	kW	-	-
	Heating	Normal	kW	2.3	5.0
Water Temperature Outlet	Cooling	Min	℃	-	-
	Heating	Max	℃	80℃	80℃
Casing			-	Painted Steel Plate	Painted Steel Plate
Dimensions	Body	W × H × D	mm	520 × 1,080 × 330	520 × 1,080 × 330
			inch	20-15 / 32 x 42-17 / 32 x13	20-15 / 32 x 42-17 / 32 x13
Net Weight			kg (lbs)	88.0 (194.0)	94.0 (207.2)
Heat Exchanger	Refrigerant to Water	Type	-	Brazed Plate HEX	Brazed Plate HEX
		Rated Water Flow	ℓ/min	19.8	36.0
		Head Loss	kPa	5.0	20.0
	Refrigerant to Refrigerant	Type	-	Brazed Plate HEX	Brazed Plate HEX
Compressor		Type	-	Twin Rotary Inverter	Twin Rotary Inverter
Piping Connections	Water Side	Inlet	inch	Male PT1	Male PT1
		Outlet	inch	Male PT1	Male PT1
	Refrigerant Side	Liquid Side	mm (inch)	9.52 (3/8)	9.52 (3/8)
		Gas Side	mm (inch)	15.88 (5/8)	19.05 (3/4)
Drain Piping Connection			mm (inch)	Male PT 1	Male PT 1
Sound Pressure Level	Cooling		dB (A)	-	-
	Heating		dB (A)	43	43
Refrigerant	Refrigerant to Refrigerant	Refrigerant Type	-	R410A	R410A
		Control	-	EEV	EEV
	Refrigerant to Water	Refrigerant Type	-	E134A	E134A
		Precharged Amount	kg (lbs)	2.3 (5.1)	3.0 (6.6)
		Control	-	EEV	EEV
Operation Range	Connected to Heat Pump	Cooling	℃ (DB)	-20℃ ~ 35℃	-20℃ ~ 35℃
		Heating	℃ (DB)		
	Connected to Heat Recovery	Cooling	℃ (DB)	-20℃ ~ 43℃	-20℃ ~ 43℃
		Heating	℃ (DB)		
Combination Ratio	Only Hydro Kit	Min ~ Max	%	50 ~ 100	50 ~ 100
	Hydro Kit + Standard IDUs	Min ~ Max	%	50 ~ 130	50 ~ 130

Product Information for Commercial

MULTI V + HYDRO KIT

CAPACITY/POWER INPUT CALCULATION METHOD

Total Capacity = Hydro Kit Capacity + Indoor Unit Capacity

Hydro Kit Capacity = Q_{ODU} x (I_{HK} / I_{TOTAL}) x F_{TC,T_HK} x F_{TC,W_HK}x F_{TC,C_HK} x F_{TC,P_ODU} x F_{TC,D_ODU}

Q_{ODU}	Outdoor Unit capacity by outdoor air (outside inlet water) temp. and capacity ratio at standard indoor temp. * Standard indoor temperature is 27/19 ℃DB/WB on cooling mode, 20 DB on heating mode.	Refer to Capacity tables of Multi V 5 PDB
F_{TC,T_HK}	Capacity correction factor by Outdoor and water inlet temperature.	Refer to following Graph
F_{TC,W_HK}	Capacity correction factor by Water flow rate.	Refer to following Graph
F_{TC,C_HK}	Capacity correction factor by Combination ratio.	Refer to following Graph
F_{TC,P_ODU}	Capacity correction factor by Refrigerant Piping length.	Refer to correction factors of Multi V 5 PDB
F_{TC,D_ODU}	Capacity correction factor by Defrosting operation.	Refer to correction factors of Multi V 5 PDB
I_{HK}	Capacity index for Hydro Kit	Refer to spec. sheet
I_{TOTAL}	Sum of Capacity index for combined indoor units and Hydro Kit	Refer to index table of Multi V 5 PDB

Total Power Input = Hydro Kit Power Input + Indoor Unit Power Input

Hydro Kit Power Input = PI_{ODU} x (I_{HK} / I_{TOTAL}) x F_{PI,T_HK} x F_{PI,W_HK}x F_{FPI,C_HK}

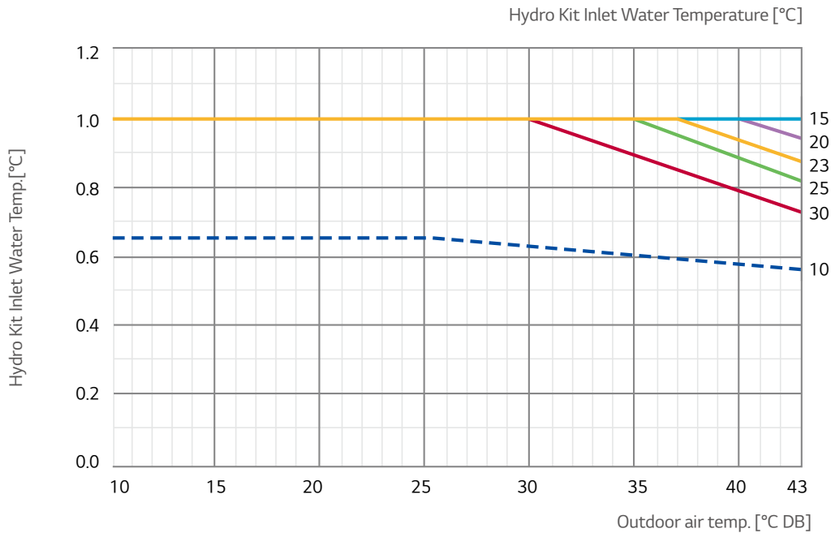
PI_{ODU}	Outdoor Unit Power Input by outdoor air (outside inlet water) temp. and capacity ratio at standard indoor temp. *Standard indoor temperature is 27/19℃ DB/WB on cooling mode, 20 ℃ DB on heating mode.	Refer to Capacity tables of Multi V 5 PDB
F_{PI,T_HK}	Power Input correction factor [Outdoor Unit] by Outdoor and water inlet temperature.	Refer to following Graph
F_{PI,W_HK}	Power Input correction factor [Outdoor Unit] by Water flow rate	Refer to following Graph
F_{PI,C_HK}	Power Input correction factor [Outdoor Unit] by Combination ratio	Refer to following Graph
I_{HK}	Capacity index for Hydro Kit	Refer to spec. sheet
I_{TOTAL}	Sum of Capacity index for combined indoor units and Hydro Kit	Refer to index table of Multi V 5 PDB

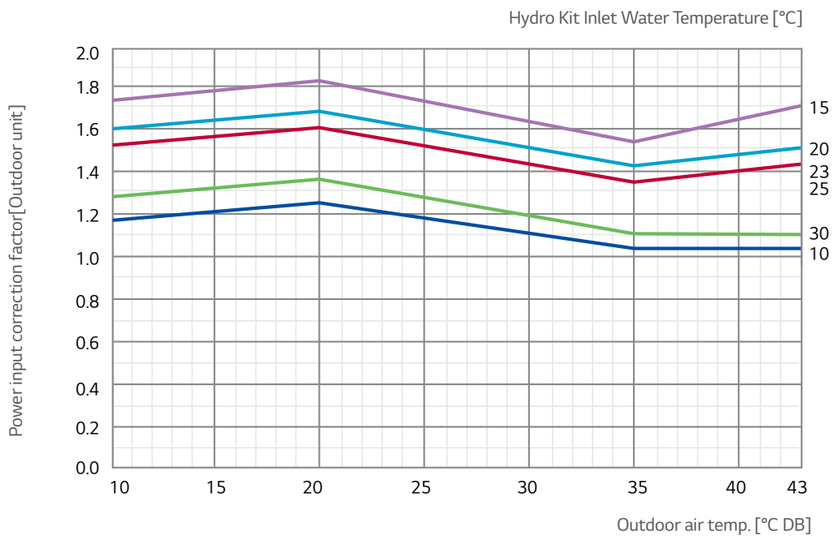
Note

1. When calculating at upper or lower temperature than the range of Outdoor unit capacity table, use the same value with the boundary value of that. For example, when calculating Heating PI with capacity table of Outdoor unit at upper temperature than 15 ℃ DB, use the same value of PI at 15 ℃ DB.

ARNH04GK2A4 / ARNH10GK2A4 (COOLING)

Combination with Multi V 5 system (ARU-5) and Multi V S system (ARU-S*0)



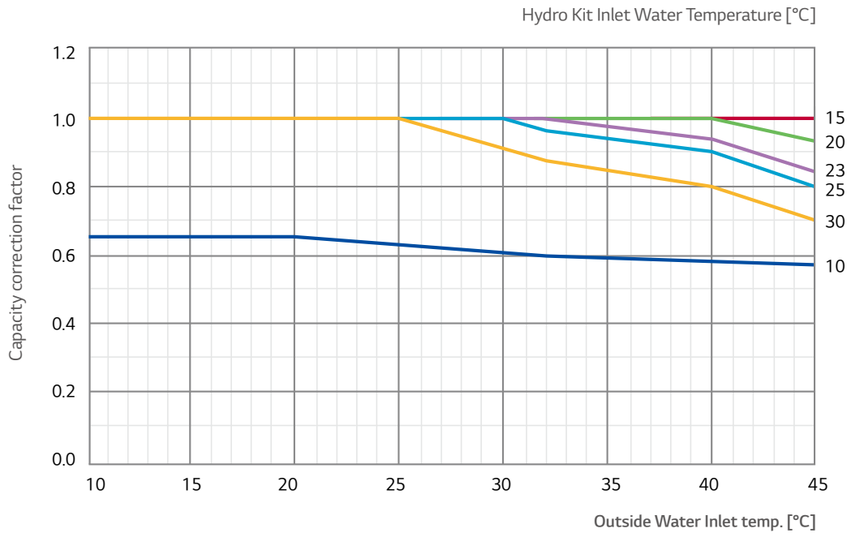


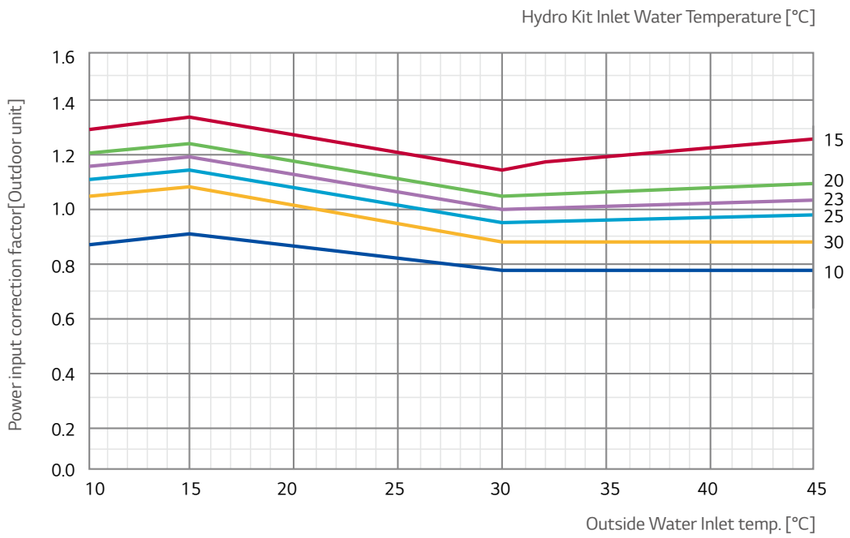
Product Information for Commercial

MULTI V + HYDRO KIT

ARNH04GK2A4 / ARNH10GK2A4 (COOLING)

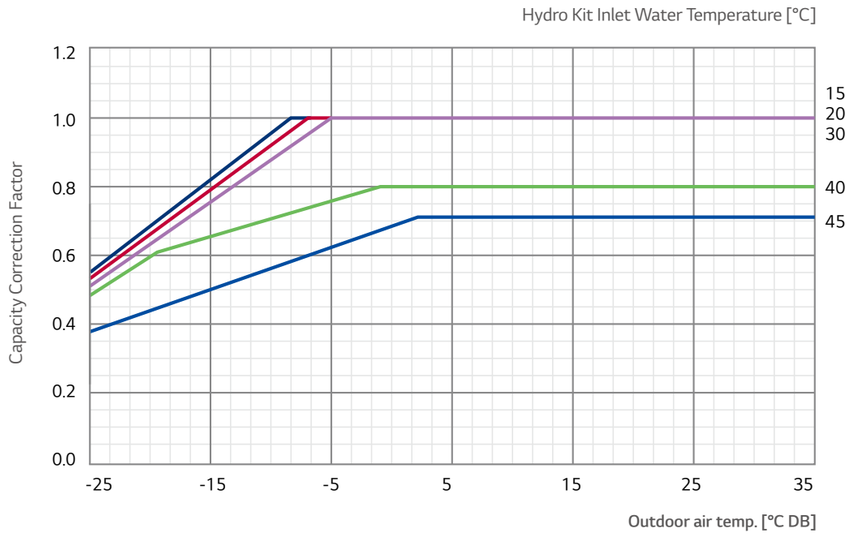
Combination with Multi V Water system (ARW-)

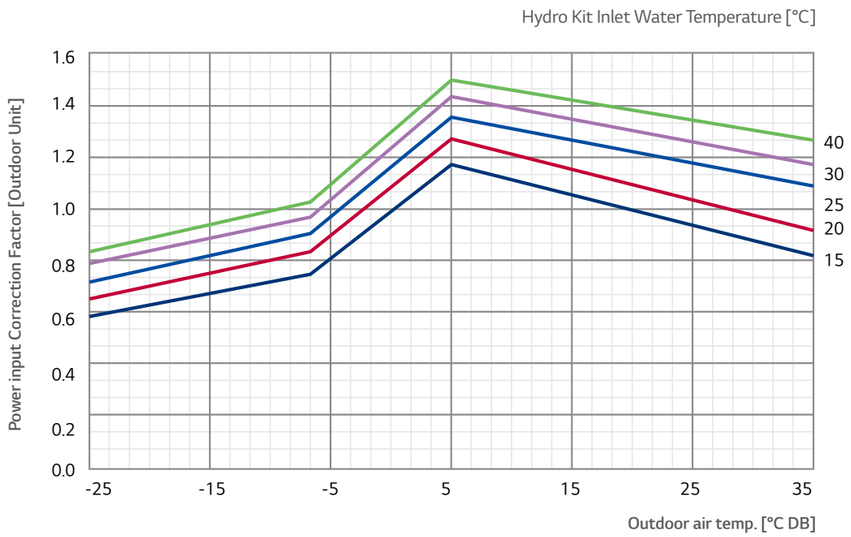




ARNH04GK2A4 / ARNH10GK2A4 (HEATING)

Combination with Multi V 5 system (ARU-5) and Multi V S system (ARU-S*0)



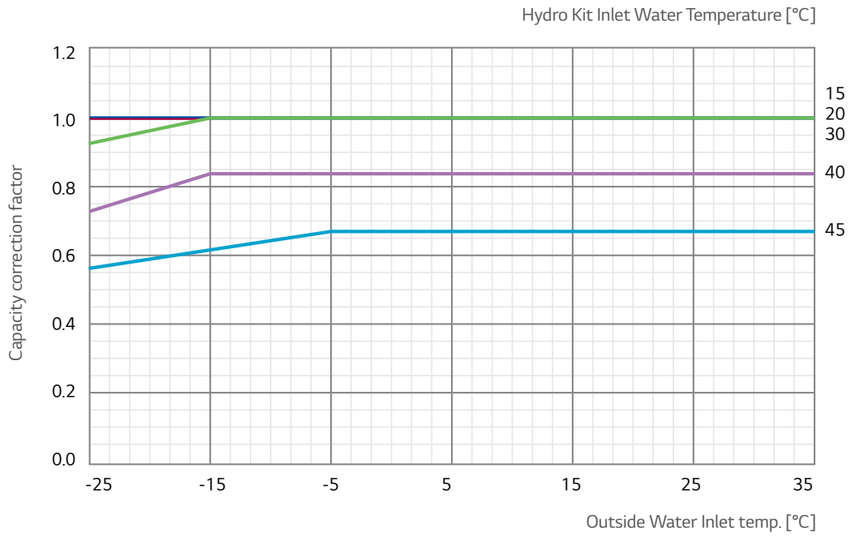


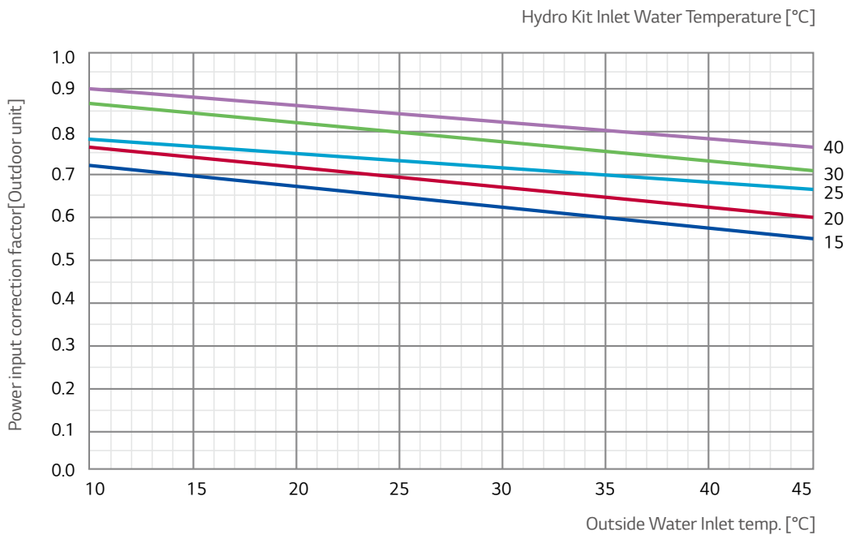
Product Information for Commercial

MULTI V + HYDRO KIT

ARNH04GK2A4 / ARNH10GK2A4 (HEATING)

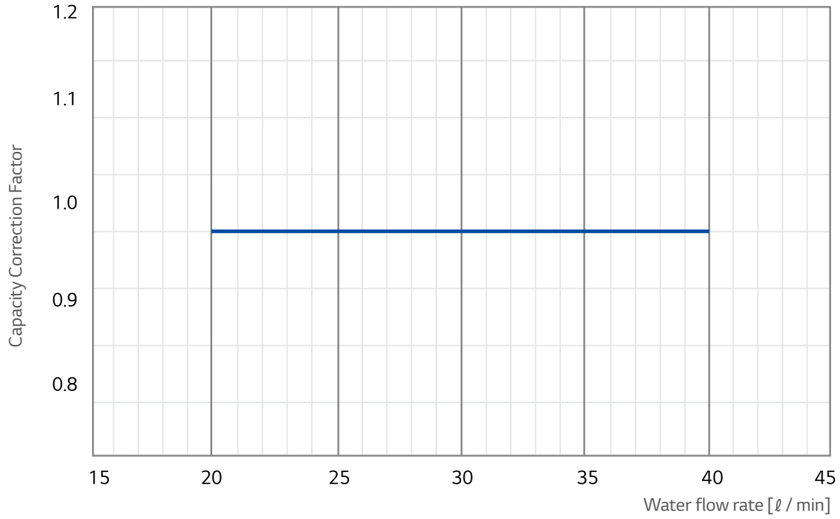
Combination with Multi V Water system (ARW-)

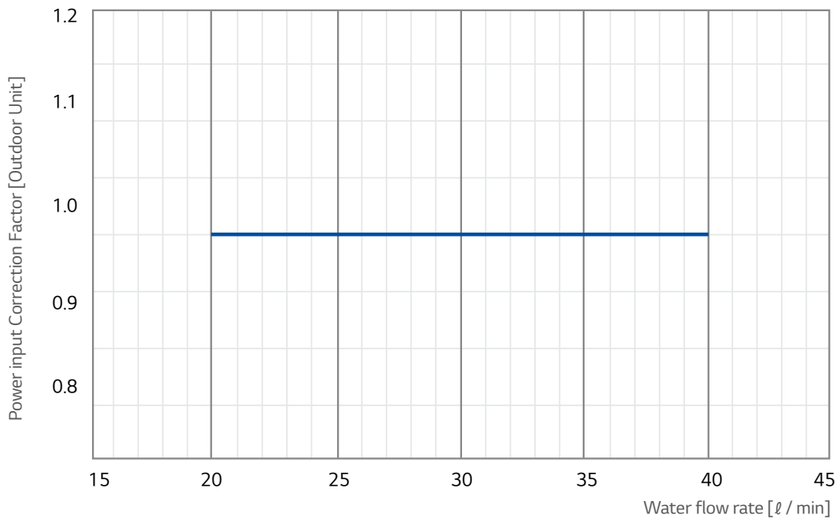




6.2 CAPACITY CORRECTION FACTOR BY WATER FLOW RATE

ARNH04GK2A4 (COOLING)

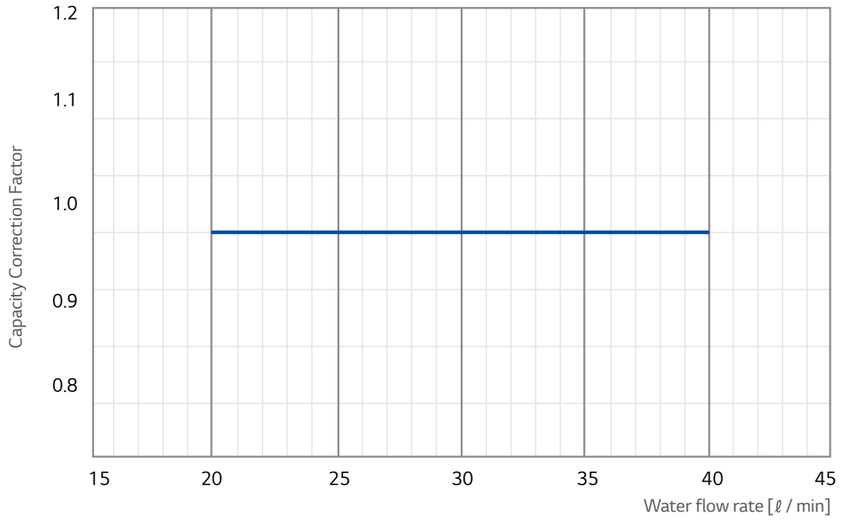


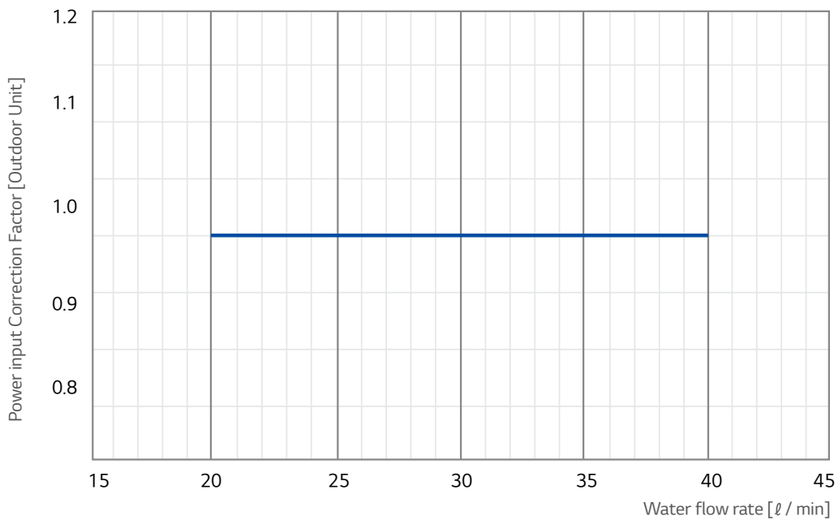


Product Information for Commercial

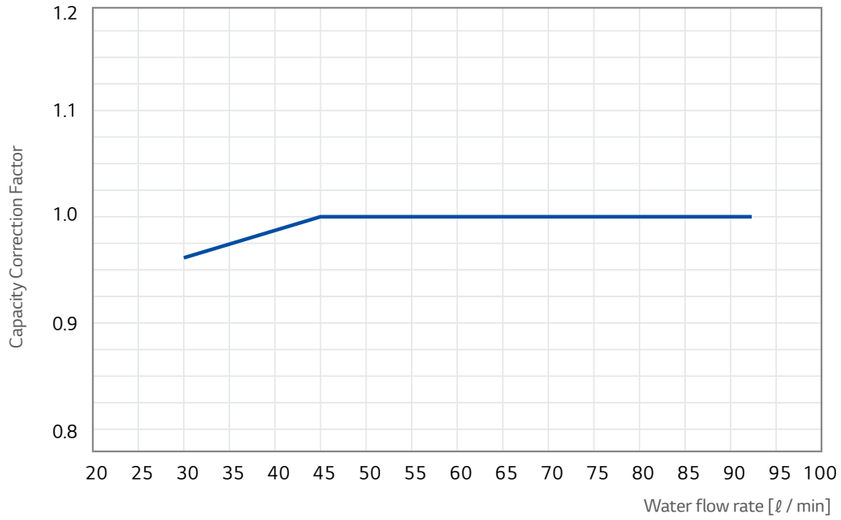
MULTI V + HYDRO KIT

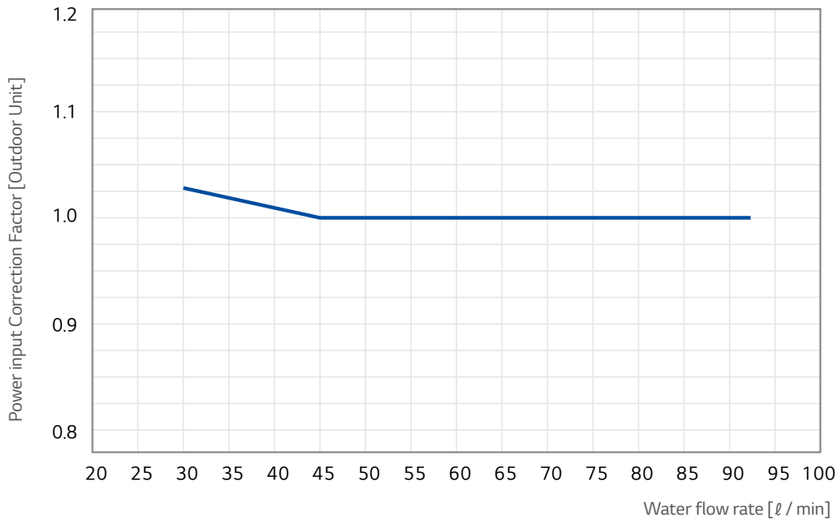
ARNH04GK2A4 (Heating)





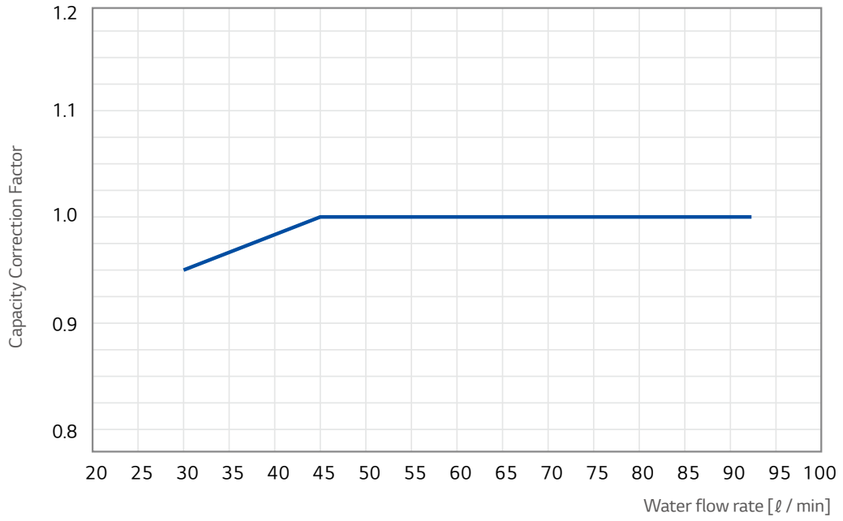
ARNH10GK2A4 (Cooling)

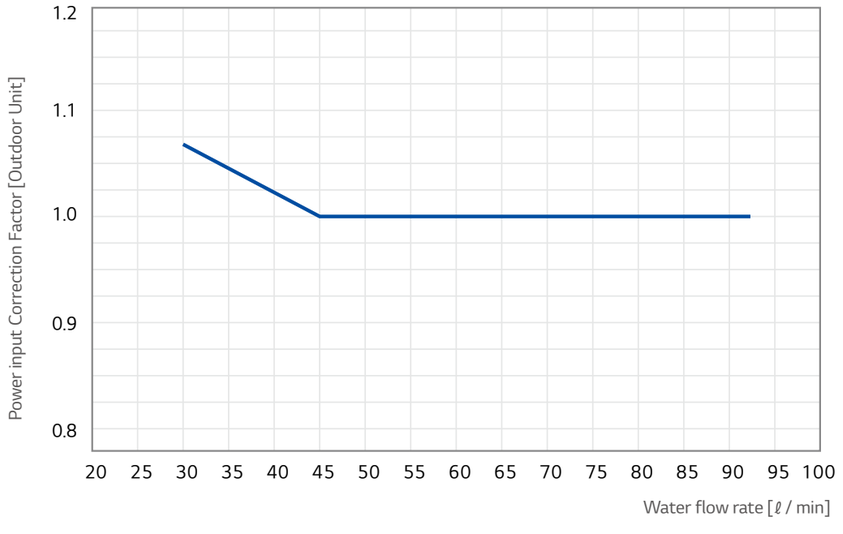




MULTI V + HYDRO KIT

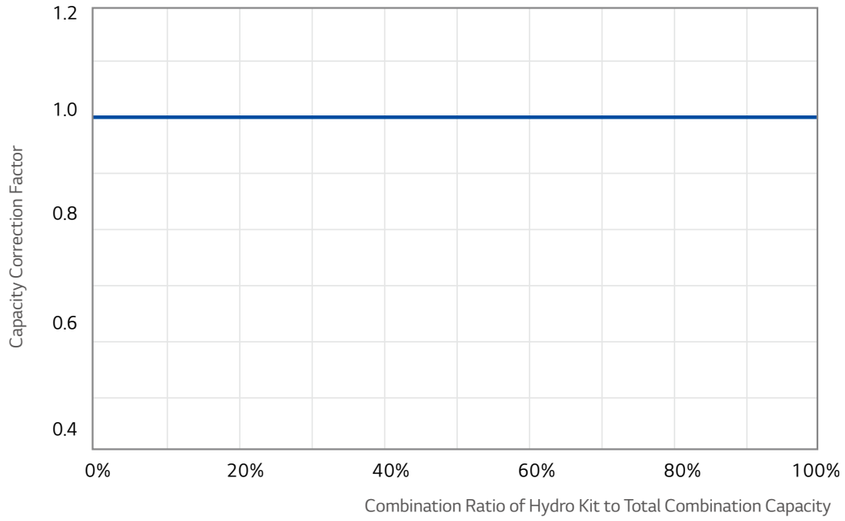
ARNH10GK2A4 (Heating)

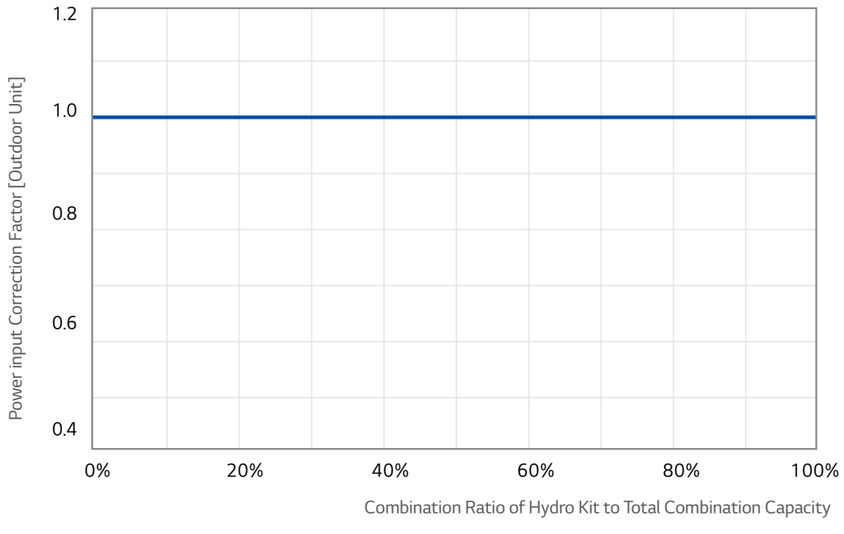




6.3 CAPACITY CORRECTION FACTOR BY COMBINATION RATIO

ARNH04GK2A4 / ARNH10GK2A4





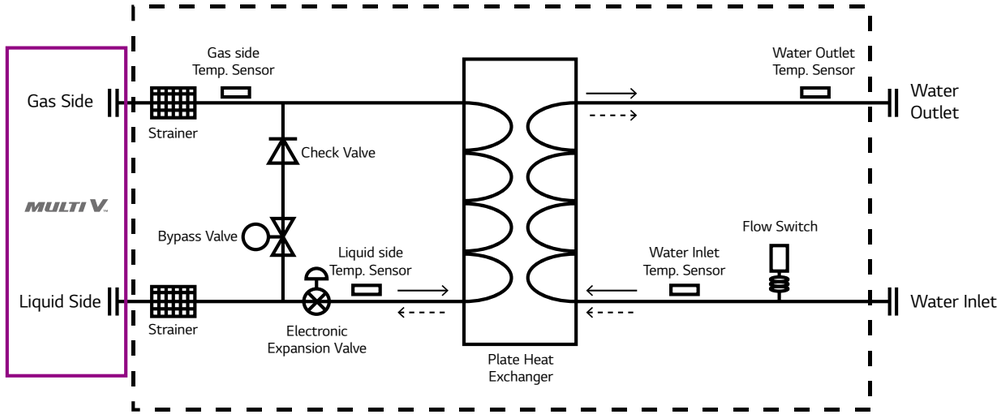
Product Information for Commercial

MULTI V + HYDRO KIT

DIAGRAM - HYDRO KIT REFRIGERANT PIPING

ARNH04GK2A4 / ARNH10GK2A4 (Medium Temperature)

→ Cooling operation
⇢ Heating operation



ARNH04GK3A4 / ARNH10GK3A4 (High Temperature)

⇢ Heating operation

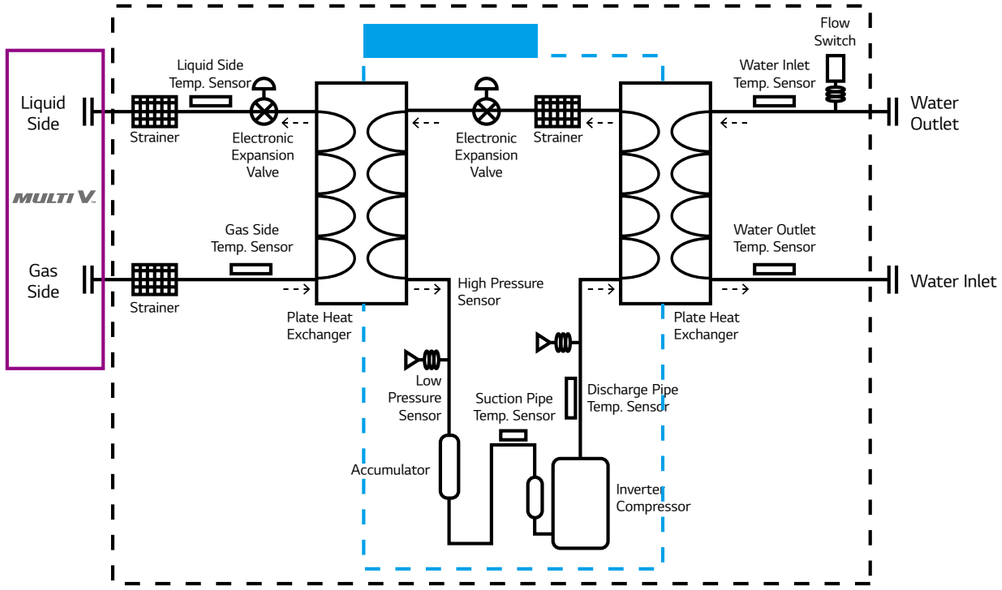
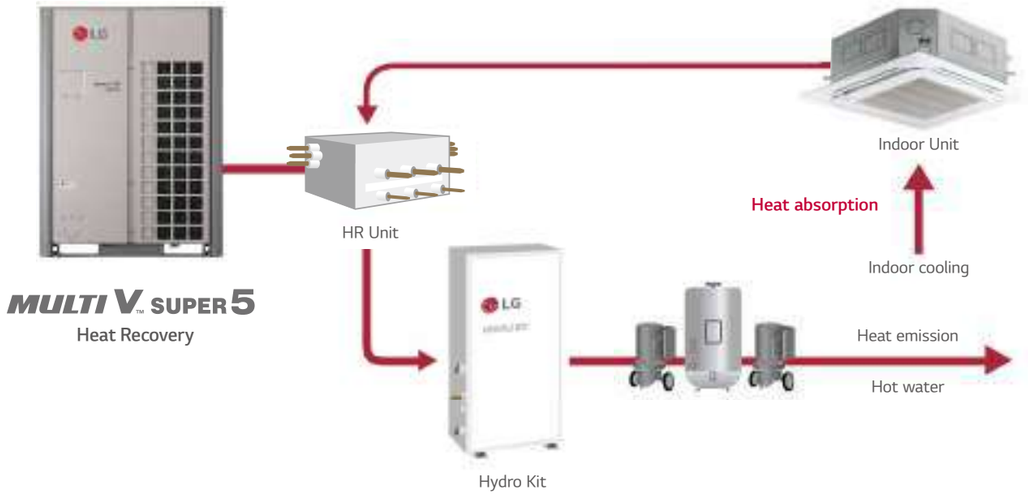
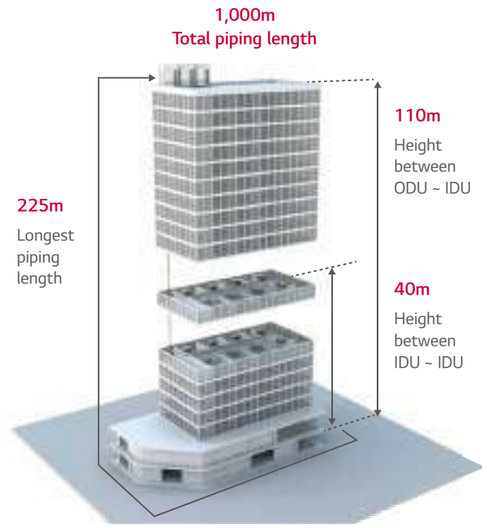


DIAGRAM - MULTI V 5

Concept with HR unit



Piping length Limits



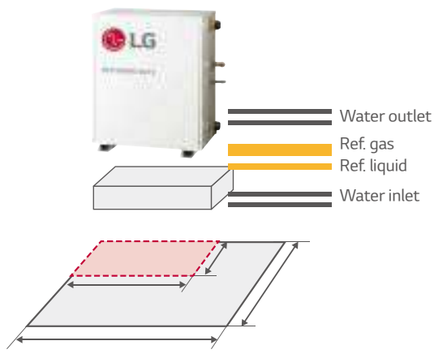
Total Piping Length	1,000m
Actual longest piping length (Equivalent)	200m (225m)
Longest piping length after 1st branch (conditional application)	40m (90m)
Height between ODU ~ IDU	110m
Height between IDU ~ IDU	40m
Height between ODU ~ ODU	5m

Product Information for Commercial

MULTI V + HYDRO KIT

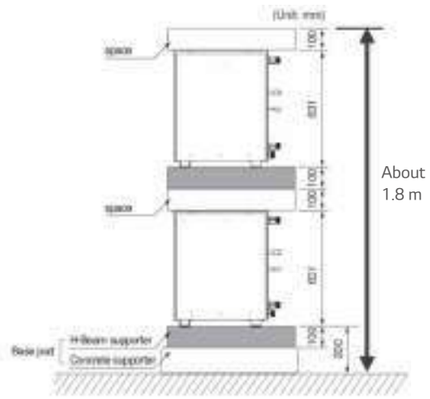
INSTALLATION - HYDRO KIT SPACE

Hydro Kit Medium (Low) Temperature



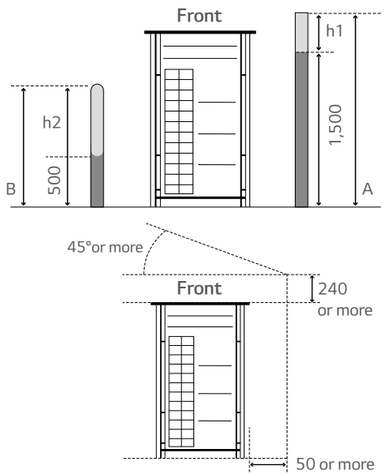
Less than 1m² foot print area

Double Deck



Note : Above images are sample drawings.
Depend on field installation condition, it can be changed.

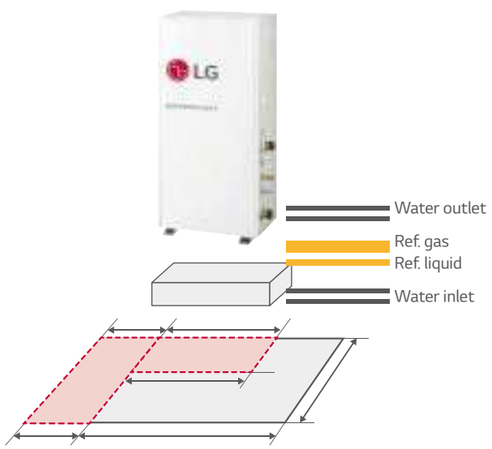
INSTALLATION - MULTI V



- The height of the wall on the front side must be 1,500mm (59-1/16inch) or less.
- The height of the wall on the inlet side must be 500mm (19-11/16inch) or less.
- There is no limit to the wall on the side.
- If the height of the walls on the front and the side are higher than the limit, there must be additional space on the front and the side.

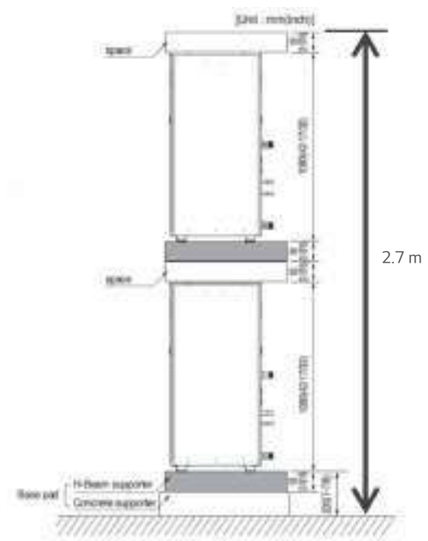
  - Additional Space on the inlet side by 1/2 of h1
  - Additional Space on the front side by 1/2 of h2
  - h1 = A(Actual height) - 1,500(59-1/16)
  - h2 = B(Actual height) - 500(19-11/16)

Hydro Kit Medium (Low) Temperature



Additional service space for compressor

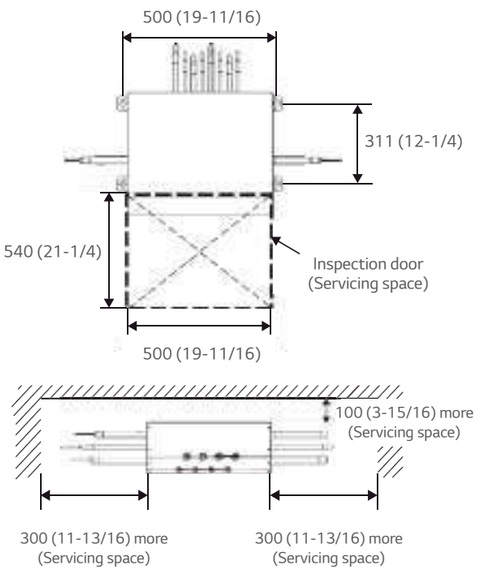
Double Deck



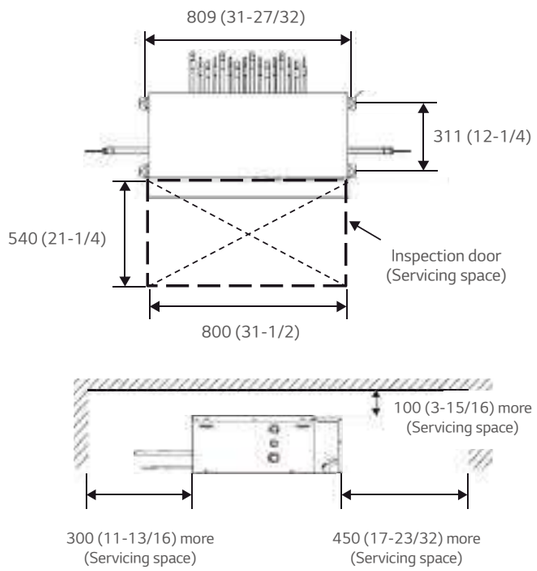
Note : Above images are sample drawings.
Depend on field installation condition, it can be changed.

INSTALLATION - HR BOX SPACE

PRHR023 / PRHR033 / PRHR043



PRHR063 / PRHR083

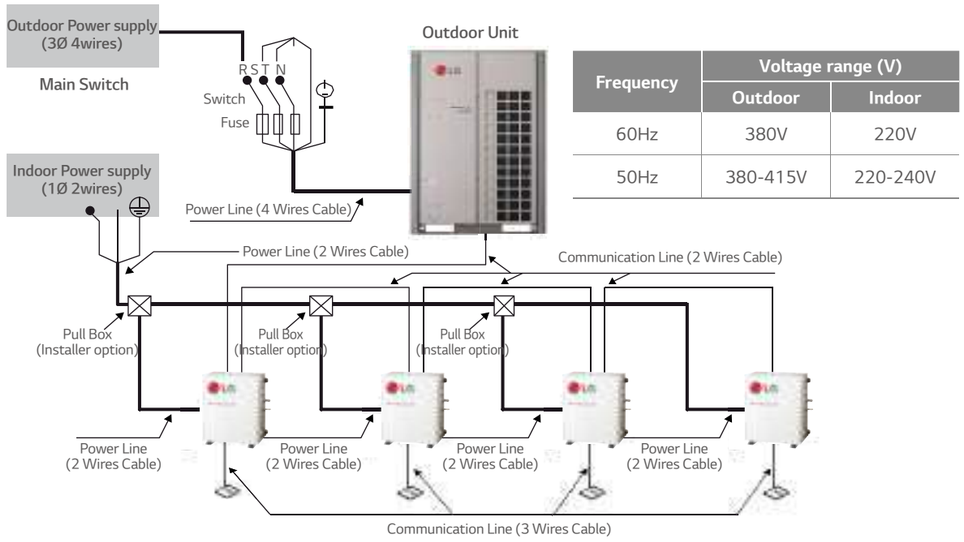


Product Information for Commercial

MULTI V + HYDRO KIT

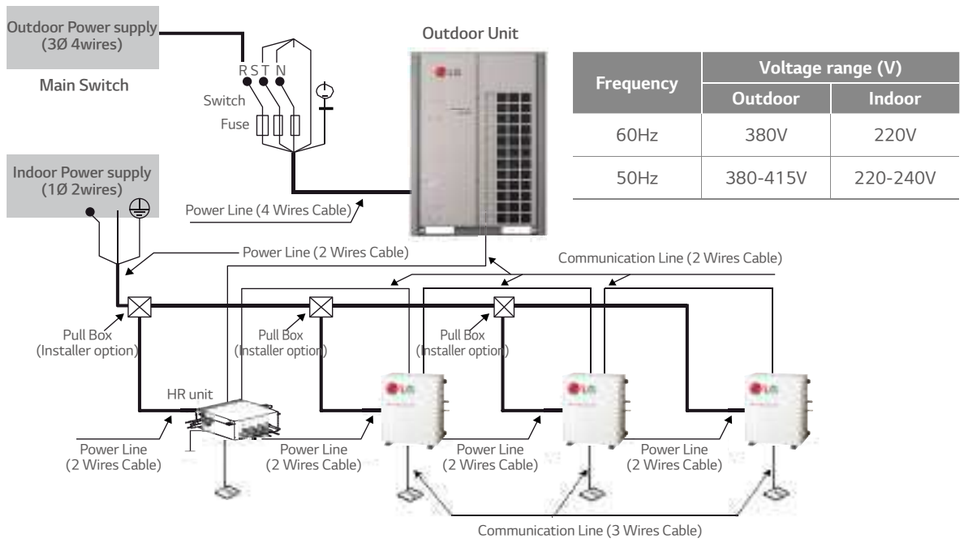
ELECTRICAL WIRING - MULTI V

Heat Pump System



Frequency	Voltage range (V)	
	Outdoor	Indoor
60Hz	380V	220V
50Hz	380-415V	220-240V

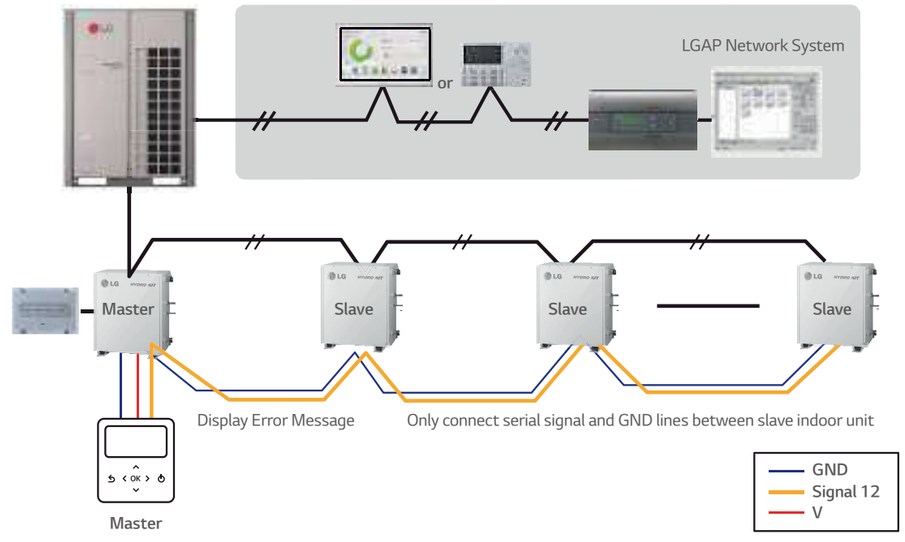
Heat Recovery System



Frequency	Voltage range (V)	
	Outdoor	Indoor
60Hz	380V	220V
50Hz	380-415V	220-240V

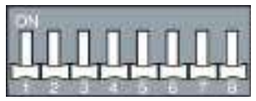
GROUP CONTROL

Wired remote controller 1 + Many of Hydro Kit

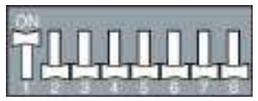


DIP Switch in PCB

Master Setting-No.1 Off



Slave Setting-No.1 Off



	Category	Product	ETC	Compatibility
				ARNH04GK2A4 ARNH10GK2A4
Central Controller	Simple	PQCSZ250S0	AC EZ	X
	AC Ez Touch	PACEZA000	AC Ez Touch	O
	AC Smart	PACS4B000	AC Smart IV	O
	ACP	PACP4B000	ACP IV	O
	AC Manager	PACM4B000	AC Manager IV	O
		PACM5A000	AC Manager 5	O
Gateway	BACnet	PQNFB17C0	ACP BACnet	O
	Lonworks	PLNWKB000	ACP Lonworks	O
ETC	PDI	PPWRDB000	PDI Standard	O
		PQNUD1S40	PDI Premium	O

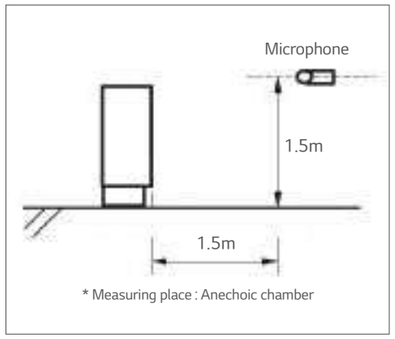
1. O : Applied, X : Not applied
   • Accessory model name : Installed at field, ordered and purchased separately by the corresponding model name, supplied with separated package.

Product Information for Commercial

MULTI V + HYDRO KIT

SOUND LEVEL

Hydro Kit

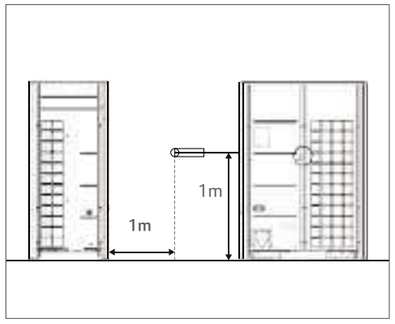


Note

- Sound measured at some distance away from the center of the unit.
- Data is valid at free field condition.
- Reference acoustic pressure 0dB = 20μPa.
- Data is valid at nominal operation condition.
- Refer to the Model Specifications for nominal conditions (Power source and Ambient temperature, etc)

Model	Sound Level [dB(A)]
ARNH04GK2A4	26
ARNH10GK2A4	

Multi V 5



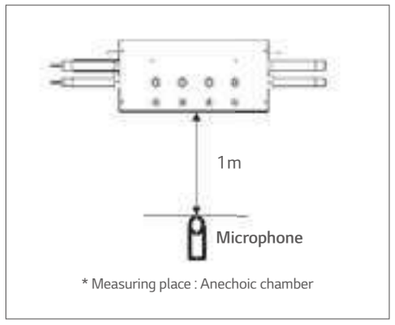
Note

- Data is valid at free field condition.
- Data is valid at nominal operating condition.
- Sound level will vary depending on a range of factors such as the construction (acoustic absorption coefficient) of particular room in which the equipment is installed.

Model	Cooling [dB(A)]	Heating [dB(A)]
ARUM080LTE5	58.0	59.0
ARUM100LTE5	58.0	59.0
ARUM120LTE5	59.0	59.0

* Please refer to PDB for other models.

Heat Recovery Unit



Note

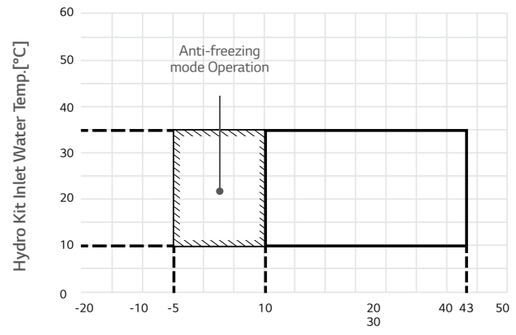
- Sound measured at 1.5m away from the center of the unit.
- Reference acoustic pressure 0dB=20μPa.
- Sound level will vary depending on a range of factors such as the construction (acoustic absorption coefficient) of particular room in which the equipment is installed.

Operation Mode	50Hz, 220-240V
	Sound pressure Levels [dB(A)]
Cooling	30
Heating	30
Changeover : Cooling Heating	33
Changeover : Heating Cooling	38

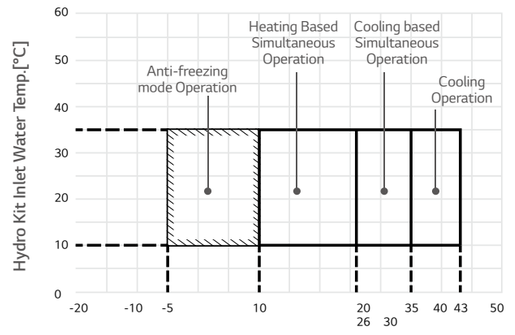
OPERATION LIMITS

ARNH04GK2A4 / ARNH10GK2A4 (Cooling)

ARUM- series (Heat Pump)

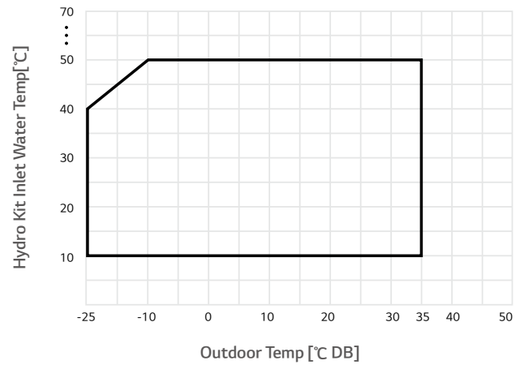


ARUM- series (Heat Recovery)

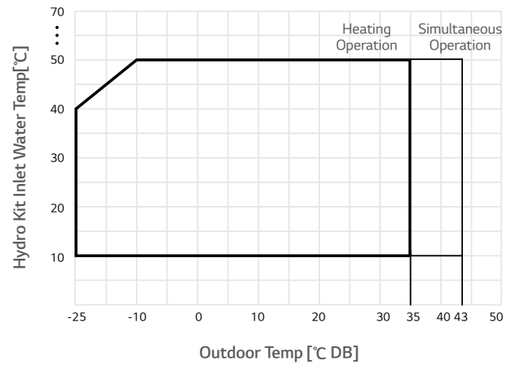


ARNH04GK2A4 / ARNH10GK2A4 (Heating)

ARUM- series (Heat Pump)



ARUM- series (Heat Recovery)



Product Information for Commercial

INVERTER SCROLL CHILLER HEAT PUMP

Outdoor unit

LG central controller

HMI controller

No	Contents	Remark
1	Leaving water temperature control	Operation control
2	MODBUS	Open protocol
3	LG central control	ACP (Max. 10 Chillers) or AC Smart (Max. 8 Chillers) + Chiller option kit (CHLLN000)
4	Continuous heating operation	Sequential defrost operation if units are combined more than 1 unit
5	5 inch HMI Touch controller	Max. 500m distance, Max. 5 Chillers
6	SD memory card slot	For service purpose (S/W onboarding)
7	Silent operation function (cooling mode)	-3 dB reduction
8	Backup operation	Back up operation is possible even if one compressor or one cycle in trouble
9	Black box function	Saved 180 sec of operation parameters before occurring error
10	Ocean black fin	Corrosion resistant material
11	Heating/Cooling operation	Heat Pump models for all lineup

Key Features

- Wide Lineup
  (Single unit Max. 23 RT,
  Multiple units Max. 67 RT)
- Unit for heating/cooling both operation
  (Heat Pump type)
- All inverter compressor with high efficiency
- Wide operating range for ambient temperature
  (Cooling -15 ~ 48℃ / Heating -30 ~ 35℃)
- Wide leaving water temperature range
  (Chilled water 5~ 20℃ / Hot water 30 ~ 55℃)
- Small footprint & Light weight
- Continuous heating operation
- Back up operation
- Plate type heat exchanger applied

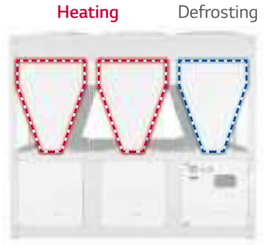
Wide Lineup

20/23 RT
Weight 520kg

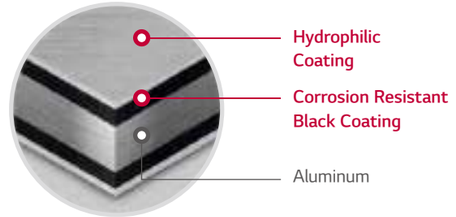
33/40/45 RT
Weight 970kg

50/60/67 RT
Weight 1,430kg

Continuous heating operation

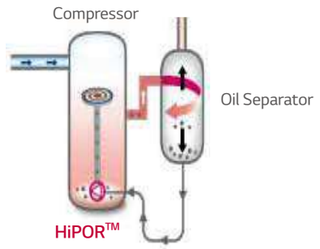


Ocean black fin



Up to 1.110 kW (5 Chillers) By HMI Touch controller

High Pressure Oil Return



Line up

Unit	1 unit		2 unit			3 unit		
Capacity (RT)	20	23	33	40	45	50	60	67
Air-cooled Inverter Scroll Chiller 3ø, 380 ~ 415V	●	●	●	●	●	●	●	●

Product Information for Commercial

INVERTER SCROLL CHILLER HEAT PUMP

Inverter Scroll Chiller

Inverter Scroll Chiller (Heat pump model)		Units	ACHH020LBAB	ACHH023LBAB	ACHH033LBAB	ACHH040LBAB
Power		Phase Wire, V	3,4,380 ~ 415	3,4,380 ~ 415	3,4,380 ~ 415	3,4,380 ~ 415
Capacity	Cooling	kW	65	74	114	130
		RT	18.5	21	32.4	37
	Heating	kW	70.3	82	120	140.6
		RT	20	23	34	40
Input Power	Cooling	kW	22.2	27.4	36.8	44.4
	Heating	kW	21.6	27.3	35.3	43.3
Maximum Operating Current		A	39	48	72	78
Efficiency	Cooling	W/W	2.93	2.7	3.1	2.93
	Heating	W/W	3.25	3	3.4	3.25
Compressor	Type	-	Scroll	Scroll	Scroll	Scroll
	No. of Compressor	EA	2	2	4	4
	Oil Type	-	PVE	PVE	PVE	PVE
	Oil Charge	cc	1,400*4	1,400*4	1,400*6	1,400*4
	Sump Heater	W	60*4	60*4	60*4	60*4
Refrigerant	Type	-	R410A	R410A	R410A	R410A
	Charge Amount	kg	7.0*2	7.0*2	7.0*4	7.0*4
Evaporator	Type	-	plate	plate	plate	plate
	Press. Drop	kPa	21.5	28.7	28.7	21.5
	Std. Flow (Cooling/Heating)	LPM	186/200	211/235	327/345	372/400
	Inlet/Outlet Diameter (Water pipe)	mm	50A/50A	50A/50A	65A/65A	65A/65A
Fan	Motor Type	-	BLDC	BLDC	BLDC	BLDC
	No. of Fan	EA	2	2	4	4
	Air Flow Rate	CMM	210 × 2 @1,000rpm	210 × 2 @1,000rpm	210 × 2 @1,000rpm	210 × 4 @1,000rpm
	Motor Output	W	900 × 2	900 × 2	900 × 4	900 × 4
Expansion Valve		-	EEV	EEV	EEV	EEV
Shipping Weight		kg	520	520	970	970
Dimension	Width	mm	765	765	1528	1528
	Height	mm	2293	2293	2293	2293
	Depth	mm	2154	2154	2154	2154
Outlet Temperature	Cooling	℃	5 ~ 20	5 ~ 20	5 ~ 20	5 ~ 20
	Heating	℃	30 ~ 55	30 ~ 55	30 ~ 55	30~55
Ambient Temperature	Cooling	℃	-15 ~ 48	-15 ~ 48	-15 ~ 48	-15 ~ 48
	Heating	℃	-30 ~ 35	-30 ~ 35	-30 ~ 35	-30 ~ 35

Inverter Scroll Chiller

Inverter Scroll Chiller (Heat pump model)		Units	ACHH045LBAB	ACHH050LBAB	ACHH060LBAB	ACHH067LBAB
Power		Phase Wire, V	3,4,380 ~ 415	3,4,380 ~ 415	3,4,380 ~ 415	3,4,380 ~ 415
Capacity	Cooling	kW	148	171	195	222
		RT	42.1	48.6	55.4	63.1
	Heating	kW	164	180	210.9	246
		RT	47	51	60	70
Input Power	Cooling	kW	54.8	55.2	66.6	82.2
	Heating	kW	54.7	52.9	64.9	82
Maximum Operating Current		A	96	108	117	144
Efficiency	Cooling	W/W	2.7	3.1	2.93	2.7
	Heating	W/W	3	3.4	3.25	3
Compressor	Type	-	Scroll	Scroll	Scroll	Scroll
	No. of Compressor	EA	4	6	6	6
	Oil Type	-	PVE	PVE	PVE	PVE
	Oil Charge	cc	1,400*4	1,400*4	1,400*6	1,400*6
	Sump Heater	W	60*4	60*6	60*6	60*6
Refrigerant	Type	-	R410A	R410A	R410A	R410A
	Charge Amount	kg	7.0*4	7.0*6	7.0*6	7.0*6
Evaporator	Type	-	plate	plate	plate	plate
	Press. Drop	kPa	28.7	18.7	21.5	28.7
	Std. Flow (Cooling/Heating)	LPM	411/470	490/518	558/600	633/705
	Inlet/Outlet Diameter (Water pipe)	mm	65A/65A	65A/65A	65A/65A	65A/65A
Fan	Motor Type	-	BLDC	BLDC	BLDC	BLDC
	No. of Fan	EA	4	6	6	6
	Air Flow Rate	CMM	210 × 4 @1,000rpm	210 × 6 @1,000rpm	210 × 6 @1,000rpm	210 × 6 @1,000rpm
	Motor Output	W	900 × 4	900 × 6	900 × 6	900 × 6
Expansion Valve		-	EEV	EEV	EEV	EEV
Shipping Weight		kg	970	1430	1430	1430
Dimension	Width	mm	1528	2291	2291	2291
	Height	mm	2293	2293	2293	2293
	Depth	mm	2154	2154	2154	2154
Outlet Temperature	Cooling	℃	5 ~ 20	5 ~ 20	5 ~ 20	5 ~ 20
	Heating	℃	30 ~ 55	30 ~ 55	30 ~ 55	30 ~ 55
Ambient Temperature	Cooling	℃	-15 ~ 48	-15 ~ 48	-15 ~ 48	-15 ~ 48
	Heating	℃	-30 ~ 35	-30 ~ 35	-30 ~ 35	-30 ~ 35

Product Information for Commercial

INVERTER SCROLL CHILLER HEAT PUMP

PERFORMANCE TABLE FOR COOLING OPERATION

ACHH020LBAB

Capacity		Outdoor Temperature (℃)													
20% (13000 W)		-15	-10	-5	0	5	10	15	20	25	30	35	40	45	48
		Power Input (W)													
Outlet Water Temp. (℃)	5	1,504	1,412	1,494	1,581	1,668	1,668	1,862	1,968	2,511	3,055	3,736	4,876	5,782	6,323
	7	1,440	1,395	1,480	1,567	1,654	1,681	1,858	1,949	2,438	2,927	3,577	4,692	5,590	6,129
	9	-	-	-	-	-	1,567	1,602	1,698	2,201	2,705	3,370	4,456	5,326	5,846
	11	-	-	-	-	-	-	1,567	1,515	1,987	2,534	3,230	4,275	5,104	5,603
	13	-	-	-	-	-	-	-	-	1,867	2,388	3,042	4,068	4,827	5,283
	15	-	-	-	-	-	-	-	-	1,794	2,299	2,884	3,950	4,693	5,137
	20	-	-	-	-	-	-	-	-	1,723	2,213	2,734	3,835	4,563	4,995
Capacity		Outdoor Temperature (℃)													
40% (26000 W)		-15	-10	-5	0	5	10	15	20	25	30	35	40	45	48
		Power Input (W)													
Outlet Water Temp. (℃)	5	3,242	3,570	3,742	3,924	4,286	4,468	4,651	5,013	5,377	6,282	7,549	9,165	10,629	11,507
	7	3,104	3,278	3,451	3,628	4,075	4,252	4,430	4,786	5,141	6,027	7,258	8,858	10,217	11,029
	9	2,889	2,950	3,115	3,283	3,631	3,979	4,148	4,496	4,832	5,664	6,858	8,381	9,738	10,553
	11	-	-	-	-	3,282	3,540	3,709	4,237	4,575	5,409	6,584	8,050	9,348	10,126
	13	-	-	-	-	-	-	-	3,770	4,279	5,104	6,244	7,695	8,971	9,736
	15	-	-	-	-	-	-	-	-	3,867	4,815	5,914	7,320	8,528	9,250
	20	-	-	-	-	-	-	-	-	3,494	4,542	5,602	6,963	8,106	8,789
Capacity		Outdoor Temperature (℃)													
60% (39000 W)		-15	-10	-5	0	5	10	15	20	25	30	35	40	45	48
		Power Input (W)													
Outlet Water Temp. (℃)	5	5,536	6,183	6,185	6,185	6,598	7,011	7,011	7,244	8,151	9,350	10,984	13,086	15,045	-
	7	5,300	5,882	5,882	5,882	6,287	6,693	6,693	6,919	7,809	8,977	10,558	12,460	14,408	-
	9	4,933	5,496	5,497	5,497	5,808	6,208	6,208	6,429	7,300	8,440	9,965	11,792	13,577	-
	11	4,646	5,273	5,273	5,273	5,492	5,711	5,891	6,110	6,965	8,085	9,572	11,318	13,020	-
	13	-	-	-	-	5,144	5,169	5,348	5,912	6,561	7,630	9,073	10,749	12,406	13,404
	15	-	-	-	-	-	-	-	5,709	6,603	7,181	8,578	10,216	11,778	12,712
	20	-	-	-	-	-	-	-	5,513	6,646	6,759	8,109	9,709	11,181	12,057
Capacity		Outdoor Temperature (℃)													
80% (52000 W)		-15	-10	-5	0	5	10	15	20	25	30	35	40	45	48
		Power Input (W)													
Outlet Water Temp. (℃)	5	8,881	9,191	9,474	9,784	10,273	10,763	11,073	11,562	11,956	12,566	14,778	17,408	-	-
	7	8,503	8,804	9,104	9,404	9,883	10,363	10,663	11,142	11,526	12,115	14,217	16,810	-	-
	9	7,915	8,317	8,599	8,884	9,349	9,814	10,099	10,564	10,935	11,496	13,498	15,907	-	-
	11	7,454	7,966	8,244	8,519	8,974	9,428	9,704	10,158	10,519	11,060	12,992	15,311	17,575	-
	13	7,074	7,735	7,995	8,257	8,521	8,963	9,226	9,669	10,018	10,535	12,384	14,597	16,742	-
	15	6,649	7,666	7,909	8,158	8,409	8,839	8,910	9,160	9,496	9,989	11,749	13,846	15,868	-
	20	6,250	7,598	7,823	8,061	8,300	8,715	8,605	8,677	9,001	9,470	11,146	13,135	15,039	-
Capacity		Outdoor Temperature (℃)													
100% (65000 W)		-15	-10	-5	0	5	10	15	20	25	30	35	40	45	48
		Power Input (W)													
Outlet Water Temp. (℃)	5	15,347	15,882	16,417	16,998	17,580	18,270	19,056	19,842	20,585	21,328	23,184	27,260	-	-
	7	14,694	15,223	15,772	16,327	16,886	17,563	18,249	18,941	19,675	20,530	22,184	26,018	-	-
	9	13,677	14,182	14,705	15,230	15,760	16,407	17,196	17,853	18,550	19,255	20,886	23,976	-	-
	11	12,880	13,392	13,924	14,459	15,021	15,665	16,350	17,016	17,710	18,431	19,951	22,931	-	-
	13	12,223	12,696	13,187	13,681	14,181	14,797	15,419	16,048	16,711	17,384	18,954	21,648	-	-
	15	11,489	11,944	12,417	12,893	13,374	13,970	14,573	15,180	15,821	16,471	17,814	20,425	-	-
	20	10,800	11,237	11,692	12,151	12,613	13,189	13,773	14,358	14,979	15,605	16,743	19,271	-	-

Notes

1) Water flow rate of test condition : 186 LPM

ACHH023LBAB

Capacity		Outdoor Temperature (℃)													
20% (14800 W)		-15	-10	-5	0	5	10	15	20	25	30	35	40	45	48
		Power Input (W)													
Outlet Water Temp. (℃)	5	1,858	1,745	1,846	1,954	2,061	2,061	2,300	2,431	3,102	3,774	4,615	6,024	7,143	7,812
	7	1,779	1,723	1,829	1,936	2,044	2,076	2,296	2,408	3,012	3,617	4,419	5,796	6,906	7,572
	9	-	-	-	-	-	1,936	1,979	2,098	2,720	3,341	4,163	5,506	6,579	7,222
	11	-	-	-	-	-	-	1,936	1,872	2,455	3,130	3,991	5,282	6,306	6,923
	13	-	-	-	-	-	-	-	-	2,306	2,950	3,759	5,026	5,964	6,526
	15	-	-	-	-	-	-	-	-	2,216	2,840	3,563	4,880	5,798	6,346
	20	-	-	-	-	-	-	-	-	2,129	2,734	3,377	4,738	5,637	6,171
Capacity		Outdoor Temperature (℃)													
40% (29600 W)		-15	-10	-5	0	5	10	15	20	25	30	35	40	45	48
		Power Input (W)													
Outlet Water Temp. (℃)	5	4,005	4,411	4,622	4,848	5,295	5,520	5,746	6,193	6,644	7,761	9,327	11,323	13,131	14,217
	7	3,834	4,050	4,263	4,482	5,034	5,253	5,472	5,913	6,352	7,446	8,967	10,944	12,623	13,626
	9	3,569	3,644	3,848	4,056	4,486	4,916	5,124	5,554	5,970	6,998	8,472	10,354	12,031	13,038
	11	-	-	-	-	4,055	4,374	4,583	5,235	5,652	6,683	8,134	9,946	11,549	12,511
	13	-	-	-	-	-	-	-	4,658	5,287	6,306	7,714	9,507	11,084	12,028
	15	-	-	-	-	-	-	-	-	4,777	5,949	7,306	9,043	10,536	11,428
	20	-	-	-	-	-	-	-	-	4,317	5,612	6,920	8,602	10,015	10,859
Capacity		Outdoor Temperature (℃)													
60% (44400 W)		-15	-10	-5	0	5	10	15	20	25	30	35	40	45	48
		Power Input (W)													
Outlet Water Temp. (℃)	5	6,839	7,639	7,641	7,641	8,151	8,662	8,662	8,950	10,070	11,552	13,570	16,167	18,587	-
	7	6,548	7,266	7,266	7,266	7,768	8,269	8,269	8,548	9,647	11,090	13,044	15,393	17,800	-
	9	6,095	6,791	6,792	6,792	7,175	7,670	7,670	7,943	9,019	10,427	12,312	14,568	16,773	-
	11	5,740	6,514	6,514	6,514	6,785	7,056	7,277	7,548	8,604	9,988	11,825	13,983	16,085	-
	13	-	-	-	-	6,355	6,386	6,608	7,304	8,105	9,427	11,209	13,280	15,327	-
	15	-	-	-	-	-	-	-	7,053	8,158	8,872	10,597	12,621	14,550	-
	20	-	-	-	-	-	-	-	6,811	8,211	8,350	10,018	11,995	13,813	14,895
Capacity		Outdoor Temperature (℃)													
80% (59200 W)		-15	-10	-5	0	5	10	15	20	25	30	35	40	45	48
		Power Input (W)													
Outlet Water Temp. (℃)	5	10,972	11,355	11,705	12,088	12,692	13,297	13,680	14,284	14,772	15,524	18,258	21,506	-	-
	7	10,505	10,877	11,248	11,618	12,210	12,803	13,173	13,765	14,240	14,967	17,564	20,768	-	-
	9	9,779	10,275	10,623	10,976	11,550	12,125	12,477	13,052	13,509	14,203	16,676	19,652	-	-
	11	9,209	9,841	10,185	10,525	11,086	11,648	11,988	12,550	12,995	13,664	16,051	18,916	-	-
	13	8,739	9,556	9,877	10,201	10,527	11,074	11,399	11,946	12,376	13,016	15,300	18,033	-	-
	15	8,214	9,471	9,771	10,079	10,389	10,920	11,008	11,316	11,732	12,340	14,515	17,106	-	-
	20	7,721	9,386	9,665	9,958	10,254	10,767	10,631	10,721	11,121	11,700	13,770	16,227	-	-
Capacity		Outdoor Temperature (℃)													
100% (74000 W)		-15	-10	-5	0	5	10	15	20	25	30	35	40	45	48
		Power Input (W)													
Outlet Water Temp. (℃)	5	18,960	19,621	20,282	21,000	21,719	22,572	23,543	24,514	25,431	26,284	28,643	-	-	-
	7	18,153	18,807	19,486	20,171	20,862	21,698	22,545	23,400	24,307	25,264	27,407	-	-	-
	9	16,897	17,521	18,168	18,815	19,471	20,269	21,245	22,057	22,917	23,927	25,804	-	-	-
	11	15,913	16,545	17,203	17,864	18,557	19,353	20,200	21,022	21,880	22,500	24,648	-	-	-
	13	15,101	15,685	16,292	16,902	17,520	18,280	19,049	19,826	20,646	21,411	23,417	-	-	-
	15	14,194	14,756	15,340	15,929	16,523	17,259	18,004	18,753	19,546	20,384	22,009	25,234	-	-
	20	13,342	13,882	14,445	15,012	15,582	16,295	17,015	17,739	18,506	19,406	20,685	23,809	-	-

Notes

1) Water flow rate of test condition : 211 LPM

Product Information for Commercial

INVERTER SCROLL CHILLER HEAT PUMP

PERFORMANCE TABLE FOR COOLING OPERATION

ACHH033LBAB

Capacity		Outdoor Temperature (℃)													
20% (22800 W)		-15	-10	-5	0	5	10	15	20	25	30	35	40	45	48
		Power Input (W)													
Outlet Water Temp. (℃)	5	2,493	3,138	3,321	3,514	3,708	3,708	4,137	4,374	5,581	6,789	8,302	10,837	12,850	14,053
	7	2,387	3,099	3,290	3,483	3,677	3,735	4,130	4,331	5,419	6,506	7,950	10,427	12,424	13,620
	9	-	-	-	-	-	3,483	3,561	3,774	4,892	6,011	7,489	9,904	11,836	12,992
	11	-	-	-	-	-	-	3,483	3,367	4,416	5,631	7,180	9,502	11,344	12,453
	13	-	-	-	-	-	-	-	-	4,149	5,306	6,762	9,041	10,729	11,740
	15	-	-	-	-	-	-	-	-	3,986	5,109	6,409	8,778	10,431	11,416
	20	-	-	-	-	-	-	-	-	2,167	2,229	2,384	2,771	3,065	3,408
Capacity		Outdoor Temperature (℃)													
40% (45600 W)		-15	-10	-5	0	5	10	15	20	25	30	35	40	45	48
		Power Input (W)													
Outlet Water Temp. (℃)	5	5,373	7,934	8,315	8,721	9,525	9,930	10,336	11,140	11,951	13,961	16,778	20,369	23,621	25,575
	7	5,145	7,286	7,669	8,063	9,056	9,450	9,844	10,638	11,426	13,395	16,131	19,687	22,708	24,511
	9	4,789	6,555	6,923	7,297	8,070	8,844	9,218	9,991	10,740	12,589	15,241	18,626	21,642	23,454
	11	-	-	-	-	7,294	7,868	8,243	9,417	10,167	12,022	14,632	17,891	20,776	22,506
	13	-	-	-	-	-	-	-	8,379	9,511	11,344	13,876	17,101	19,938	21,637
	15	-	-	-	-	-	-	-	-	8,594	10,701	13,143	16,268	18,953	20,558
	20	-	-	-	-	-	-	-	-	4,671	4,805	5,139	5,973	6,607	7,348
Capacity		Outdoor Temperature (℃)													
60% (91200 W)		-15	-10	-5	0	5	10	15	20	25	30	35	40	45	48
		Power Input (W)													
Outlet Water Temp. (℃)	5	9,176	13,741	13,746	13,746	14,664	15,581	15,581	16,100	18,115	20,780	24,411	29,084	33,437	-
	7	8,786	13,071	13,071	13,071	13,973	14,875	14,875	15,378	17,354	19,950	23,464	27,691	32,020	34,635
	9	8,178	12,216	12,218	12,218	12,908	13,798	13,798	14,288	16,224	18,757	22,148	26,207	30,173	32,558
	11	7,702	11,719	11,719	11,719	12,206	12,692	13,091	13,578	15,478	17,967	21,272	25,153	28,936	31,213
	13	-	-	-	-	11,432	11,487	11,886	13,139	14,581	16,958	20,165	23,889	27,571	29,789
	15	-	-	-	-	-	-	-	12,688	14,675	15,960	19,063	22,704	26,175	28,252
	20	-	-	-	-	-	-	-	7,635	7,977	8,205	8,775	10,200	11,282	12,547
Capacity		Outdoor Temperature (℃)													
80% (52000 W)		-15	-10	-5	0	5	10	15	20	25	30	35	40	45	48
		Power Input (W)													
Outlet Water Temp. (℃)	5	14,722	20,426	21,056	21,744	22,832	23,920	24,608	25,696	26,573	27,927	32,844	38,688	44,473	-
	7	14,096	19,566	20,234	20,900	21,965	23,031	23,697	24,762	25,616	26,925	31,596	37,359	42,957	-
	9	13,120	18,483	19,110	19,745	20,778	21,811	22,445	23,479	24,302	25,549	29,999	35,352	43,033	-
	11	12,356	17,703	18,321	18,933	19,943	20,954	21,566	22,576	23,377	24,581	28,875	34,029	39,058	-
	13	11,726	17,191	17,768	18,350	18,937	19,921	20,505	21,489	22,264	23,414	27,523	32,440	37,209	-
	15	11,022	17,037	17,576	18,131	18,690	19,643	19,803	20,357	21,104	22,199	26,111	30,773	35,265	-
	20	9,155	9,508	9,873	10,239	10,696	11,245	11,702	12,250	12,799	13,164	14,079	16,364	18,101	-
Capacity		Outdoor Temperature (℃)													
100% (114000 W)		-15	-10	-5	0	5	10	15	20	25	30	35	40	45	48
		Power Input (W)													
Outlet Water Temp. (℃)	5	25,439	26,327	27,214	28,177	29,141	30,286	31,589	32,891	34,123	35,641	38,432	45,188	-	-
	7	24,357	25,235	26,145	27,065	27,992	29,114	30,250	31,398	32,614	34,137	36,774	43,129	-	-
	9	22,672	23,509	24,376	25,246	26,126	27,197	28,506	29,595	30,749	32,205	34,623	39,744	-	-
	11	21,351	22,200	23,082	23,969	24,899	25,967	27,103	28,207	29,357	30,839	33,072	38,013	-	-
	13	20,261	21,045	21,860	22,678	23,507	24,528	25,559	26,602	27,702	29,104	31,420	35,885	-	-
	15	19,045	19,799	20,583	21,372	22,169	23,157	24,156	25,163	26,227	27,589	29,530	33,858	-	-
	20	15,820	16,429	17,061	17,693	18,482	19,430	20,220	21,168	22,116	22,748	24,327	28,277	31,278	-

Notes

1) Water flow rate of test condition : 327 LPM

ACHH040LBAB

Capacity		Outdoor Temperature (℃)													
20% (26000 W)		-15	-10	-5	0	5	10	15	20	25	30	35	40	45	48
		Power Input (W)													
Outlet Water Temp. (℃)	5	3,007	2,824	2,988	3,163	3,337	3,337	3,723	3,936	5,022	6,109	7,471	9,752	11,564	12,646
	7	2,879	2,789	2,961	3,135	3,309	3,361	3,716	3,897	4,876	5,855	7,154	9,383	11,180	12,257
	9	-	-	-	-	-	3,135	3,204	3,396	4,403	5,409	6,740	8,913	10,651	11,691
	11	-	-	-	-	-	-	3,135	3,030	3,974	5,068	6,461	8,551	10,209	11,207
	13	-	-	-	-	-	-	-	-	3,734	4,775	6,085	8,136	9,655	10,565
	15	-	-	-	-	-	-	-	-	3,587	4,598	5,768	7,899	9,387	10,273
	20	-	-	-	-	-	-	-	-	3,447	4,427	5,467	7,669	9,126	9,990
Capacity		Outdoor Temperature (℃)													
40% (52000 W)		-15	-10	-5	0	5	10	15	20	25	30	35	40	45	48
		Power Input (W)													
Outlet Water Temp. (℃)	5	6,483	7,140	7,483	7,848	8,572	8,937	9,301	10,025	10,755	12,564	15,099	18,331	21,257	23,015
	7	6,207	6,557	6,901	7,256	8,149	8,504	8,859	9,573	10,282	12,054	14,516	17,717	20,435	22,058
	9	5,778	5,899	6,230	6,567	7,263	7,958	8,295	8,991	9,665	11,329	13,715	16,761	19,476	21,107
	11	-	-	-	-	6,564	7,081	7,418	8,474	9,149	10,819	13,167	16,101	18,697	20,253
	13	-	-	-	-	-	-	-	7,541	8,559	10,208	12,487	15,390	17,943	19,471
	15	-	-	-	-	-	-	-	-	7,734	9,630	11,828	14,639	17,056	18,501
	20	-	-	-	-	-	-	-	-	6,988	9,085	11,203	13,925	16,213	17,578
Capacity		Outdoor Temperature (℃)													
60% (78000 W)		-15	-10	-5	0	5	10	15	20	25	30	35	40	45	48
		Power Input (W)													
Outlet Water Temp. (℃)	5	11,071	12,366	12,370	12,370	13,196	14,022	14,022	14,489	16,302	18,700	21,968	26,173	30,090	-
	7	10,600	11,763	11,763	11,763	12,575	13,386	13,386	13,839	15,617	17,954	21,116	24,920	28,816	-
	9	9,867	10,993	10,995	10,995	11,616	12,417	12,417	12,858	14,601	16,880	19,931	23,584	27,153	-
	11	9,292	10,546	10,546	10,546	10,984	11,422	11,781	12,219	13,929	16,169	19,143	22,636	26,040	-
	13	-	-	-	-	10,287	10,338	10,697	11,824	13,121	15,261	18,146	21,498	24,812	26,808
	15	-	-	-	-	-	-	-	11,418	13,207	14,363	17,155	20,431	23,555	25,425
	20	-	-	-	-	-	-	-	11,027	13,293	13,518	16,218	19,418	22,362	24,113
Capacity		Outdoor Temperature (℃)													
80% (104000 W)		-15	-10	-5	0	5	10	15	20	25	30	35	40	45	48
		Power Input (W)													
Outlet Water Temp. (℃)	5	17,763	18,382	18,948	19,568	20,547	21,526	22,145	23,124	23,913	25,131	29,556	34,816	-	-
	7	17,007	17,608	18,209	18,808	19,767	20,726	21,325	22,284	23,052	24,230	28,434	33,620	-	-
	9	15,830	16,633	17,198	17,768	18,698	19,628	20,199	21,129	21,870	22,992	26,997	31,814	-	-
	11	14,908	15,931	16,487	17,038	17,947	18,857	19,407	20,317	21,038	22,121	25,985	30,623	35,149	-
	13	14,147	15,470	15,989	16,514	17,042	17,927	18,453	19,338	20,035	21,071	24,768	29,193	33,485	-
	15	13,298	15,332	15,817	16,316	16,819	17,677	17,821	18,320	18,992	19,977	23,498	27,693	31,736	-
	20	12,500	15,195	15,647	16,121	16,599	17,431	17,210	17,355	18,003	18,940	22,292	26,269	30,078	-
Capacity		Outdoor Temperature (℃)													
100% (130000 W)		-15	-10	-5	0	5	10	15	20	25	30	35	40	45	48
		Power Input (W)													
Outlet Water Temp. (℃)	5	30,693	31,763	32,834	33,997	35,160	36,540	38,112	39,684	41,169	42,656	46,369	54,520	-	-
	7	29,387	30,447	31,544	32,654	33,772	35,126	36,497	37,882	39,350	41,060	44,369	52,035	-	-
	9	27,354	28,364	29,411	30,459	31,521	32,813	34,393	35,707	37,099	38,511	41,773	47,952	-	-
	11	25,761	26,784	27,848	28,919	30,042	31,330	32,700	34,032	35,420	36,862	39,902	45,863	-	-
	13	24,446	25,392	26,374	27,361	28,362	29,593	30,838	32,095	33,423	34,769	37,909	43,296	-	-
	15	22,978	23,888	24,834	25,786	26,748	27,940	29,145	30,359	31,643	32,941	35,629	40,850	-	-
	20	21,599	22,474	23,384	24,301	25,225	26,379	27,545	28,717	29,958	31,210	33,486	38,543	-	-

Notes

1) Water flow rate of test condition : 372 LPM

Product Information for Commercial

INVERTER SCROLL CHILLER HEAT PUMP

PERFORMANCE TABLE FOR COOLING OPERATION

ACHH045LBAB

Capacity		Outdoor Temperature (℃)													
20% (29600 W)		-15	-10	-5	0	5	10	15	20	25	30	35	40	45	48
		Power Input (W)													
Outlet Water Temp. (℃)	5	3,715	3,489	3,692	3,907	4,122	4,122	4,600	4,862	6,205	7,548	9,230	12,049	14,286	15,624
	7	3,557	3,446	3,658	3,873	4,088	4,152	4,591	4,815	6,024	7,233	8,838	11,592	13,813	15,143
	9	-	-	-	-	-	3,873	3,959	4,195	5,439	6,683	8,326	11,011	13,159	14,444
	11	-	-	-	-	-	-	3,873	3,744	4,910	6,261	7,982	10,564	12,612	13,846
	13	-	-	-	-	-	-	-	-	4,613	5,899	7,517	10,052	11,928	13,053
	15	-	-	-	-	-	-	-	-	4,432	5,680	7,126	9,759	11,597	12,692
	20	-	-	-	-	-	-	-	-	4,258	5,469	6,755	9,475	11,275	12,342
Capacity		Outdoor Temperature (℃)													
40% (52000 W)		-15	-10	-5	0	5	10	15	20	25	30	35	40	45	48
		Power Input (W)													
Outlet Water Temp. (℃)	5	8,010	8,821	9,245	9,696	10,590	11,041	11,491	12,386	13,287	15,522	18,654	22,646	26,262	28,434
	7	7,669	8,100	8,526	8,965	10,068	10,507	10,945	11,827	12,703	14,892	17,934	21,888	25,246	27,251
	9	7,138	7,288	7,697	8,113	8,973	9,832	10,248	11,108	11,940	13,996	16,945	20,708	24,062	26,076
	11	-	-	-	-	8,109	8,748	9,165	10,469	11,303	13,366	16,267	19,892	23,099	25,021
	13	-	-	-	-	-	-	-	9,316	10,574	12,612	15,427	19,013	22,167	24,055
	15	-	-	-	-	-	-	-	-	9,555	11,898	14,613	18,086	21,072	22,856
	20	-	-	-	-	-	-	-	-	8,633	11,224	13,841	17,204	20,030	21,717
Capacity		Outdoor Temperature (℃)													
60% (88800 W)		-15	-10	-5	0	5	10	15	20	25	30	35	40	45	48
		Power Input (W)													
Outlet Water Temp. (℃)	5	13,678	15,278	15,282	15,282	16,303	17,323	17,323	17,900	20,140	23,103	27,140	32,335	37,175	-
	7	13,096	14,533	14,533	14,533	15,535	16,538	16,538	17,097	19,294	22,181	26,087	30,787	35,600	-
	9	12,190	13,581	13,583	13,583	14,351	15,340	15,340	15,886	18,038	20,854	24,623	29,136	33,546	-
	11	11,480	13,029	13,029	13,029	13,570	14,111	14,555	15,096	17,209	19,976	23,650	27,965	32,171	-
	13	-	-	-	-	12,709	12,772	13,215	14,608	16,210	18,854	22,419	26,559	30,654	-
	15	-	-	-	-	-	-	-	14,107	16,316	17,744	21,194	25,242	29,101	-
	20	-	-	-	-	-	-	-	13,623	16,422	16,701	20,037	23,989	27,627	29,790
Capacity		Outdoor Temperature (℃)													
80% (118400 W)		-15	-10	-5	0	5	10	15	20	25	30	35	40	45	48
		Power Input (W)													
Outlet Water Temp. (℃)	5	21,945	22,710	23,409	24,175	25,384	26,594	27,359	28,569	29,543	31,048	36,515	43,013	-	-
	7	21,011	21,753	22,496	23,236	24,421	25,605	26,346	27,531	28,480	29,935	35,128	41,535	-	-
	9	19,557	20,550	21,247	21,952	23,101	24,249	24,954	26,103	27,019	28,406	33,353	39,304	-	-
	11	18,418	19,682	20,369	21,049	22,173	23,296	23,976	25,100	25,991	27,329	32,103	37,833	-	-
	13	17,478	19,113	19,754	20,402	21,054	22,147	22,797	23,891	24,752	26,032	30,600	36,067	-	-
	15	16,429	18,942	19,541	20,158	20,779	21,839	22,016	22,633	23,463	24,680	29,030	34,213	-	-
	20	15,443	18,773	19,330	19,917	20,507	21,535	21,262	21,441	22,241	23,399	27,541	32,454	-	-
Capacity		Outdoor Temperature (℃)													
100% (148000 W)		-15	-10	-5	0	5	10	15	20	25	30	35	40	45	48
		Power Input (W)													
Outlet Water Temp. (℃)	5	37,920	39,242	40,564	42,001	43,438	45,143	47,085	49,027	50,862	52,567	57,286	-	-	-
	7	36,306	37,615	38,971	40,342	41,724	43,396	45,090	46,801	48,614	50,528	54,815	-	-	-
	9	33,794	35,041	36,335	37,631	38,942	40,539	42,490	44,114	45,834	47,853	51,608	-	-	-
	11	31,826	33,090	34,405	35,728	37,115	38,706	40,399	42,044	43,759	45,001	49,296	-	-	-
	13	30,201	31,370	32,584	33,803	35,039	36,561	38,098	39,652	41,292	42,823	46,834	-	-	-
	15	28,388	29,512	30,681	31,857	33,045	34,518	36,007	37,507	39,093	40,768	44,017	50,468	-	-
	20	26,684	27,765	28,889	30,023	31,164	32,589	34,031	35,478	37,011	38,813	41,370	47,617	-	-

Notes

1) Water flow rate of test condition : 411 LPM

ACHH050LBAB

Capacity		Outdoor Temperature (℃)													
20% (34200 W)		-15	-10	-5	0	5	10	15	20	25	30	35	40	45	48
		Power Input (W)													
Outlet Water Temp. (℃)	5	3,739	4,707	4,981	5,271	5,562	5,562	6,206	6,560	8,372	10,183	12,453	16,256	19,274	21,079
	7	3,580	4,649	4,935	5,225	5,515	5,602	6,195	6,496	8,128	9,759	11,925	15,640	18,636	20,431
	9	-	-	-	-	-	5,225	5,341	5,660	7,338	9,016	11,234	14,856	17,753	19,487
	11	-	-	-	-	-	-	5,225	5,051	6,624	8,447	10,769	14,253	17,016	18,680
	13	-	-	-	-	-	-	-	-	6,224	7,959	10,142	13,562	16,093	17,610
	15	-	-	-	-	-	-	-	-	5,980	7,663	9,614	13,167	15,646	17,124
	20	-	-	-	-	-	-	-	-	5,745	7,378	9,113	12,784	15,211	16,651
Capacity		Outdoor Temperature (℃)													
40% (68400 W)		-15	-10	-5	0	5	10	15	20	25	30	35	40	45	48
		Power Input (W)													
Outlet Water Temp. (℃)	5	8,060	11,901	12,473	13,081	14,288	14,896	15,504	16,710	17,927	20,942	25,167	30,554	35,432	38,362
	7	7,717	10,929	11,503	12,095	13,584	14,175	14,766	15,956	17,139	20,092	24,196	29,531	34,061	36,767
	9	7,183	9,833	10,384	10,946	12,105	13,265	13,827	14,987	16,110	18,883	22,861	27,939	32,463	35,181
	11	-	-	-	-	10,941	11,803	12,365	14,125	15,250	18,033	21,947	26,837	31,164	33,758
	13	-	-	-	-	-	-	-	12,569	14,266	17,016	20,814	25,652	29,908	32,455
	15	-	-	-	-	-	-	-	-	12,891	16,052	19,715	24,401	28,429	30,837
	20	-	-	-	-	-	-	-	-	11,648	15,143	18,674	23,211	27,024	29,300
Capacity		Outdoor Temperature (℃)													
60% (102600 W)		-15	-10	-5	0	5	10	15	20	25	30	35	40	45	48
		Power Input (W)													
Outlet Water Temp. (℃)	5	13,764	20,612	20,619	20,619	21,995	23,372	23,372	24,150	27,172	31,170	36,617	43,625	50,155	-
	7	13,179	19,607	19,607	19,607	20,960	22,312	22,312	23,067	26,032	29,926	35,196	41,537	48,031	51,952
	9	12,267	18,323	18,326	18,326	19,362	20,697	20,697	21,433	24,337	28,136	33,221	39,310	45,259	48,837
	11	11,552	17,578	17,578	17,578	18,308	19,039	19,637	20,367	23,217	26,951	31,909	37,730	43,404	46,820
	13	-	-	-	-	17,147	17,231	17,830	19,709	21,871	25,437	30,247	35,833	41,357	44,684
	15	-	-	-	-	-	-	-	19,033	22,013	23,940	28,595	34,055	39,262	42,379
	20	-	-	-	-	-	-	-	18,380	22,157	22,532	27,033	32,366	37,274	40,192
Capacity		Outdoor Temperature (℃)													
80% (136800 W)		-15	-10	-5	0	5	10	15	20	25	30	35	40	45	48
		Power Input (W)													
Outlet Water Temp. (℃)	5	22,083	30,640	31,583	32,616	34,248	35,880	36,913	38,544	39,859	41,890	49,265	58,032	66,710	-
	7	21,144	29,349	30,351	31,350	32,948	34,546	35,546	37,144	38,424	40,388	47,394	56,039	64,436	-
	9	19,681	27,725	28,666	29,617	31,167	32,717	33,668	35,218	36,453	38,324	44,999	53,028	64,549	-
	11	18,534	26,555	27,482	28,399	29,915	31,431	32,348	33,864	35,066	36,871	43,312	51,043	58,588	-
	13	17,588	25,786	26,652	27,526	28,405	29,881	30,758	32,233	33,395	35,121	41,284	48,660	55,813	-
	15	16,533	25,556	26,364	27,196	28,034	29,465	29,704	30,536	31,656	33,298	39,166	46,159	52,898	-
	20	15,540	25,328	26,080	26,871	27,668	29,054	28,687	28,928	30,007	31,570	37,157	43,786	50,135	-
Capacity		Outdoor Temperature (℃)													
100% (171000 W)		-15	-10	-5	0	5	10	15	20	25	30	35	40	45	48
		Power Input (W)													
Outlet Water Temp. (℃)	5	38,159	39,490	40,820	42,266	43,712	45,428	47,383	49,337	51,184	53,462	57,648	67,782	-	-
	7	36,536	37,853	39,217	40,597	41,988	43,671	45,375	47,096	48,921	51,205	55,161	64,693	-	-
	9	34,008	35,263	36,565	37,868	39,188	40,795	42,759	44,393	46,124	48,308	51,934	59,616	-	-
	11	32,027	33,299	34,623	35,953	37,349	38,950	40,655	42,310	44,036	46,258	49,608	57,019	-	-
	13	30,392	31,568	32,790	34,017	35,261	36,792	38,339	39,903	41,553	43,656	47,130	53,827	-	-
	15	28,568	29,699	30,875	32,058	33,254	34,736	36,235	37,744	39,340	41,384	44,295	50,787	-	-
	20	26,853	27,940	29,072	30,213	31,361	32,795	34,246	35,702	37,245	39,230	41,631	47,918	54,434	-

Notes

1) Water flow rate of test condition : 491 LPM

Product Information for Commercial

INVERTER SCROLL CHILLER HEAT PUMP

PERFORMANCE TABLE FOR COOLING OPERATION

ACHH060LBAB

Capacity		Outdoor Temperature (℃)													
20% (39000 W)		-15	-10	-5	0	5	10	15	20	25	30	35	40	45	48
		Power Input (W)													
Outlet Water Temp. (℃)	5	4,511	4,236	4,483	4,744	5,005	5,005	5,585	5,904	7,534	9,164	11,207	14,629	17,345	18,969
	7	4,319	4,184	4,441	4,702	4,963	5,042	5,575	5,846	7,314	8,782	10,731	14,075	16,771	18,386
	9	-	-	-	-	-	4,702	4,807	5,094	6,604	8,114	10,109	13,369	15,977	17,537
	11	-	-	-	-	-	-	4,702	4,545	5,961	7,602	9,691	12,826	15,313	16,810
	13	-	-	-	-	-	-	-	-	5,601	7,163	9,127	12,204	14,482	15,848
	15	-	-	-	-	-	-	-	-	5,381	6,896	8,652	11,849	14,080	15,410
	20	-	-	-	-	-	-	-	-	5,170	6,640	8,201	11,504	13,689	14,984
Capacity		Outdoor Temperature (℃)													
40% (78000 W)		-15	-10	-5	0	5	10	15	20	25	30	35	40	45	48
		Power Input (W)													
Outlet Water Temp. (℃)	5	9,725	10,710	11,225	11,772	12,858	13,405	13,952	15,038	16,132	18,846	22,648	27,496	31,886	34,522
	7	9,311	9,835	10,352	10,884	12,224	12,756	13,289	14,359	15,424	18,081	21,774	26,575	30,652	33,087
	9	8,667	8,849	9,345	9,850	10,894	11,938	12,443	13,487	14,497	16,993	20,573	25,142	29,214	31,660
	11	-	-	-	-	9,846	10,621	11,128	12,711	13,724	16,228	19,751	24,151	28,045	30,379
	13	-	-	-	-	-	-	-	11,311	12,838	15,313	18,731	23,085	26,914	29,207
	15	-	-	-	-	-	-	-	-	11,601	14,445	17,742	21,959	25,584	27,751
	20	-	-	-	-	-	-	-	-	10,482	13,627	16,805	20,888	24,319	26,368
Capacity		Outdoor Temperature (℃)													
60% (117000 W)		-15	-10	-5	0	5	10	15	20	25	30	35	40	45	48
		Power Input (W)													
Outlet Water Temp. (℃)	5	16,607	18,549	18,555	18,555	19,794	21,033	21,033	21,733	24,453	28,051	32,952	39,259	45,135	-
	7	15,900	17,645	17,645	17,645	18,862	20,079	20,079	20,758	23,426	26,930	31,674	37,379	43,223	-
	9	14,800	16,489	16,492	16,492	17,424	18,625	18,625	19,288	21,901	25,320	29,896	35,376	40,730	-
	11	13,938	15,818	15,819	15,819	16,476	17,133	17,672	18,329	20,894	24,254	28,715	33,954	39,060	-
	13	-	-	-	-	15,431	15,507	16,045	17,736	19,682	22,891	27,219	32,246	37,218	40,211
	15	-	-	-	-	-	-	-	17,128	19,810	21,544	25,733	30,647	35,333	38,137
	20	-	-	-	-	-	-	-	16,540	19,939	20,277	24,328	29,126	33,543	36,170
Capacity		Outdoor Temperature (℃)													
80% (156000 W)		-15	-10	-5	0	5	10	15	20	25	30	35	40	45	48
		Power Input (W)													
Outlet Water Temp. (℃)	5	26,644	27,573	28,422	29,352	30,820	32,288	33,218	34,686	35,869	37,697	44,335	52,223	-	-
	7	25,510	26,412	27,313	28,212	29,650	31,088	31,988	33,426	34,579	36,345	42,651	50,430	-	-
	9	23,745	24,950	25,796	26,653	28,047	29,442	30,298	31,693	32,804	34,488	40,495	47,721	-	-
	11	22,362	23,897	24,731	25,557	26,921	28,285	29,111	30,475	31,556	33,181	38,977	45,934	52,724	-
	13	21,221	23,205	23,984	24,771	25,562	26,890	27,679	29,007	30,053	31,606	37,152	43,790	50,227	-
	15	19,947	22,998	23,726	24,474	25,228	26,516	26,731	27,480	28,488	29,966	35,246	41,539	47,604	-
	20	18,750	22,793	23,470	24,182	24,899	26,146	25,815	26,032	27,004	28,410	33,438	39,404	45,117	-
Capacity		Outdoor Temperature (℃)													
100% (195000 W)		-15	-10	-5	0	5	10	15	20	25	30	35	40	45	48
		Power Input (W)													
Outlet Water Temp. (℃)	5	46,040	47,645	49,250	50,995	52,739	54,810	57,168	59,526	61,754	63,985	69,553	81,779	-	-
	7	44,081	45,670	47,316	48,981	50,659	52,689	54,746	56,823	59,024	61,590	66,553	78,053	-	-
	9	41,031	42,545	44,116	45,689	47,281	49,220	51,589	53,560	55,649	57,766	62,659	71,927	-	-
	11	38,641	40,176	41,773	43,378	45,062	46,994	49,050	51,048	53,130	55,293	59,852	68,794	-	-
	13	36,668	38,087	39,561	41,042	42,543	44,390	46,257	48,143	50,134	52,153	56,863	64,943	-	-
	15	34,467	35,832	37,251	38,679	40,121	41,910	43,718	45,539	47,464	49,412	53,443	61,275	-	-
	20	32,399	33,711	35,076	36,452	37,838	39,568	41,318	43,075	44,937	46,815	50,229	57,814	-	-

Notes

1) Water flow rate of test condition : 558 LPM

ACHH067LBAB

Capacity		Outdoor Temperature (℃)													
20% (44400 W)		-15	-10	-5	0	5	10	15	20	25	30	35	40	45	48
		Power Input (W)													
Outlet Water Temp. (℃)	5	5,573	5,234	5,338	5,861	6,183	6,183	6,900	7,294	9,307	11,321	13,845	18,073	21,429	23,435
	7	5,336	5,169	5,486	5,809	6,132	6,229	6,887	7,223	9,036	10,850	13,258	17,389	20,719	22,715
	9	-	-	-	-	-	5,809	5,938	6,293	8,159	10,024	12,490	16,517	19,738	21,666
	11	-	-	-	-	-	-	5,809	5,615	7,365	9,391	11,973	15,846	18,918	20,769
	13	-	-	-	-	-	-	-	-	6,919	8,849	11,276	15,078	17,892	19,579
	15	-	-	-	-	-	-	-	-	6,648	8,520	10,689	14,639	17,395	19,038
	20	-	-	-	-	-	-	-	-	6,388	8,203	10,132	14,213	16,912	18,512
Capacity		Outdoor Temperature (℃)													
40% (88800 W)		-15	-10	-5	0	5	10	15	20	25	30	35	40	45	48
		Power Input (W)													
Outlet Water Temp. (℃)	5	12,014	13,232	13,867	14,543	15,885	16,561	17,237	18,578	19,931	23,283	27,981	33,970	39,393	42,650
	7	11,503	12,150	12,789	13,447	15,102	15,760	16,417	17,740	19,055	22,338	26,901	32,832	37,869	40,877
	9	10,707	10,932	11,545	12,169	13,459	14,748	15,372	16,662	17,910	20,994	25,417	31,062	36,092	39,114
	11	-	-	-	-	12,164	13,122	13,748	15,704	16,955	20,049	24,401	29,837	34,648	37,532
	13	-	-	-	-	-	-	-	13,974	15,861	18,918	23,141	28,520	33,251	36,083
	15	-	-	-	-	-	-	-	-	14,332	17,847	21,919	27,129	31,607	34,285
	20	-	-	-	-	-	-	-	-	12,950	16,836	20,761	25,806	30,045	32,576
Capacity		Outdoor Temperature (℃)													
60% (133200 W)		-15	-10	-5	0	5	10	15	20	25	30	35	40	45	48
		Power Input (W)													
Outlet Water Temp. (℃)	5	20,517	22,916	22,924	22,924	24,454	25,985	25,985	26,850	30,210	34,655	40,710	48,502	55,762	-
	7	19,644	21,799	21,799	21,799	23,303	24,807	24,807	25,645	28,942	33,271	39,131	46,180	53,400	-
	9	18,285	20,372	20,375	20,375	21,526	23,010	23,010	23,829	27,057	31,281	36,935	43,705	50,319	-
	11	17,220	19,543	19,543	19,543	20,355	21,167	21,832	22,644	25,813	29,964	35,476	41,948	48,256	-
	13	-	-	-	-	19,064	19,157	19,823	21,912	24,316	28,280	33,628	39,839	45,980	-
	15	-	-	-	-	-	-	-	21,160	24,474	26,617	31,791	37,862	43,651	-
	20	-	-	-	-	-	-	-	20,434	24,633	25,051	30,055	35,984	41,440	44,686
Capacity		Outdoor Temperature (℃)													
80% (177600 W)		-15	-10	-5	0	5	10	15	20	25	30	35	40	45	48
		Power Input (W)													
Outlet Water Temp. (℃)	5	32,917	34,065	35,114	36,263	38,077	39,890	41,039	42,853	44,315	46,573	54,773	64,519	-	-
	7	31,516	32,630	33,743	34,855	36,631	38,408	39,519	41,296	42,720	44,902	52,692	62,303	-	-
	9	29,336	30,824	31,870	32,928	34,651	36,374	37,432	39,155	40,528	42,608	50,029	58,956	-	-
	11	27,627	29,523	30,554	31,574	33,259	34,945	35,965	37,650	38,986	40,993	48,154	56,749	-	-
	13	26,217	28,669	29,631	30,603	31,581	33,221	34,196	35,837	37,129	39,047	45,899	54,100	-	-
	15	24,643	28,413	29,312	30,237	31,168	32,759	33,025	33,949	35,195	37,021	43,545	51,319	-	-
	20	23,164	28,159	28,996	29,875	30,761	32,302	31,893	32,162	33,362	35,099	41,311	48,681	-	-
Capacity		Outdoor Temperature (℃)													
100% (222000 W)		-15	-10	-5	0	5	10	15	20	25	30	35	40	45	48
		Power Input (W)													
Outlet Water Temp. (℃)	5	56,879	58,863	60,846	63,001	65,156	67,715	70,628	73,541	76,293	78,851	85,929	-	-	-
	7	54,459	56,422	58,457	60,513	62,586	65,094	67,635	70,201	72,921	75,793	82,222	-	-	-
	9	50,691	52,562	54,503	56,446	58,413	60,808	63,736	66,171	68,751	71,780	77,412	-	-	-
	11	47,739	49,635	51,608	53,591	55,672	58,059	60,599	63,066	65,639	67,501	73,944	-	-	-
	13	45,302	47,055	48,876	50,705	52,559	54,841	57,147	59,478	61,937	64,234	70,251	-	-	-
	15	42,583	44,269	46,021	47,786	49,568	51,777	54,011	56,260	58,639	61,153	66,026	75,702	-	-
	20	40,027	41,647	43,334	45,035	46,746	48,884	51,046	53,217	55,517	58,219	62,054	71,426	-	-

Notes

1) Water flow rate of test condition : 617 LPM

Product Information for Commercial

INVERTER SCROLL CHILLER HEAT PUMP

PERFORMANCE TABLE FOR HEATING OPERATION

ACHH020LBAB

Capacity		Outlet Water Temp (℃)					
20% (14000W)		30	35	40	45	50	55
		Power Input (W)					
Outdoor Temp. (℃)	-30	10,134	-	-	-	-	-
	-25	9,472	10,001	-	-	-	-
	-20	8,709	9,144	9,822	-	-	-
	-15	6,991	7,381	7,928	8,391	-	-
	-10	6,006	6,442	6,754	7,439	8,301	-
	-5	4,923	5,531	5,837	6,282	7,274	8,189
	0	4,234	4,640	5,173	5,619	6,403	7,453
	5	3,643	4,004	4,309	4,953	5,672	6,463
	7	3,249	3,808	4,127	4,548	5,454	6,247
	10	3,052	3,491	3,816	4,241	4,909	5,890
	15	2,658	3,099	3,410	3,821	4,505	5,312
	20	2,363	2,731	3,026	3,430	4,069	4,769
	25	2,068	2,413	2,700	3,102	3,670	4,328
	30	1,674	2,099	2,375	2,778	3,271	3,892
	35	1,378	1,776	2,053	2,444	2,880	3,450

Capacity		Outlet Water Temp (℃)					
40% (28000W)		30	35	40	45	50	55
		Power Input (W)					
Outdoor Temp. (℃)	-30	-	-	-	-	-	-
	-25	17,877	18,749	-	-	-	-
	-20	16,275	17,146	18,416	-	-	-
	-15	13,194	13,838	14,230	15,205	-	-
	-10	11,225	12,079	12,476	13,166	15,059	-
	-5	9,354	9,968	10,641	11,340	12,916	14,943
	0	8,074	8,638	9,089	9,984	11,428	13,080
	5	6,597	7,411	7,852	8,512	10,037	11,568
	7	6,154	6,799	7,441	8,099	9,372	11,028
	10	5,612	6,218	6,661	7,500	8,721	10,111
	15	4,923	5,451	5,891	6,519	7,838	9,131
	20	4,135	4,694	5,135	5,737	6,784	8,175
	25	3,545	4,046	4,476	5,042	5,979	7,044
	30	2,855	3,399	3,812	4,346	5,172	5,910
	35	2,265	2,751	3,165	3,655	4,378	4,779

Capacity		Outlet Water Temp (℃)					
60% (42000W)		30	35	40	45	50	55
		Power Input (W)					
Outdoor Temp. (℃)	-30	-	-	-	-	-	-
	-25	27,215	28,776	-	-	-	-
	-20	24,778	26,315	28,220	-	-	-
	-15	20,086	21,239	21,806	23,289	-	-
	-10	17,329	18,085	18,951	20,334	22,508	-
	-5	14,474	15,297	15,840	17,279	19,223	21,804
	0	12,111	13,112	13,667	14,816	16,766	19,116
	5	10,142	10,858	11,614	12,682	14,262	16,552
	7	9,354	10,393	10,938	11,942	13,734	15,772
	10	8,468	9,302	9,833	10,824	12,447	14,363
	15	7,483	8,110	8,727	9,666	11,008	12,957
	20	6,400	7,041	7,547	8,532	9,771	11,377
	25	5,415	6,092	6,593	7,438	8,676	10,159
	30	4,529	5,299	5,635	6,345	7,585	8,946
	35	3,545	4,200	4,680	5,253	6,492	7,725

Capacity		Outlet Water Temp (℃)					
80% (56000W)		30	35	40	45	50	55
		Power Input (W)					
Outdoor Temp. (℃)	-30	-	-	-	-	-	-
	-25	-	-	-	-	-	-
	-20	-	-	-	-	-	-
	-15	-	-	-	-	-	-
	-10	24,320	25,394	26,085	27,612	-	-
	-5	20,283	21,336	21,955	23,081	26,606	-
	0	17,526	18,331	19,014	20,028	22,938	26,432
	5	14,966	15,770	16,353	17,426	20,032	23,110
	7	13,883	14,850	15,428	16,378	18,985	21,909
	10	12,603	13,542	14,130	15,056	17,421	20,287
	15	10,929	11,686	12,385	13,296	15,477	17,998
	20	9,255	10,019	10,583	11,525	13,463	15,771
	25	7,778	8,632	9,182	9,995	11,846	13,886
	30	6,302	7,251	7,783	8,462	10,234	11,998
	35	4,825	5,861	6,386	6,937	8,609	10,116

Capacity		Outlet Water Temp (℃)					
100% (70000W)		30	35	40	45	50	55
		Power Input (W)					
Outdoor Temp. (℃)	-30	-	-	-	-	-	-
	-25	-	-	-	-	-	-
	-20	-	-	-	-	-	-
	-15	-	-	-	-	-	-
	-10	-	-	-	-	-	-
	-5	26,239	29,071	30,400	31,534	-	-
	0	23,237	24,818	25,997	27,025	32,255	-
	5	19,594	21,013	22,148	22,921	27,572	31,921
	7	18,117	18,981	20,078	21,539	24,999	28,950
	10	16,837	18,009	18,945	19,751	23,627	27,478
	15	14,671	15,836	16,753	17,470	21,088	24,475
	20	12,406	13,603	14,485	15,216	18,403	21,567
	25	10,437	12,434	13,404	14,138	17,016	19,772
	30	8,468	11,037	12,289	13,023	15,883	18,457
	35	6,597	9,847	10,991	11,658	13,650	17,369

Notes

1) Water flow rate of test condition : 200 LPM

Product Information for Commercial

INVERTER SCROLL CHILLER HEAT PUMP

PERFORMANCE TABLE FOR HEATING OPERATION

ACHH023LBAB

Capacity		Outlet Water Temp (℃)					
20% (16400W)		30	35	40	45	50	55
		Power Input (W)					
Outdoor Temp. (℃)	-30	12,024	-	-	-	-	-
	-25	11,239	11,866	-	-	-	-
	-20	10,333	10,850	11,654	-	-	-
	-15	8,295	8,758	9,406	9,956	11,068	12,328
	-10	7,127	7,644	8,014	8,827	9,849	11,033
	-5	5,841	6,563	6,926	7,454	8,631	9,716
	0	5,024	5,505	6,138	6,667	7,597	8,843
	5	4,323	4,751	5,113	5,877	6,730	7,668
	7	3,855	4,519	4,897	5,396	6,471	7,412
	10	3,622	4,142	4,527	5,032	5,825	6,988
	15	3,154	3,677	4,046	4,533	5,346	6,303
	20	2,804	3,241	3,590	4,070	4,828	5,658
	25	2,453	2,863	3,204	3,680	4,354	5,136
	30	1,986	2,490	2,817	3,297	3,881	4,618
	35	1,636	2,107	2,435	2,900	3,417	4,094
Capacity		Outlet Water Temp (℃)					
40% (32800W)		30	35	40	45	50	55
		Power Input (W)					
Outdoor Temp. (℃)	-30	-	-	-	-	-	-
	-25	21,212	22,247	-	-	-	-
	-20	19,312	20,344	21,851	-	-	-
	-15	15,655	16,419	16,884	18,040	20,238	22,660
	-10	13,319	14,332	14,803	15,621	17,868	20,231
	-5	11,099	11,827	12,626	13,455	15,325	17,730
	0	9,580	10,249	10,785	11,846	13,559	15,520
	5	7,828	8,794	9,317	10,100	11,909	13,726
	7	7,302	8,068	8,829	9,610	11,120	13,084
	10	6,659	7,377	7,904	8,899	10,348	11,997
	15	5,841	6,468	6,990	7,734	9,300	10,835
	20	4,907	5,570	6,093	6,807	8,050	9,700
	25	4,206	4,801	5,311	5,982	7,094	8,357
	30	3,388	4,033	4,524	5,157	6,136	7,013
	35	2,687	3,264	3,756	4,337	5,194	5,670
Capacity		Outlet Water Temp (℃)					
60% (49200W)		30	35	40	45	50	55
		Power Input (W)					
Outdoor Temp. (℃)	-30	-	-	-	-	-	-
	-25	32,292	34,145	-	-	-	-
	-20	29,400	31,224	33,485	-	-	-
	-15	23,833	25,200	25,873	27,633	30,942	34,942
	-10	20,562	21,458	22,485	24,126	26,706	30,754
	-5	17,174	18,150	18,794	20,501	22,808	25,870
	0	14,370	15,557	16,216	17,579	19,893	22,682
	5	12,033	12,883	13,780	15,047	16,922	19,639
	7	11,099	12,331	12,978	14,169	16,296	18,714
	10	10,047	11,037	11,666	12,843	14,768	17,042
	15	8,879	9,623	10,355	11,468	13,062	15,373
	20	7,594	8,354	8,955	10,123	11,593	13,499
	25	6,426	7,228	7,822	8,825	10,294	12,053
	30	5,374	6,447	6,685	7,528	8,999	10,614
	35	4,206	4,983	5,553	6,233	7,703	9,166

Capacity		Outlet Water Temp (℃)					
80% (65600W)		30	35	40	45	50	55
		Power Input (W)					
Outdoor Temp. (℃)	-30	-	-	-	-	-	-
	-25	-	-	-	-	-	-
	-20	-	-	-	-	-	-
	-15	-	-	-	-	-	-
	-10	28,857	30,130	30,951	32,762	-	-
	-5	24,067	25,315	26,050	27,386	31,569	-
	0	20,796	21,750	22,560	23,763	27,216	31,362
	5	17,758	18,712	19,403	20,676	23,769	27,420
	7	16,473	17,620	18,305	19,433	22,526	25,995
	10	14,954	16,068	16,765	17,864	20,671	24,071
	15	12,968	13,866	14,695	15,776	18,364	21,356
	20	10,982	11,888	12,556	13,675	15,974	18,712
	25	9,229	10,242	10,895	11,859	14,056	16,476
	30	7,477	8,603	9,234	10,041	12,143	14,236
	35	5,725	6,954	7,577	8,230	10,215	12,003
Capacity		Outlet Water Temp (℃)					
100% (82000W)		30	35	40	45	50	55
		Power Input (W)					
Outdoor Temp. (℃)	-30	-	-	-	-	-	-
	-25	-	-	-	-	-	-
	-20	-	-	-	-	-	-
	-15	-	-	-	-	-	-
	-10	-	-	-	-	-	-
	-5	31,133	34,494	36,070	37,416	-	-
	0	27,572	29,447	30,846	32,066	38,271	-
	5	23,249	24,933	26,280	28,796	32,715	37,875
	7	21,497	22,521	23,822	27,333	29,661	34,349
	10	19,978	21,368	22,479	23,435	28,034	32,603
	15	17,408	18,790	19,878	20,729	25,022	29,040
	20	14,720	16,141	17,187	18,054	21,835	25,589
	25	12,384	13,548	15,635	16,505	19,921	23,190
	30	10,047	12,161	14,581	15,452	18,846	21,900
	35	7,828	11,447	13,041	13,833	16,196	20,609

Notes

1) Water flow rate of test condition : 235 LPM

Product Information for Commercial

INVERTER SCROLL CHILLER HEAT PUMP

PERFORMANCE TABLE FOR HEATING OPERATION

ACHH033LBAB

Capacity		Outlet Water Temp (℃)					
20% (24000 W)		30	35	40	45	50	55
		Power Input (W)					
Outdoor Temp. (℃)	-30	17,103	-	-	-	-	-
	-25	15,987	16,879	-	-	-	-
	-20	14,699	15,433	16,577	-	-	-
	-15	11,799	12,457	13,380	14,162	15,744	17,536
	-10	10,137	10,873	11,399	12,556	14,010	15,694
	-5	8,309	9,336	9,852	10,603	12,277	13,821
	0	7,146	7,831	8,731	9,484	10,807	12,578
	5	6,149	6,758	7,272	8,360	9,573	10,907
	7	5,484	6,428	6,966	7,675	9,204	10,543
	10	5,152	5,892	6,440	7,157	8,286	9,940
	15	4,487	5,231	5,755	6,448	7,604	8,966
	20	3,988	4,610	5,107	5,789	6,868	8,048
	25	3,490	4,073	4,557	5,235	6,194	7,305
	30	2,825	3,542	4,008	4,689	5,520	6,569
	35	2,327	2,997	3,464	4,126	4,860	5,823

Capacity		Outlet Water Temp (℃)					
40% (48000 W)		30	35	40	45	50	55
		Power Input (W)					
Outdoor Temp. (℃)	-30	-	-	-	-	-	-
	-25	30,172	31,645	-	-	-	-
	-20	27,469	28,938	31,082	-	-	-
	-15	22,268	23,356	24,017	25,662	28,788	32,233
	-10	18,945	20,387	21,056	22,221	25,417	28,778
	-5	15,787	16,824	17,960	19,140	21,799	25,220
	0	13,627	14,579	15,341	16,851	19,288	22,077
	5	11,134	12,509	13,253	14,367	16,940	19,525
	7	10,386	11,476	12,559	13,670	15,817	18,612
	10	9,472	10,494	11,242	12,658	14,720	17,065
	15	8,309	9,200	9,942	11,002	13,229	15,412
	20	6,980	7,923	8,667	9,683	11,450	13,798
	25	5,983	6,829	7,554	8,510	10,091	11,888
	30	4,819	5,737	6,435	7,336	8,729	9,975
	35	3,822	4,643	5,343	6,169	7,389	8,065

Capacity		Outlet Water Temp (℃)					
60% (72000 W)		30	35	40	45	50	55
		Power Input (W)					
Outdoor Temp. (℃)	-30	-	-	-	-	-	-
	-25	45,934	48,568	-	-	-	-
	-20	41,819	44,414	47,630	-	-	-
	-15	33,901	35,846	36,804	39,307	44,013	49,704
	-10	29,248	30,524	31,984	34,319	37,989	43,746
	-5	24,429	25,818	26,734	29,162	32,443	36,800
	0	20,440	22,130	23,067	25,006	28,297	32,264
	5	17,117	18,325	19,602	21,404	24,071	27,936
	7	15,787	17,541	18,461	20,155	23,181	26,620
	10	14,292	15,699	16,595	18,269	21,007	24,242
	15	12,630	13,688	14,730	16,313	18,580	21,868
	20	10,802	11,883	12,738	14,400	16,491	19,202
	25	9,140	10,282	11,127	12,553	14,643	17,146
	30	7,644	9,110	9,510	10,708	12,801	15,098
	35	5,983	7,088	7,899	8,867	10,958	13,039

Capacity		Outlet Water Temp (℃)					
80% (96000 W)		30	35	40	45	50	55
		Power Input (W)					
Outdoor Temp. (℃)	-30	-	-	-	-	-	-
	-25	-	-	-	-	-	-
	-20	-	-	-	-	-	-
	-15	49,854	-	-	-	-	-
	-10	41,047	42,859	44,026	46,603	-	-
	-5	34,233	36,010	37,055	38,955	44,905	-
	0	29,580	30,939	32,091	33,803	38,714	44,611
	5	25,260	26,617	27,600	29,411	33,810	39,004
	7	23,432	25,064	26,039	27,643	32,043	36,977
	10	21,271	22,856	23,848	25,411	29,403	34,241
	15	18,446	19,723	20,903	22,441	26,123	30,377
	20	15,621	16,910	17,861	19,452	22,723	26,618
	25	13,128	14,569	15,497	16,869	19,994	23,436
	30	10,636	12,238	13,135	14,282	17,273	20,250
	35	8,143	9,892	10,778	11,707	14,530	17,073

Capacity		Outlet Water Temp (℃)					
100% (120000 W)		30	35	40	45	50	55
		Power Input (W)					
Outdoor Temp. (℃)	-30	-	-	-	-	-	-
	-25	-	-	-	-	-	-
	-20	-	-	-	-	-	-
	-15	-	-	-	-	-	-
	-10	-	-	-	-	-	-
	-5	44,936	49,787	52,062	54,006	-	-
	0	39,796	42,503	44,522	46,283	55,239	-
	5	33,556	35,987	37,931	39,254	47,220	54,667
	7	31,027	32,507	34,385	35,294	42,812	49,579
	10	28,835	30,842	32,446	33,826	40,463	47,059
	15	25,125	27,121	28,692	29,919	36,116	41,916
	20	21,247	23,297	24,807	26,059	31,517	36,935
	25	17,874	20,585	23,277	24,533	29,463	34,183
	30	14,502	18,902	21,046	22,303	27,201	31,609
	35	11,298	16,522	18,824	19,966	23,377	29,328

Notes

1) Water flow rate of test condition : 345 LPM

Product Information for Commercial

INVERTER SCROLL CHILLER HEAT PUMP

PERFORMANCE TABLE FOR HEATING OPERATION

ACHH040LBAB

Capacity		Outlet Water Temp (℃)					
20% (28000 W)		30	35	40	45	50	55
		Power Input (W)					
Outdoor Temp. (℃)	-30	20,267	-	-	-	-	-
	-25	18,944	20,001	-	-	-	-
	-20	17,418	18,288	19,643	-	-	-
	-15	13,982	14,762	15,855	16,781	-	-
	-10	12,012	12,884	13,508	14,878	16,601	-
	-5	9,846	11,063	11,674	12,564	14,548	16,378
	0	8,468	9,279	10,346	11,238	12,806	14,905
	5	7,286	8,008	8,618	9,906	11,344	12,925
	7	6,498	7,617	8,254	9,095	10,907	12,493
	10	6,105	6,982	7,631	8,481	9,819	11,779
	15	5,317	6,199	6,819	7,641	9,011	10,624
	20	4,726	5,463	6,052	6,860	8,138	9,537
	25	4,135	4,826	5,400	6,204	7,340	8,657
	30	3,348	4,198	4,749	5,557	6,542	7,785
	35	2,757	3,552	4,105	4,889	5,760	6,900

Capacity		Outlet Water Temp (℃)					
40% (56000 W)		30	35	40	45	50	55
		Power Input (W)					
Outdoor Temp. (℃)	-30	-	-	-	-	-	-
	-25	35,754	37,499	-	-	-	-
	-20	32,551	34,291	36,832	-	-	-
	-15	26,388	27,676	28,460	30,409	-	-
	-10	22,449	24,158	24,952	26,331	30,119	-
	-5	18,708	19,936	21,282	22,681	25,831	29,886
	0	16,148	17,276	18,178	19,968	22,856	26,161
	5	13,194	14,823	15,704	17,024	20,074	23,137
	7	12,308	13,599	14,883	16,199	18,743	22,055
	10	11,225	12,435	13,322	15,000	17,443	20,222
	15	9,846	10,902	11,782	13,037	15,676	18,263
	20	8,271	9,389	10,270	11,474	13,569	16,350
	25	7,089	8,093	8,951	10,084	11,958	14,087
	30	5,711	6,798	7,625	8,693	10,343	11,821
	35	4,529	5,502	6,331	7,310	8,756	9,557

Capacity		Outlet Water Temp (℃)					
60% (84000 W)		30	35	40	45	50	55
		Power Input (W)					
Outdoor Temp. (℃)	-30	-	-	-	-	-	-
	-25	54,431	57,553	-	-	-	-
	-20	49,555	52,630	56,441	-	-	-
	-15	40,172	42,477	43,612	46,579	-	-
	-10	34,658	36,170	37,901	40,667	45,016	-
	-5	28,948	30,594	31,680	34,557	38,445	43,607
	0	24,222	26,223	27,334	29,632	33,532	38,233
	5	20,283	21,715	23,228	25,364	28,524	33,104
	7	18,708	20,786	21,876	23,884	27,469	31,544
	10	16,935	18,603	19,665	21,648	24,893	28,726
	15	14,966	16,220	17,455	19,331	22,017	25,913
	20	12,800	14,081	15,095	17,064	19,541	22,754
	25	10,831	12,184	13,185	14,876	17,352	20,317
	30	9,058	10,598	11,269	12,689	15,169	17,891
	35	7,089	8,399	9,360	10,507	12,985	15,451

Capacity		Outlet Water Temp (℃)					
80% (112000 W)		30	35	40	45	50	55
		Power Input (W)					
Outdoor Temp. (℃)	-30	-	-	-	-	-	-
	-25	-	-	-	-	-	-
	-20	-	-	-	-	-	-
	-15	-	-	-	-	-	-
	-10	48,640	50,788	52,171	55,224	-	-
	-5	40,566	42,672	43,910	46,161	53,212	-
	0	35,052	36,662	38,028	40,056	45,875	52,864
	5	29,932	31,540	32,706	34,852	40,065	46,220
	7	27,766	29,700	30,856	32,756	37,970	43,817
	10	25,206	27,084	28,259	30,112	34,843	40,575
	15	21,858	23,372	24,770	26,592	30,955	35,997
	20	18,511	20,038	21,165	23,051	26,926	31,542
	25	15,557	17,264	18,364	19,990	23,692	27,772
	30	12,603	14,501	15,565	16,924	20,468	23,996
	35	9,649	11,722	12,772	13,873	17,218	20,232

Capacity		Outlet Water Temp (℃)					
100% (140000 W)		30	35	40	45	50	55
		Power Input (W)					
Outdoor Temp. (℃)	-30	-	-	-	-	-	-
	-25	-	-	-	-	-	-
	-20	-	-	-	-	-	-
	-15	-	-	-	-	-	-
	-10	-	-	-	-	-	-
	-5	52,477	58,143	60,799	63,069	-	-
	0	46,474	49,635	51,994	54,051	64,509	-
	5	39,188	42,027	44,297	45,841	55,144	63,842
	7	36,234	37,962	40,155	43,078	49,997	57,900
	10	33,674	36,017	37,890	39,502	47,254	54,956
	15	29,342	31,673	33,507	34,940	42,177	48,950
	20	24,812	27,207	28,970	30,432	36,806	43,133
	25	20,874	24,868	26,809	28,276	34,033	39,545
	30	16,935	22,074	24,578	26,045	31,766	36,914
	35	13,194	19,695	21,983	23,316	27,301	34,738

Notes

1) Water flow rate of test condition : 400 LPM

Product Information for Commercial

INVERTER SCROLL CHILLER HEAT PUMP

PERFORMANCE TABLE FOR HEATING OPERATION

ACHH045LBAB

Capacity		Outlet Water Temp (℃)					
20% (32800W)		30	35	40	45	50	55
		Power Input (W)					
Outdoor Temp. (℃)	-30	24,048	-	-	-	-	-
	-25	22,478	23,732	-	-	-	-
	-20	20,667	21,700	23,308	-	-	-
	-15	16,590	17,515	18,813	19,911	22,137	24,656
	-10	14,253	15,287	16,027	17,653	19,698	22,066
	-5	11,683	13,126	13,852	14,907	17,261	19,432
	0	10,047	11,010	12,276	13,334	15,195	17,685
	5	8,645	9,501	10,225	11,754	13,459	15,336
	7	7,711	9,038	9,794	10,792	12,941	14,824
	10	7,243	8,285	9,055	10,063	11,650	13,976
	15	6,309	7,355	8,091	9,066	10,691	12,606
	20	5,608	6,482	7,181	8,140	9,656	11,316
	25	4,907	5,726	6,408	7,361	8,709	10,272
	30	3,972	4,981	5,635	6,593	7,762	9,237
	35	3,271	4,214	4,871	5,801	6,834	8,187

Capacity		Outlet Water Temp (℃)					
40% (65600W)		30	35	40	45	50	55
		Power Input (W)					
Outdoor Temp. (℃)	-30	-	-	-	-	-	-
	-25	42,423	44,494	-	-	-	-
	-20	38,623	40,688	43,702	-	-	-
	-15	31,310	32,838	33,768	36,081	40,477	45,320
	-10	26,637	28,664	29,606	31,243	35,737	40,462
	-5	22,198	23,655	25,252	26,911	30,649	35,460
	0	19,160	20,498	21,569	23,692	27,118	31,040
	5	15,655	17,587	18,634	20,200	23,818	27,452
	7	14,604	16,135	17,658	19,220	22,239	26,169
	10	13,319	14,755	15,807	17,798	20,696	23,994
	15	11,683	12,936	13,979	15,469	18,600	21,669
	20	9,814	11,140	12,186	13,615	16,099	19,400
	25	8,412	9,602	10,621	11,965	14,189	16,715
	30	6,776	8,066	9,047	10,314	12,273	14,025
	35	5,374	6,528	7,512	8,673	10,389	11,340

Capacity		Outlet Water Temp (℃)					
60% (98400W)		30	35	40	45	50	55
		Power Input (W)					
Outdoor Temp. (℃)	-30	-	-	-	-	-	-
	-25	64,585	68,289	-	-	-	-
	-20	58,799	62,448	66,969	-	-	-
	-15	47,666	50,400	51,746	55,267	61,883	69,884
	-10	41,124	42,917	44,971	48,252	53,413	61,508
	-5	34,348	36,301	37,589	41,003	45,616	51,741
	0	28,740	31,114	32,433	35,158	39,786	45,364
	5	24,067	25,766	27,561	30,095	33,844	39,278
	7	22,198	24,663	25,956	28,339	32,592	37,428
	10	20,095	22,073	23,333	25,686	29,536	34,085
	15	17,758	19,245	20,710	22,937	26,123	30,746
	20	15,188	16,708	17,910	20,247	23,186	26,998
	25	12,851	14,457	15,644	17,650	20,588	24,107
	30	10,748	12,894	13,371	15,056	17,999	21,229
	35	8,412	9,966	11,106	12,466	15,407	18,333

Capacity		Outlet Water Temp (℃)					
80% (131200W)		30	35	40	45	50	55
		Power Input (W)					
Outdoor Temp. (℃)	-30	-	-	-	-	-	-
	-25	-	-	-	-	-	-
	-20	-	-	-	-	-	-
	-15	-	-	-	-	-	-
	-10	57,714	60,261	61,902	65,524	-	-
	-5	48,134	50,631	52,100	54,771	63,137	-
	0	41,591	43,500	45,120	47,527	54,432	62,724
	5	35,516	37,423	38,806	41,353	47,538	54,840
	7	32,946	35,240	36,611	38,866	45,052	51,990
	10	29,908	32,136	33,530	35,728	41,342	48,143
	15	25,936	27,731	29,390	31,552	36,729	42,711
	20	21,964	23,776	25,113	27,350	31,949	37,425
	25	18,459	20,484	21,789	23,718	28,111	32,952
	30	14,954	17,206	18,468	20,081	24,286	28,471
	35	11,449	13,909	15,154	16,461	20,429	24,005

Capacity		Outlet Water Temp (℃)					
100% (164000W)		30	35	40	45	50	55
		Power Input (W)					
Outdoor Temp. (℃)	-30	-	-	-	-	-	-
	-25	-	-	-	-	-	-
	-20	-	-	-	-	-	-
	-15	-	-	-	-	-	-
	-10	-	-	-	-	-	-
	-5	62,266	68,987	72,139	74,832	-	-
	0	55,143	58,893	61,692	64,132	76,542	-
	5	46,498	49,865	52,559	57,591	65,429	75,749
	7	42,993	45,043	47,645	54,667	59,322	68,699
	10	39,956	42,735	44,958	46,870	56,067	65,207
	15	34,815	37,580	39,756	41,457	50,044	58,080
	20	29,441	32,281	34,374	36,108	43,670	51,178
	25	24,768	27,096	31,269	33,010	39,841	46,381
	30	20,095	24,321	29,162	30,903	37,691	43,799
	35	15,655	22,893	26,083	27,665	32,393	41,218

Notes

1) Water flow rate of test condition : 470 LPM

Product Information for Commercial

INVERTER SCROLL CHILLER HEAT PUMP

PERFORMANCE TABLE FOR HEATING OPERATION

ACHH050LBAB

Capacity		Outlet Water Temp (℃)					
20% (36000W)		30	35	40	45	50	55
		Power Input (W)					
Outdoor Temp. (℃)	-30	25,655	-	-	-	-	-
	-25	23,980	25,318	-	-	-	-
	-20	22,048	23,150	24,865	-	-	-
	-15	17,698	18,686	20,070	21,243	23,617	26,304
	-10	15,206	16,309	17,099	18,833	21,015	23,541
	-5	12,464	14,003	14,778	15,904	18,415	20,731
	0	10,719	11,746	13,097	14,226	16,210	18,868
	5	9,223	10,137	10,909	12,539	14,359	16,361
	7	8,226	9,642	10,448	11,513	13,807	15,815
	10	7,727	8,839	9,660	10,736	12,429	14,910
	15	6,730	7,846	8,632	9,672	11,406	13,448
	20	5,983	6,915	7,661	8,684	10,301	12,073
	25	5,235	6,109	6,836	7,853	9,291	10,958
	30	4,238	5,313	6,012	7,034	8,281	9,854
	35	3,490	4,496	5,196	6,189	7,291	8,734

Capacity		Outlet Water Temp (℃)					
40% (72000W)		30	35	40	45	50	55
		Power Input (W)					
Outdoor Temp. (℃)	-30	-	-	-	-	-	-
	-25	45,258	47,467	-	-	-	-
	-20	41,204	43,407	46,623	-	-	-
	-15	33,402	35,034	36,026	38,493	43,182	48,349
	-10	28,417	30,580	31,585	33,331	38,125	43,166
	-5	23,681	25,236	26,940	28,710	32,698	37,831
	0	20,440	21,869	23,011	25,276	28,931	33,115
	5	16,701	18,763	19,879	21,550	25,410	29,288
	7	15,579	17,214	18,839	20,505	23,726	27,918
	10	14,209	15,741	16,864	18,987	22,080	25,598
	15	12,464	13,800	14,914	16,503	19,844	23,118
	20	10,469	11,884	13,000	14,525	17,176	20,697
	25	8,974	10,244	11,331	12,764	15,137	17,832
	30	7,229	8,605	9,652	11,003	13,093	14,963
	35	5,733	6,964	8,014	9,253	11,083	12,098

Capacity		Outlet Water Temp (℃)					
60% (108000W)		30	35	40	45	50	55
		Power Input (W)					
Outdoor Temp. (℃)	-30	-	-	-	-	-	-
	-25	68,900	72,853	-	-	-	-
	-20	62,729	66,621	71,445	-	-	-
	-15	50,851	53,769	55,206	58,961	66,020	74,555
	-10	43,872	45,785	47,977	51,478	56,983	65,619
	-5	36,643	38,727	40,102	43,744	48,665	55,199
	0	30,660	33,194	34,601	37,509	42,445	48,396
	5	25,675	27,488	29,403	32,107	36,106	41,904
	7	23,681	26,311	27,691	30,233	34,771	39,930
	10	21,437	23,549	24,893	27,403	31,511	36,363
	15	18,945	20,532	22,095	24,470	27,870	32,802
	20	16,203	17,824	19,108	21,600	24,736	28,803
	25	13,710	15,423	16,690	18,830	21,965	25,718
	30	11,467	13,665	14,265	16,063	19,202	22,648
	35	8,974	10,632	11,849	13,300	16,437	19,558

Capacity		Outlet Water Temp (℃)					
80% (144000W)		30	35	40	45	50	55
		Power Input (W)					
Outdoor Temp. (℃)	-30	-	-	-	-	-	-
	-25	-	-	-	-	-	-
	-20	-	-	-	-	-	-
	-15	74,782	-	-	-	-	-
	-10	61,570	64,289	66,040	69,904	-	-
	-5	51,350	54,015	55,582	58,432	67,358	-
	0	44,370	46,408	48,137	50,704	58,070	66,917
	5	37,889	39,925	41,400	44,117	50,715	58,506
	7	35,147	37,596	39,058	41,464	48,064	55,466
	10	31,907	34,284	35,771	38,117	44,105	51,361
	15	27,669	29,585	31,354	33,661	39,184	45,566
	20	23,432	25,365	26,792	29,179	34,084	39,927
	25	19,692	21,853	23,246	25,304	29,990	35,154
	30	15,953	18,356	19,703	21,423	25,909	30,375
	35	12,214	14,838	16,167	17,561	21,795	25,610

Capacity		Outlet Water Temp (℃)					
100% (180000W)		30	35	40	45	50	55
		Power Input (W)					
Outdoor Temp. (℃)	-30	-	-	-	-	-	-
	-25	-	-	-	-	-	-
	-20	-	-	-	-	-	-
	-15	-	-	-	-	-	-
	-10	-	-	-	-	-	-
	-5	67,404	74,681	78,093	81,009	-	-
	0	59,693	63,754	66,784	69,425	82,859	-
	5	50,335	53,981	56,897	58,881	70,829	82,001
	7	46,541	48,761	51,577	52,941	64,219	74,369
	10	43,252	46,263	48,668	50,738	60,695	70,588
	15	37,688	40,682	43,037	44,879	54,174	62,874
	20	31,870	34,946	37,211	39,088	47,275	55,402
	25	26,811	30,877	34,915	36,800	44,194	51,274
	30	21,753	28,353	31,569	33,454	40,802	47,414
	35	16,947	24,783	28,236	29,948	35,066	43,993

Notes

1) Water flow rate of test condition : 518 LPM

Product Information for Commercial

INVERTER SCROLL CHILLER HEAT PUMP

PERFORMANCE TABLE FOR HEATING OPERATION

ACHH060LBAB

Capacity		Outlet Water Temp (℃)					
20% (42000W)		30	35	40	45	50	55
		Power Input (W)					
Outdoor Temp. (℃)	-30	30,401	-	-	-	-	-
	-25	28,416	30,002	-	-	-	-
	-20	26,126	27,433	29,465	-	-	-
	-15	20,972	22,143	23,783	25,172	-	-
	-10	18,018	19,326	20,262	22,317	24,902	-
	-5	14,769	16,594	17,511	18,846	21,822	24,566
	0	12,702	13,919	15,519	16,857	19,209	22,358
	5	10,929	12,012	12,927	14,859	17,015	19,388
	7	9,748	11,425	12,381	13,643	16,361	18,740
	10	9,157	10,474	11,447	12,722	14,728	17,669
	15	7,975	9,298	10,229	11,462	13,516	15,936
	20	7,089	8,194	9,078	10,291	12,207	14,306
	25	6,203	7,239	8,101	9,306	11,009	12,985
	30	5,022	6,296	7,124	8,335	9,812	11,677
	35	4,135	5,327	6,158	7,333	8,639	10,350

Capacity		Outlet Water Temp (℃)					
40% (84000W)		30	35	40	45	50	55
		Power Input (W)					
Outdoor Temp. (℃)	-30	-	-	-	-	-	-
	-25	53,630	56,248	-	-	-	-
	-20	48,826	51,437	55,247	-	-	-
	-15	39,582	41,514	42,690	45,614	-	-
	-10	33,674	36,237	37,427	39,497	45,178	-
	-5	28,062	29,905	31,924	34,021	38,747	44,829
	0	24,222	25,914	27,268	29,952	34,283	39,241
	5	19,791	22,234	23,557	25,537	30,111	34,705
	7	18,462	20,398	22,324	24,298	28,115	33,083
	10	16,837	18,653	19,983	22,500	26,164	30,333
	15	14,769	16,353	17,672	19,556	23,514	27,394
	20	12,406	14,083	15,405	17,212	20,353	24,525
	25	10,634	12,139	13,427	15,126	17,937	21,131
	30	8,566	10,197	11,437	13,039	15,515	17,731
	35	6,794	8,252	9,496	10,965	13,133	14,336

Capacity		Outlet Water Temp (℃)					
60% (126000W)		30	35	40	45	50	55
		Power Input (W)					
Outdoor Temp. (℃)	-30	-	-	-	-	-	-
	-25	81,646	86,329	-	-	-	-
	-20	74,333	78,945	84,661	-	-	-
	-15	60,258	63,716	65,418	69,868	-	-
	-10	51,988	54,255	56,852	61,001	67,525	-
	-5	43,422	45,891	47,520	51,836	57,668	65,411
	0	36,332	39,335	41,002	44,447	50,297	57,349
	5	30,425	32,573	34,842	38,046	42,785	49,656
	7	28,062	31,179	32,814	35,826	41,203	47,316
	10	25,403	27,905	29,498	32,472	37,340	43,090
	15	22,449	24,330	26,182	28,997	33,025	38,870
	20	19,200	21,122	22,642	25,596	29,312	34,131
	25	16,246	18,276	19,778	22,313	26,028	30,476
	30	13,588	15,897	16,904	19,034	22,754	26,837
	35	10,634	12,599	14,041	15,760	19,477	23,176

Capacity		Outlet Water Temp (℃)					
80% (168000W)		30	35	40	45	50	55
		Power Input (W)					
Outdoor Temp. (℃)	-30	-	-	-	-	-	-
	-25	-	-	-	-	-	-
	-20	-	-	-	-	-	-
	-15	-	-	-	-	-	-
	-10	72,960	76,182	78,256	82,835	-	-
	-5	60,849	64,007	65,865	69,242	79,818	-
	0	52,578	54,993	57,041	60,084	68,813	79,296
	5	44,898	47,311	49,058	52,278	60,097	69,329
	7	41,649	44,551	46,284	49,135	56,955	65,726
	10	37,809	40,627	42,389	45,168	52,264	60,862
	15	32,788	35,058	37,154	39,888	46,432	53,995
	20	27,766	30,058	31,748	34,576	40,390	47,313
	25	23,335	25,896	27,546	29,985	35,538	41,658
	30	18,905	21,752	23,348	25,386	30,702	35,994
	35	14,474	17,583	19,158	20,810	25,827	30,347

Capacity		Outlet Water Temp (℃)					
100% (210000W)		30	35	40	45	50	55
		Power Input (W)					
Outdoor Temp. (℃)	-30	-	-	-	-	-	-
	-25	-	-	-	-	-	-
	-20	-	-	-	-	-	-
	-15	-	-	-	-	-	-
	-10	-	-	-	-	-	-
	-5	78,716	87,214	91,199	94,603	-	-
	0	69,711	74,453	77,991	81,076	96,764	-
	5	58,782	63,040	66,445	68,762	82,716	95,762
	7	54,351	56,943	60,233	64,617	74,996	86,849
	10	50,511	54,026	56,836	59,253	70,880	82,434
	15	44,012	47,509	50,260	52,410	63,265	73,425
	20	37,218	40,810	43,456	45,648	55,208	64,700
	25	31,311	37,301	40,213	42,414	51,049	59,317
	30	25,403	33,111	36,867	39,068	47,649	55,371
	35	19,791	29,542	32,974	34,974	40,951	52,108

Notes

1) Water flow rate of test condition : 600 LPM

Product Information for Commercial

INVERTER SCROLL CHILLER HEAT PUMP

PERFORMANCE TABLE FOR HEATING OPERATION

ACHH067LBAB

Capacity		Outlet Water Temp (℃)					
20% (49200W)		30	35	40	45	50	55
		Power Input (W)					
Outdoor Temp. (℃)	-30	36,072	-	-	-	-	-
	-25	33,717	35,598	-	-	-	-
	-20	31,000	32,550	34,961	-	-	-
	-15	24,885	26,273	28,219	29,867	33,205	36,984
	-10	21,380	22,931	24,041	26,480	29,547	33,099
	-5	17,524	19,689	20,778	22,361	25,892	29,149
	0	15,071	16,515	18,414	20,001	22,792	26,528
	5	12,968	14,252	15,338	17,631	20,189	23,004
	7	11,566	13,556	14,691	16,188	19,412	22,236
	10	10,865	12,427	13,582	15,095	17,475	20,964
	15	9,463	11,032	12,137	13,599	16,037	18,909
	20	8,412	9,723	10,771	12,210	14,484	16,974
	25	7,360	8,589	9,612	11,041	13,063	15,407
	30	5,958	7,471	8,452	9,890	11,643	13,855
	35	4,907	6,321	7,306	8,701	10,251	12,281

Capacity		Outlet Water Temp (℃)					
40% (98400W)		30	35	40	45	50	55
		Power Input (W)					
Outdoor Temp. (℃)	-30	-	-	-	-	-	-
	-25	63,635	66,741	-	-	-	-
	-20	57,935	61,032	65,554	-	-	-
	-15	46,965	49,258	50,652	54,121	60,715	67,979
	-10	39,956	42,996	44,408	46,864	53,605	60,692
	-5	33,296	35,482	37,878	40,366	45,974	53,190
	0	28,740	30,747	32,354	35,539	40,678	46,560
	5	23,483	26,381	27,950	30,300	35,727	41,179
	7	21,905	24,203	26,488	28,830	33,359	39,253
	10	19,978	22,132	23,711	26,696	31,044	35,991
	15	17,524	19,404	20,969	23,203	27,900	32,504
	20	14,720	16,710	18,279	20,422	24,149	29,100
	25	12,618	14,403	15,932	17,947	21,283	25,072
	30	10,164	12,098	13,571	15,471	18,409	21,038
	35	8,061	9,792	11,268	13,010	15,583	17,010

Capacity		Outlet Water Temp (℃)					
60% (147600W)		30	35	40	45	50	55
		Power Input (W)					
Outdoor Temp. (℃)	-30	-	-	-	-	-	-
	-25	96,877	102,434	-	-	-	-
	-20	88,199	93,672	100,454	-	-	-
	-15	71,499	75,600	77,620	82,900	92,825	104,826
	-10	61,686	64,375	67,456	72,379	80,119	92,262
	-5	51,522	54,451	56,383	61,504	68,424	77,611
	0	43,110	46,672	48,649	52,738	59,679	68,046
	5	36,100	38,649	41,341	45,142	50,766	58,918
	7	33,296	36,994	38,934	42,508	48,889	56,142
	10	30,142	33,110	34,999	38,529	44,305	51,127
	15	26,637	28,868	31,065	34,405	39,185	46,120
	20	22,782	25,061	26,866	30,370	34,779	40,497
	25	19,277	21,685	23,467	26,475	30,882	36,160
	30	16,122	19,341	20,056	22,584	26,998	31,843
	35	12,618	14,949	16,659	18,700	23,110	27,499

Capacity		Outlet Water Temp (℃)					
80% (196800W)		30	35	40	45	50	55
		Power Input (W)					
Outdoor Temp. (℃)	-30	-	-	-	-	-	-
	-25	-	-	-	-	-	-
	-20	-	-	-	-	-	-
	-15	-	-	-	-	-	-
	-10	86,570	90,391	92,852	98,286	-	-
	-5	72,200	75,946	78,150	82,157	94,706	-
	0	62,387	65,250	67,681	71,290	81,648	94,086
	5	53,274	56,135	58,209	62,029	71,306	82,261
	7	49,419	52,860	54,916	58,299	67,578	77,985
	10	44,862	48,204	50,295	53,592	62,012	72,214
	15	38,904	41,597	44,084	47,328	55,093	64,067
	20	32,946	35,664	37,669	41,025	47,923	56,137
	25	27,688	30,726	32,684	35,577	42,167	49,427
	30	22,431	25,809	27,703	30,122	36,428	42,707
	35	17,174	20,863	22,731	24,691	30,644	36,008

Capacity		Outlet Water Temp (℃)					
100% (246000W)		30	35	40	45	50	55
		Power Input (W)					
Outdoor Temp. (℃)	-30	-	-	-	-	-	-
	-25	-	-	-	-	-	-
	-20	-	-	-	-	-	-
	-15	-	-	-	-	-	-
	-10	-	-	-	-	-	-
	-5	93,400	103,481	108,209	112,248	-	-
	0	82,715	88,340	92,538	96,198	114,812	-
	5	69,747	74,798	78,839	86,387	98,144	113,624
	7	64,490	67,564	71,467	82,000	88,984	103,048
	10	59,933	64,103	67,437	70,305	84,101	97,810
	15	52,223	56,371	59,634	62,186	75,065	87,120
	20	44,161	48,422	51,561	54,162	65,506	76,767
	25	37,152	40,644	46,904	49,516	59,762	69,571
	30	30,142	36,482	43,743	46,355	56,537	65,699
	35	23,483	34,340	39,124	41,498	48,589	61,827

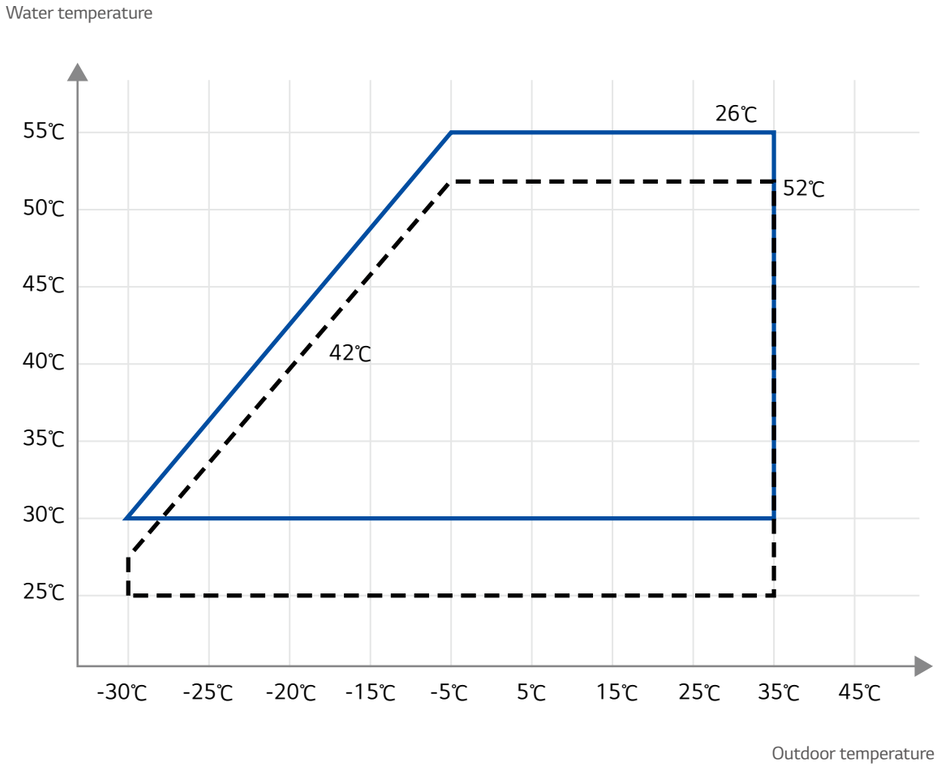
Notes

1) Water flow rate of test condition : 705 LPM

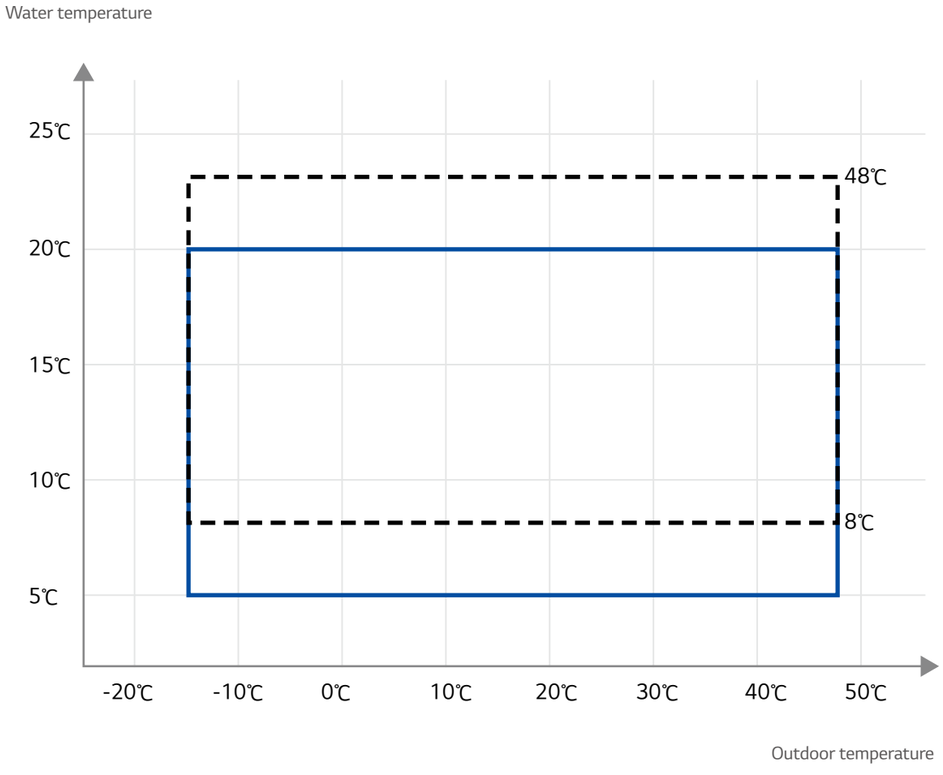
Product Information for Commercial

INVERTER SCROLL CHILLER HEAT PUMP

Operation Range of Heating Mode



Operation Range of Cooling Mode

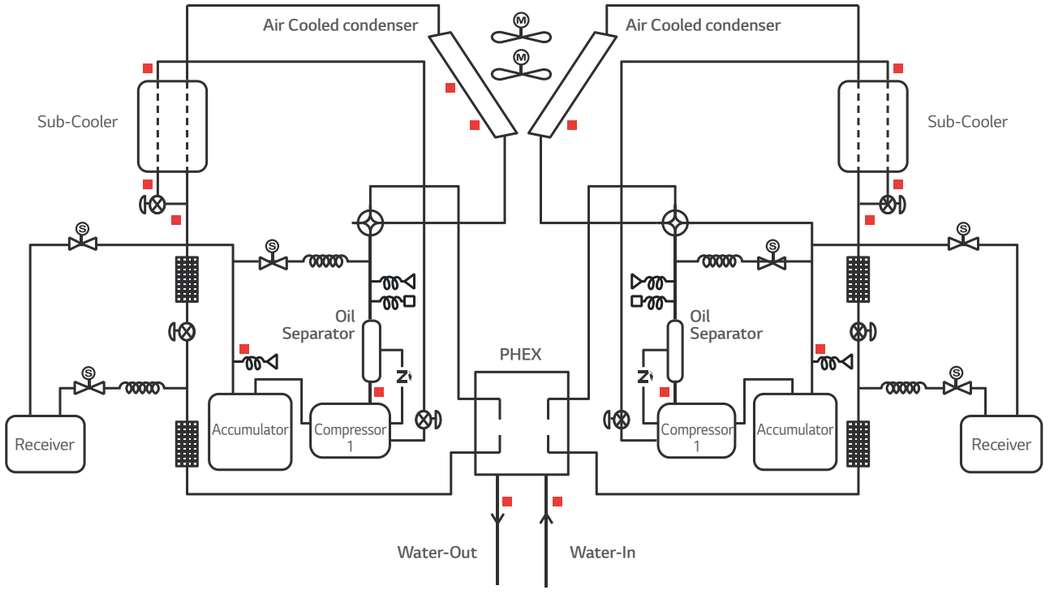


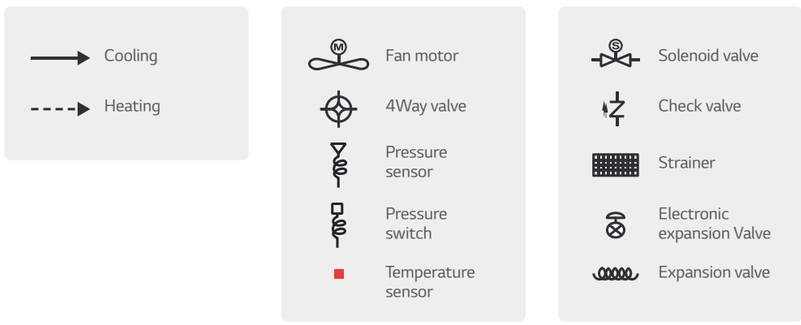
Product Information for Commercial

INVERTER SCROLL CHILLER HEAT PUMP

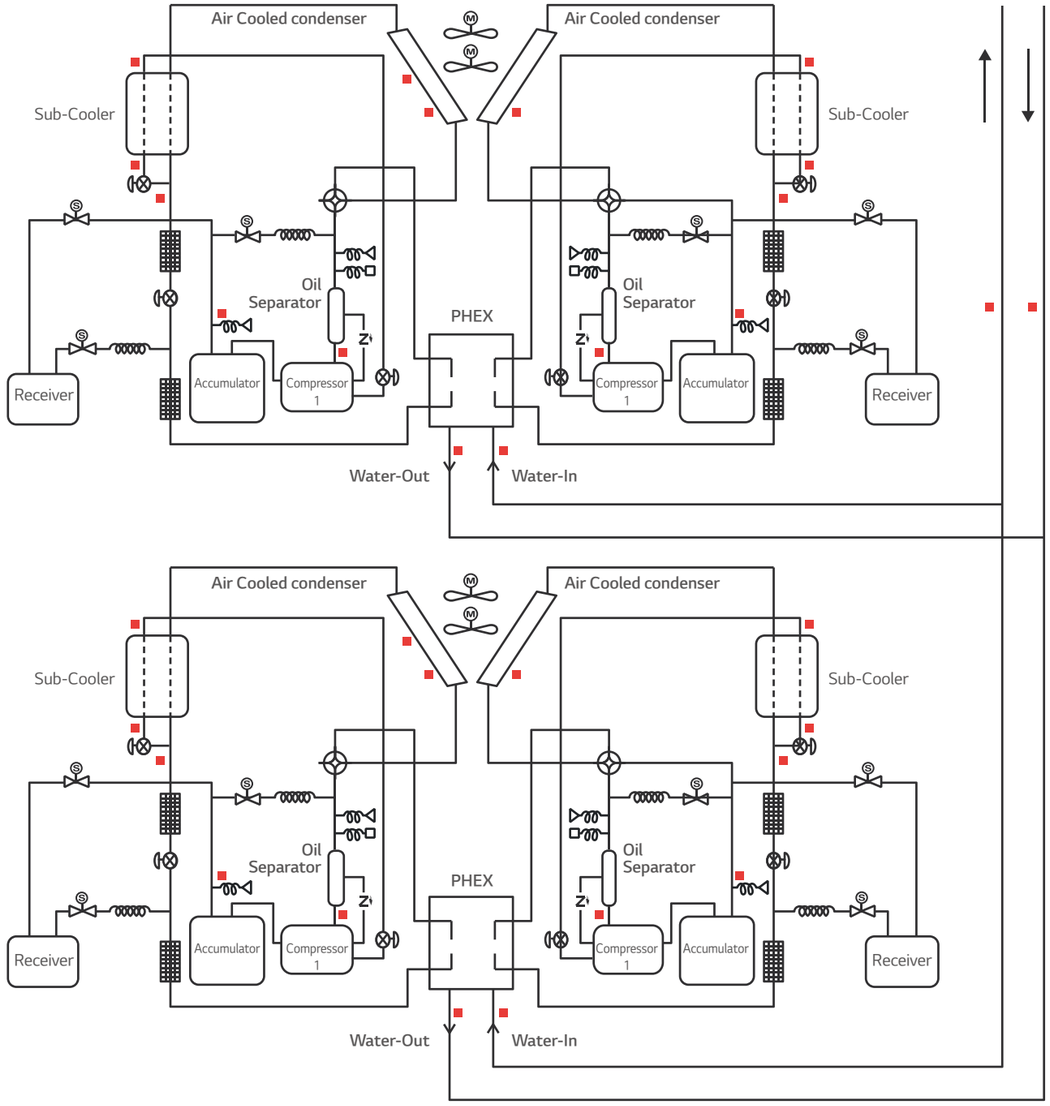
PIPING DIAGRAM

1Unit (ACHH020LBAB, ACHH023LBAB)





2Unit (ACHH033LBAB, ACHH040LBAB, ACHH045LBAB)

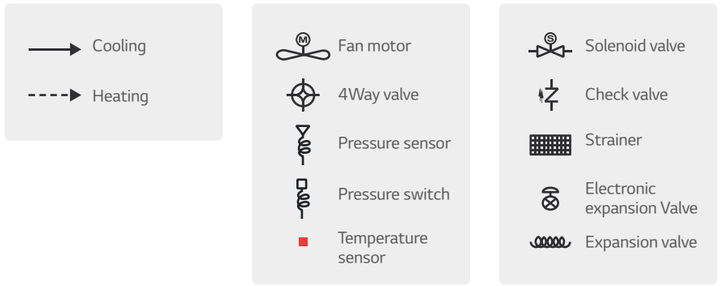


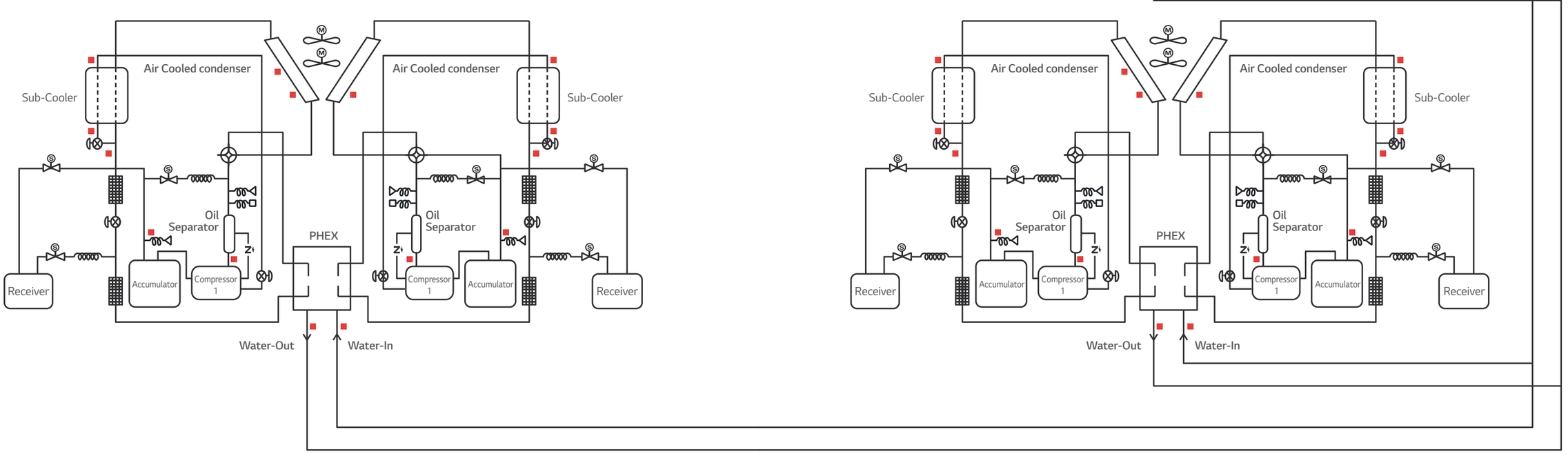
Product Information for Commercial

INVERTER SCROLL CHILLER HEAT PUMP

PIPING DIAGRAM

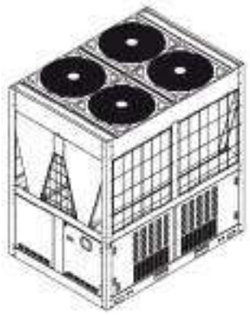
3Unit(ACHH050LBAB, ACHH060LBAB, ACHH067LBAB)

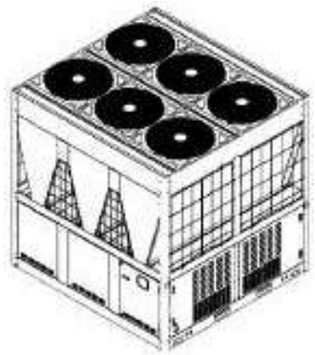




Product Information for Commercial

INVERTER SCROLL CHILLER HEAT PUMP



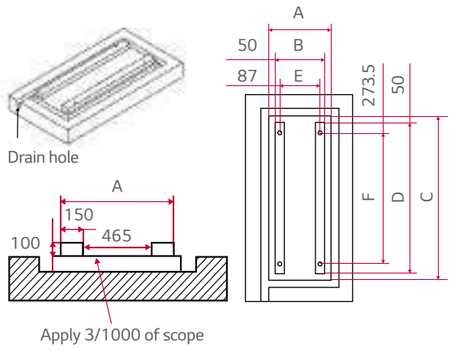


In/Out : 50A

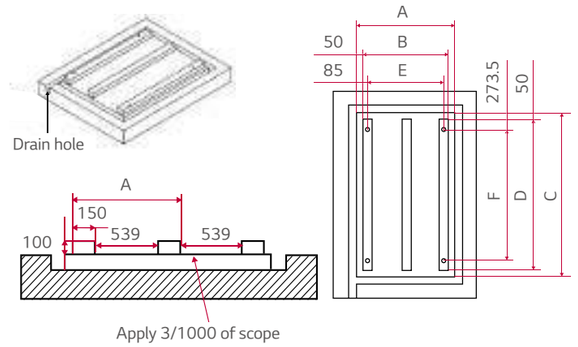
In/Out : 65A

In/Out : 65A

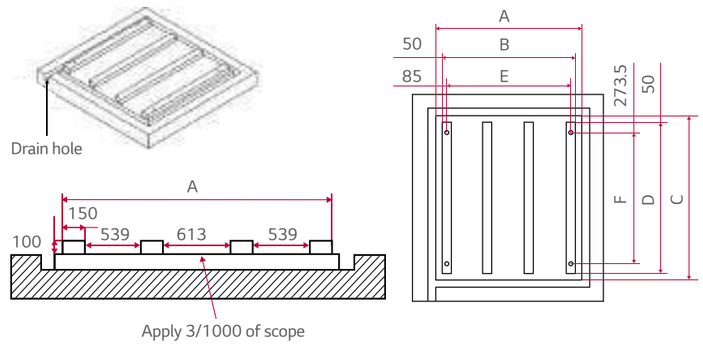
20 / 23 RT



33 / 40 / 45 RT



50 / 60 / 67 RT



			20 / 23 RT	33 / 40 / 45 RT	50 / 60 / 67 RT
Dimension	W	mm	765	1,528	2,291
	H	mm	2,293	2,293	2,293
	D	mm	2,154	2,154	2,154
Weight		Kg	520	970	1,430

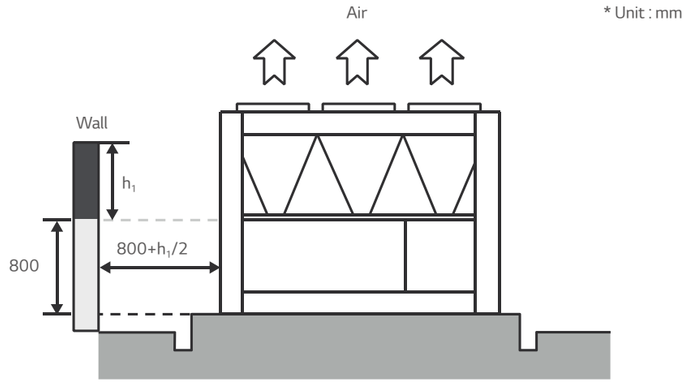
No	1 Unit	2 Unit	3 Unit
A	865	1,628	2,391
B	765	1,528	2,291
C	2,254	2,254	2,254
D	2,154	2,154	2,154
E	691	1,456	2,217
F	1,707	1,707	1,707

Product Information for Commercial

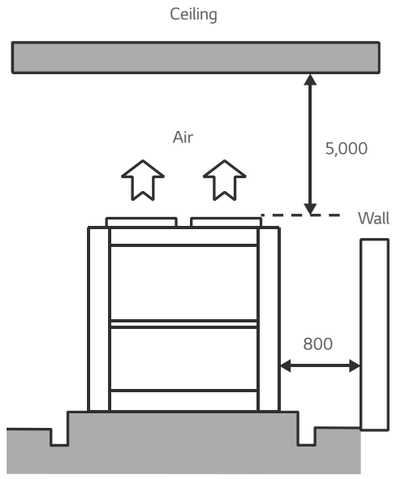
INVERTER SCROLL CHILLER HEAT PUMP

BASIC INSTALLATION SPACE

If the side of the chiller is near the wall and the height of the wall is less than 800 mm, the distance between the wall and the chiller must be at least 800 mm. If the side of the chiller is near the wall and the wall is 800 mm or higher, space of half of h1 must additionally be secured on top of the 800 mm for the distance between the wall and the chiller.

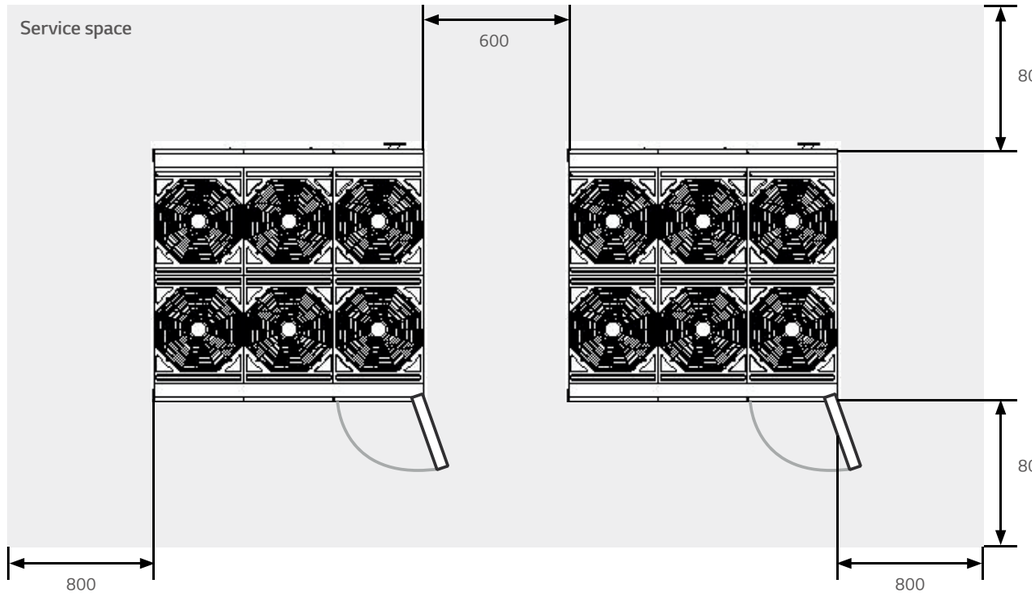


If there is a ceiling on the top part of the chiller, the distance from the chiller to the ceiling must be 5,000 mm or above. If the front or rear side of the chiller is close to the wall, the distance from the wall to the chiller must be 800 mm or above.



[Space for Ventilation]

Because this is the space where the water pipes are installed, make sure to secure sufficient space for future maintenance and repair work.



If there is a concern due to vibration,
Install additional anti-vibration system

[ISC SVC Space]

Product Information for Commercial

INVERTER SCROLL CHILLER HEAT PUMP

SOUND LEVEL

Sound Power Level

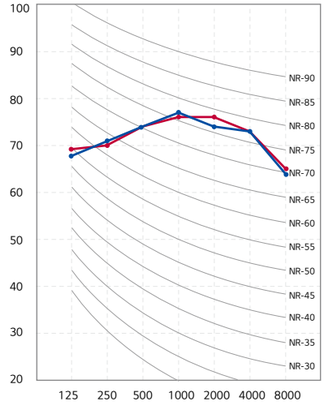
Model	Cooling	Heating
ACHH020LBAB	86	86
ACHH023LBAB	87	87
ACHH033LBAB	87	88
ACHH040LBAB	90	90
ACHH045LBAB	91	92
ACHH050LBAB	88	88
ACHH060LBAB	91	91
ACHH067LBAB	92	92

Sound Power Level

Model	
ACHH020LBAB	67
ACHH023LBAB	68
ACHH033LBAB	68
ACHH040LBAB	68
ACHH045LBAB	68
ACHH050LBAB	68
ACHH060LBAB	68
ACHH067LBAB	68

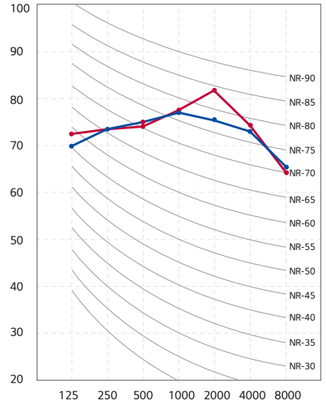
ACHH020LBAB

Sound Power Level (0dB = 10E-6μPa)



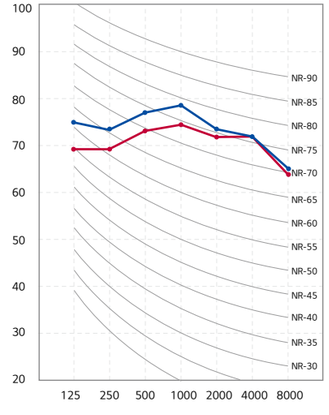
ACHH023LBAB

Sound Power Level (0dB = 10E-6μPa)



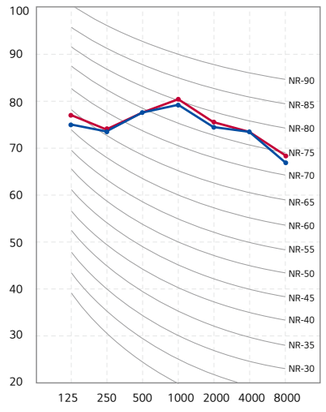
ACHH033LBAB

Sound Power Level (0dB = 10E-6μPa)



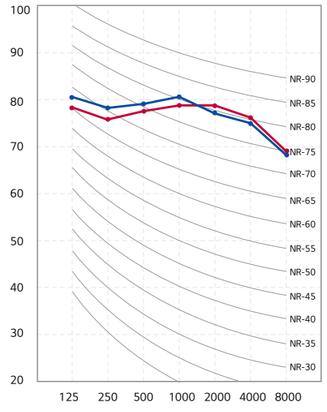
ACHH040LBAB

Sound Power Level (0dB = 10E-6μPa)



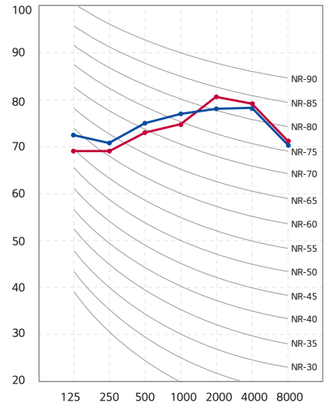
ACHH045LBAB

Sound Power Level (0dB = 10E-6μPa)



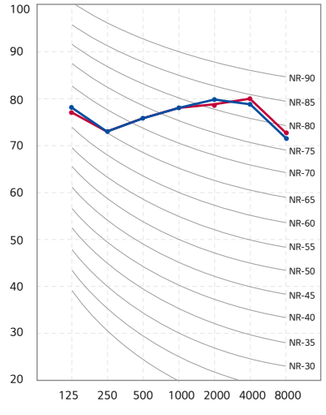
ACHH050LBAB

Sound Power Level (0dB = 10E-6μPa)



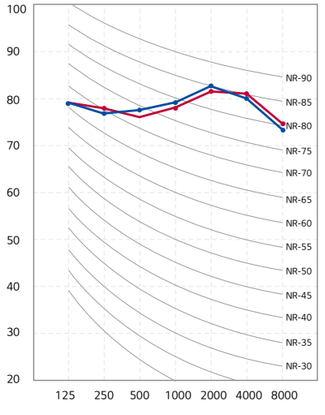
ACHH060LBAB

Sound Power Level (0dB = 10E-6μPa)



ACHH067LBAB

Sound Power Level (0dB = 10E-6μPa)



Product Information for Commercial

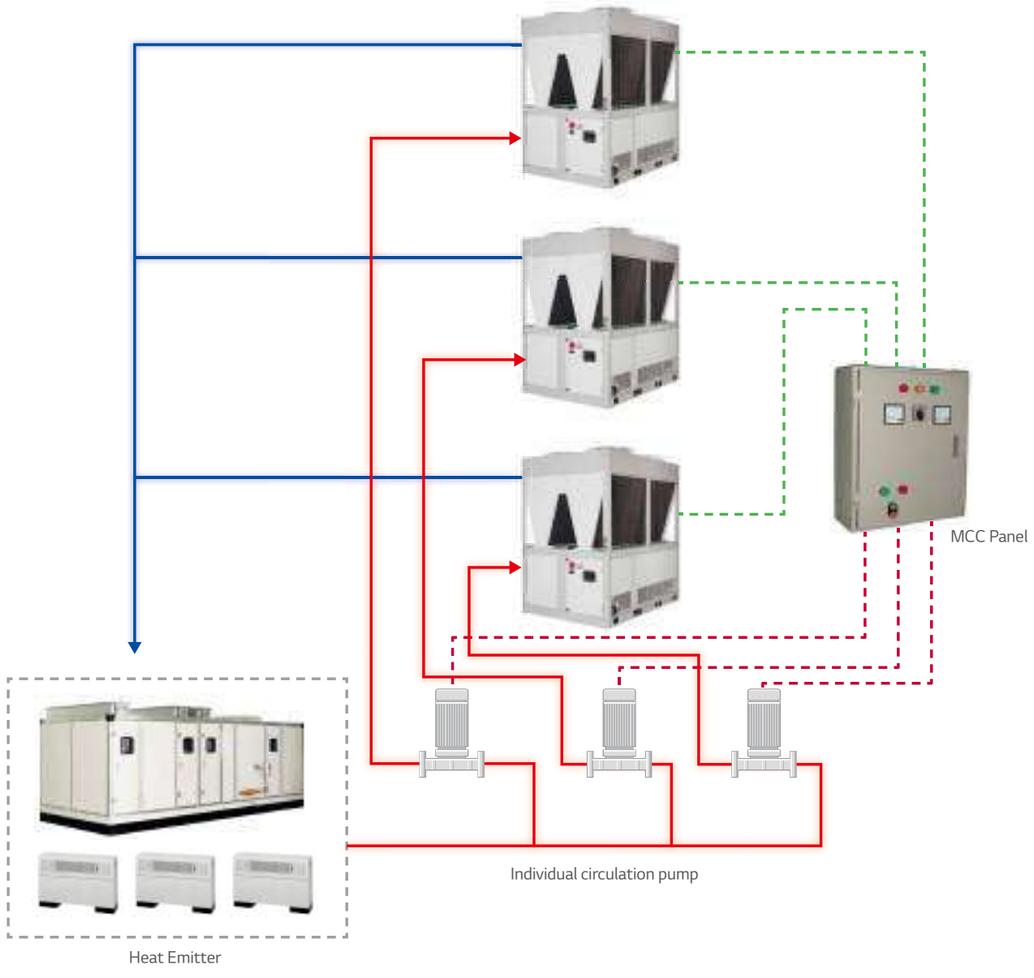
INVERTER SCROLL CHILLER HEAT PUMP

ISC CIRCULATION PUMP INSTALLATION SCENE

Case #1

- Dedicated circulation pumps for each ISC[1].
- Select the pump sized according to required water flow rate for each ISC.
- Set required water flow rate of circulation pump for every single ISC.

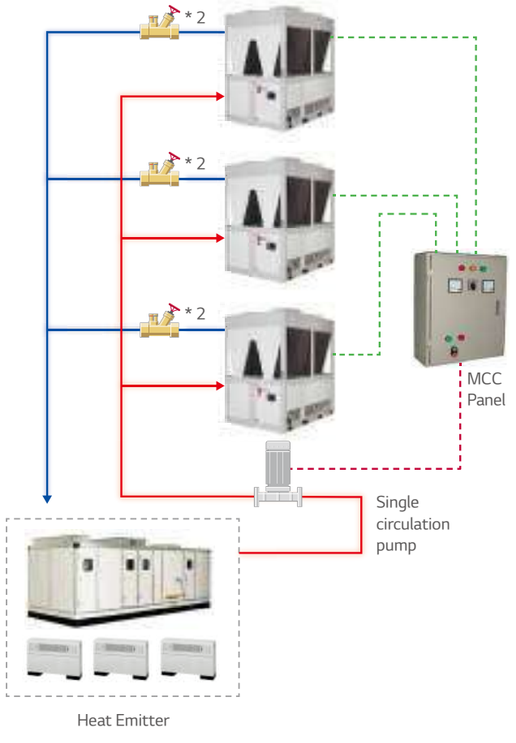
Note
1. Inverter Scroll Chiller
2. Balancing valve



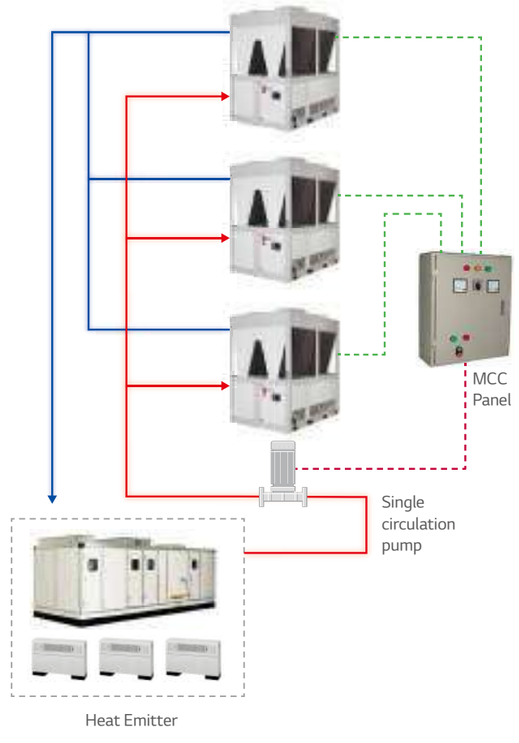
Case #2

- Single circulation pump for all ISCs.
- Single circulation pump should be sized above total required flow rate.
- In case the capacities of ISCs is not identical, balancing valves[2] should be installed on outlet of each unit with direct return piping in order to ensure required water flow rate for each ISC.
- In case the capacities of ISCs is identical, Reverse return piping or Direct return piping can be selected considering environment situation and costs.

Note
1. Inverter Scroll Chiller
2. Balancing valve



[Direct return pipng+ Balancing valve]
When ISCs are mixed at different capactity



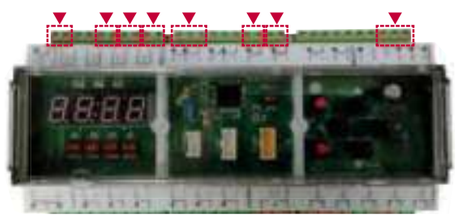
[Reverse return piping]
When ISCs have same capactity

Product Information for Commercial

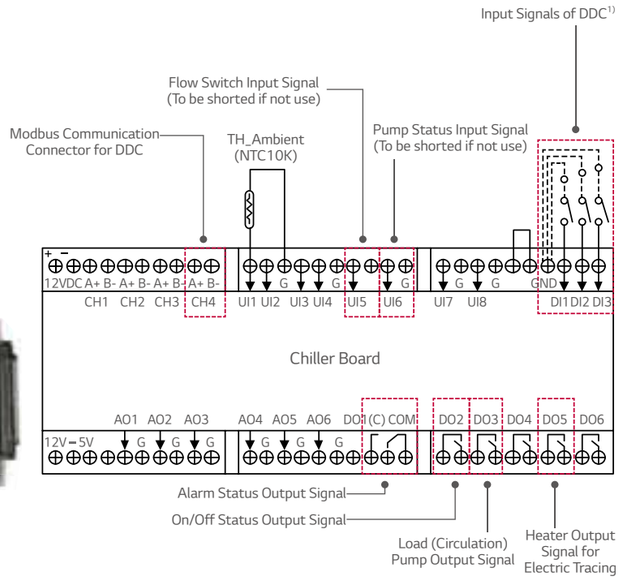
INVERTER SCROLL CHILLER HEAT PUMP

CHILLER BOARD CONNECTION

No	Contents	Remark
1	12VDC	Power
2	CH3	HMI Communication Connector
3	CH4	Modbus Communication Connector
4	UI1/G	Ambient Temp.
5	UI5/G	Load Flow Switch Input
6	UI6/G	Load Pump Interlock Input Contact
7	GND/DI1	Remote Start Input Contact
8	GND/DI2	Remote Mode Input Contact
9	GND/DI3	Remote Alarm Input Contact
10	DO1(C)/COM	Alarm Status Output Contact
11	DO2	On/Off Status Output Contact
12	DO3	Load Pump Output Contact
13	DO5	Heater Output Contact



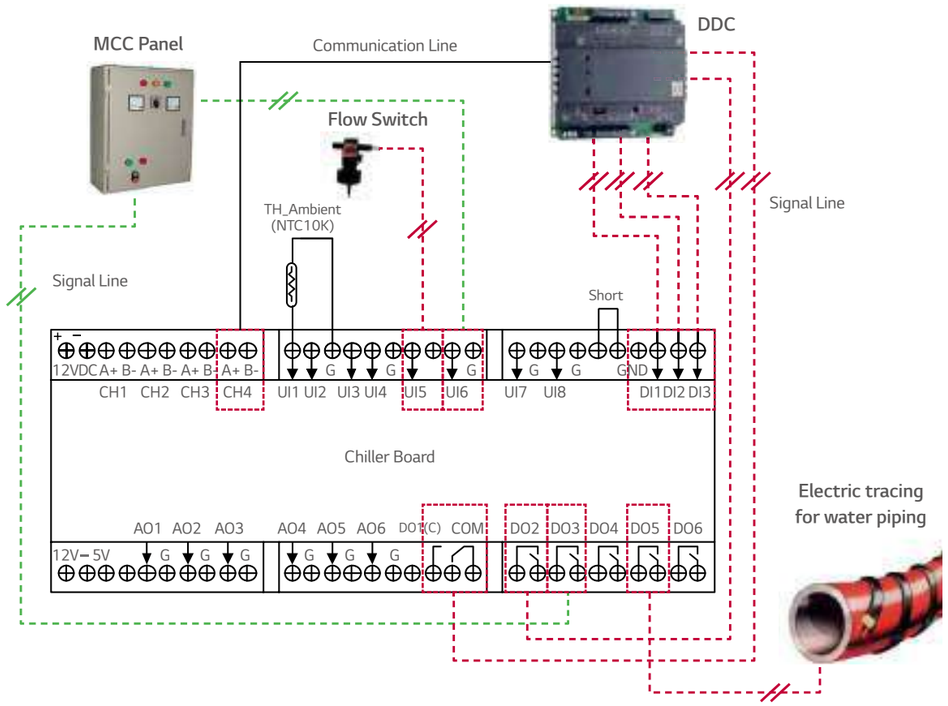
[Main controller]



CENTRAL CONTROL BY DDC (DIRECT DIGITAL CONTROL)

Field wiring to be done as below when ISC is controlled by external central controller (DDC)

No	Contents	Remark
1	12VDC	Power
2	CH3	HMI Communication Connector
3	CH4	Modbus Communication Connector
4	UI1/G	Ambient Temp.
5	UI5/G	Load Flow Switch Input
6	UI6/G	Load Pump Interlock Input Contact
7	GND/DI1	Remote Start Input Contact
8	GND/DI2	Remote Mode Input Contact
9	GND/DI3	Remote Alarm Input Contact
10	DO1(C)/COM	Alarm Status Output Contact
11	DO2	On/Off Status Output Contact
12	DO3	Load Pump Output Contact
13	DO5	Heater Output Contact



Controller & Others

Controller & Others

CONTROLLER & EXTERNAL DEVICE FOR WATER SOLUTION

Model name	Feature	Therma V	Hydro Kit	ISC
AC Ez touch (PACEZA000) 	• 5 inch color display • Touch screen interface • Max 64 unit control • Yearly schedule • Error history • Remote controller lock • PC access supported • DI 1EA (Emergency stop only)	▲ 1)	●	-
AC Smart 5 (PACS5A000) 	• 10.2 inch color display • Touch screen interface • Max 128 unit control • Yearly schedule • Operation trend 4) • Device Interlock • Error Email alarm • Remote controller lock • Visual floor plan navigation • Additional I/O module applicable 5) • Web access supported • DI 2EA, DO 2EA • BACnet IP Protocol Support 4) • Modbus TCP Protocol Support 4)	▲ 1)	●	● 2)
ACP 5 (PACP5A000) / ACP IV (PACP4B000) 	• Web Access Controller • Max 256 unit control • Yearly schedule • Operation trend 4) • Device Interlock • Error Email alarm • Remote controller lock • Visual floor plan navigation • Additional I/O module applicable 5) • DI 10EA, DO 4EA • BACnet IP Protocol Support 4) • Modbus TCP Protocol Support 4)	▲ 1)	●	● 2)
ACP BACnet (PONFB17C0) 	• Web Access Controller • Max 256 unit control • ACP Function included • BACnet IP Protocol Support • Modbus TCP Protocol Support	-	●	-
ACP Lonworks (PLNWKB000) 	• Web Access Controller • Max 64 unit control • ACP Function included • Lonworks Protocol Support	-	●	-

1) Integrated Water Tank is not applied for this
2) Chiller option kit (PCHLLN000) required
• It is available for 5 series controllers only (ACP 5, AC Smart 5)
• Port no. of ACS I/O module (PEXPMB000) : DI x 3, DO x 3, AO x 4, UI (DI or AI) x 4

Model name	Feature	Therma V	Hydro Kit	ISC
Simple Dry Contact (PDRYCB000) 	• 1 set per 1 unit • 1 input Contact for turning on/off • Input power : 220-240 V • 2 output contacts - Operation status - Error status	●	●	-
Dry Contact for thermostat (PDRYCB300) 	• 1 set per 1 unit • Non voltage or 12 ~ 24 V • 8 input Contacts for thermostat - On/Off, Operation mode, DHW heating - Emergency mode, Silent mode • 2 output contacts - Operation status - Error status	▲ 1)	-	-
Wi-Fi Modem (PWFMDD200) 	• LG Mobile app. control (ThinQ) on Android or iOS smartphone • Basic control function - On/Off, Operation mode, Set temp. - DHW heating and Set temp. • Weekly on/off schedule • Error status check • Frequency : 2.4 GHz • IEEE 802.11b/g/n supported	▲ 1)	●	-
Meter Interface (PENKTH000) 	• Energy meter interface to monitor Electricity and Heat energy - Max. 3 Watt-hour meter - Max. 1 Heat meter - Pulse width : 40ms ~ 100ms • Modbus RTU comm. With Therma V - 2 wire RS485 / 9600 bps	▲ 1)	-	-
Remote Temp. Sensor (PQRSTA0) 	• Sensor for detecting the room air temperature • Max. wire length : 15m	▲ 1)	●	-
PI485 Gateway 	• Interface module for LGAP or Modbus communication - For Monobloc & Split : PMNFP14A1 *This is for LGAP comm. with central controller - For IWT : PP485B00K *This is for Modbus comm. with indoor unit	●	-	-

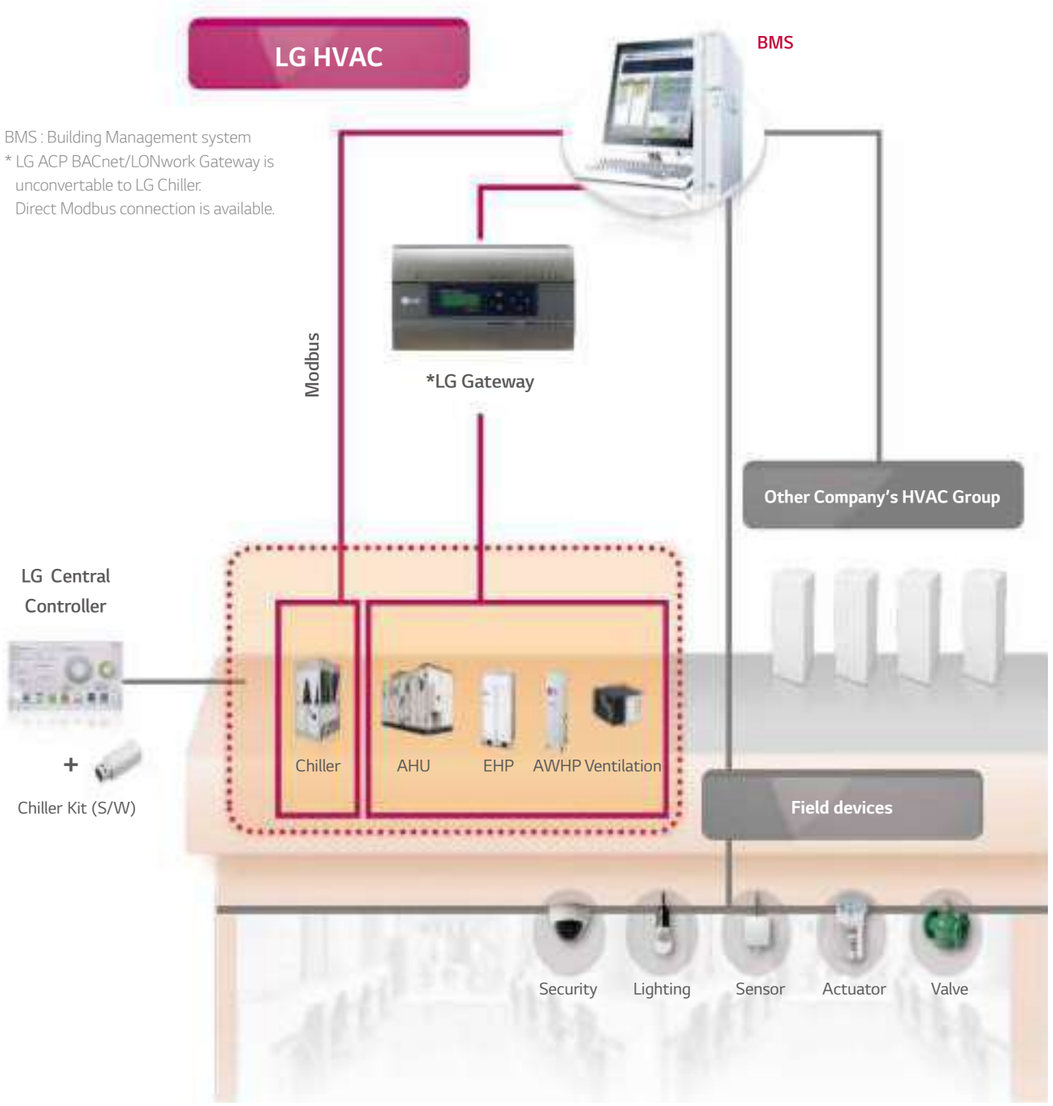
1) Integrated Water Tank is not applied for this

Controller & Others

CONTROLLER & EXTERNAL DEVICE FOR WATER SOLUTION

CENTRAL CONTROL

Heat Pump System



INDIVIDUAL CONTROL

LG's control system provides a variety of solutions that save operational costs and deliver efficient energy control. Standard III Remote Controller with relevant accessories offers not only simple interface to make it easier to control but also diverse information and management function.

Individual control

Mobile Remote Control
- LG Mobile App, Control (ThinQ)
- Operation Schedule
- Error Check

Energy Monitor
- Power Consumption Check
- Produced Heat Energy Check
- Yearly Trend

Remote Controller
- 4.3" Color Display
- Easy Interface
- Multi Language

Dry Contact for Thermostat
- Interface for 3rd Party Thermostat
- On/Off and Operation Mode Control
- Operation and Error Status Monitor

Interface
- Annual Operation Schedule
- Operation History
- Easy Commissioning

LG Wi-fi

Access your THERMA V & Hydro Kit anytime from anywhere

Search "LG Smart ThinQ" on Google market or App store then download the app.

Simple operation for various functions

- On/Off
- Current temperature
- On/Off Reservation
- Operation Mode Selection
- Set temperature
- Energy Monitoring

Mandatory Accessory : PWFMDD200 (LG Wi-Fi Modem) and PWYREW000 (10m extension connect cable in between THERMA V and Wi-Fi module)

Controller & Others

CONTROLLER & EXTERNAL DEVICE FOR WATER SOLUTION

THERMA V CONFIGURATOR

Easy installtion and Commissioning

Installer Office

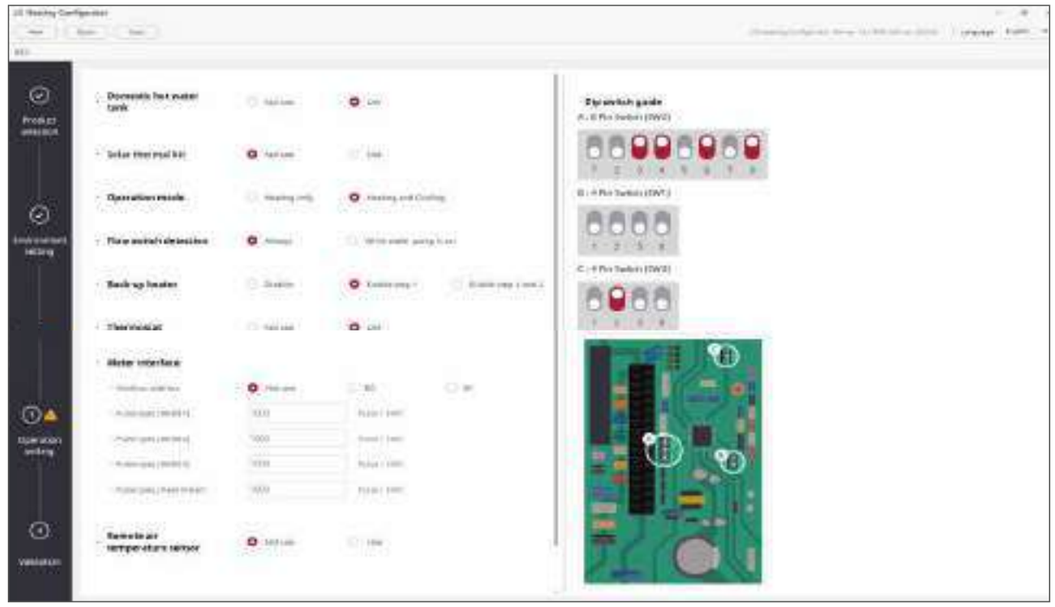
- Download the software from our LG B2B Portal website.
- Install the program on your PC.
- Run the program and set it according to the user conditions.
- After finishing setting, save to Micro SD Memory card.

On Site

- Insert the card on back of RS3 wired remote controller
- Go to configuration mode and load the saved file.

Features

*Only available for Therma V



[Configurator on PC screen]

- Environment setting
- Operation setting
- Display setting of Dip S/W

The configurator consists of an install software and a language pack as excel format.
You can down the packages in our LG B2B Portal.
In addition, the user can register and use the desired language.

[Install S/W] [Language pack]

Controller & Others

CONTROLLER & EXTERNAL DEVICE FOR WATER SOLUTION

DOMESTIC HOT WATER TANK

OSHW-200F.AEU
OSHW-300F.AEU
OSHW-500F.AEU
OSHW-300FD.AEU

Double Coil Single Coil

Domestic Hot Water Tank			OSHW-200F	OSHW-300F	OSHW-500F	OSHW-300FD
General Characteristics	Water Volume	L	200	300	500	300
	Diameter	mm	640	640	810	640
	Height	mm	1,350	1,850	1,900	1,850
	Empty Weight	kg	61	100	146	106
	Tank Materials	-	STS, F18	STS, F18	STS, F18	STS, F18
	Color	-	Grey	Grey	Grey	Grey
Specification of Electric Back-up	Additional Electric Heater	W	2,400	2,400	2,400	2,400
	Power Supply	Ø / V / Hz	1/230V/50-60Hz	1/230V/50-60Hz	1/230V/50-60Hz	1/230V/50-60Hz
	Adjustable Thermostat	℃	0 ~ 90	0 ~ 90	0 ~ 90	0 ~ 90
Specification of Heat Exchanger	Heat exchanger type	-	Single	Single	Single	Single
	Material	-	F18 STEEL	F18 STEEL	F18 STEEL	F18 STEEL
	Maximum water temp	℃	90	90	90	90
	Coil Surface	m^2	2.3	3.1	4.8	3.1 + 0.97
Water connections	Heat Pump Inlet	inch	1 BSP Female	1 BSP Female	1 1/4 BSP Female	3/4 BSP Female (Upper Coil)
	Heat Pump Outlet	inch	1 BSP Female	1 BSP Female	1 1/4 BSP Female	3/4 BSP Female (Upper Coil)
	Solar Inlet	inch	-	-	-	1 BSP Female (Lower Coil)
	Solar Outlet	inch	-	-	-	1 BSP Female (Lower Coil)
	City Water Inlet	inch	3/4 BSP Male	3/4 BSP Male	1 BSP Male	3/4 BSP Male
	City Water Inlet	inch	3/4 BSP Female	1 BSP Female	1 BSP Female	1 BSP Female
Energy Efficiency Class		-	B	B	B	B
Standing Heat Loss		W	61	70	83	70

Mandatory Optional Accessories				
Domestic Hot Water Tank Installation Kit	PHLTB	PHLTB	PHLTB	PHLTB
Optional Accessories				
Mixing Valve (¾" dn20)	OSHA-MV	OSHA-MV	OSHA-MV	OSHA-MV
Mixing Valve (1" dn25)	OSHA-MV1	OSHA-MV1	OSHA-MV1	OSHA-MV1
3Way Valve	OSHA-3V	OSHA-3V	OSHA-3V	OSHA-3V

ELECTRIC BACK UP HEATER

HA031M.E1
HA061M.E1

Electrical Specification			HM031M.E1	HM061M.E1
Backup Heater	Type	-	Sheath	Sheath
	Number of Heating Coil	EA	1	2
	Capacity Combination	kW	3.0	3.0 + 3.0
	Operation	-	Automatic	Automatic
	Steps	Step	1	2
	Power Supply	V / Ø / Hz	220-240 / 1 / 50	220-240 / 1 / 50
Wiring Connections	Maximum Current	A	12.0	24.0
	Power Cable (H07RN-F)	No. x mm^2	3 x 1.5	3 x 4.0
	Communication Cable (H07RN-F)	No. x mm^2	4 x 0.75	4 x 0.75

Others

No	Part Name	Part Number
1	RS3 Remote controller	AKB74855311
2	Mixing valve	OSHA-MV
3	3Way valve	OSHA-3V
4	DHW Tank Kit	PHLTA / PHLTB / PHLTC
5	DHW Temp sensor	PHRSTA0
6	Solar Kit	PHLLA
7	Temp sensor for Backup heater	EBG6110723

Solar
(Photovoltaic)

ESS
(Energy storage system)

Solar & ESS

RESIDENTIAL & COMMERCIAL

By using Energy Storage Systems (ESS), households can save energy generated from solar panels to use it at times when electricity prices are high or there is a power-cut. Furthermore, Energy Storage Systems (ESS) make it possible to be completely independent from the grid.

Electricity Bill Saving

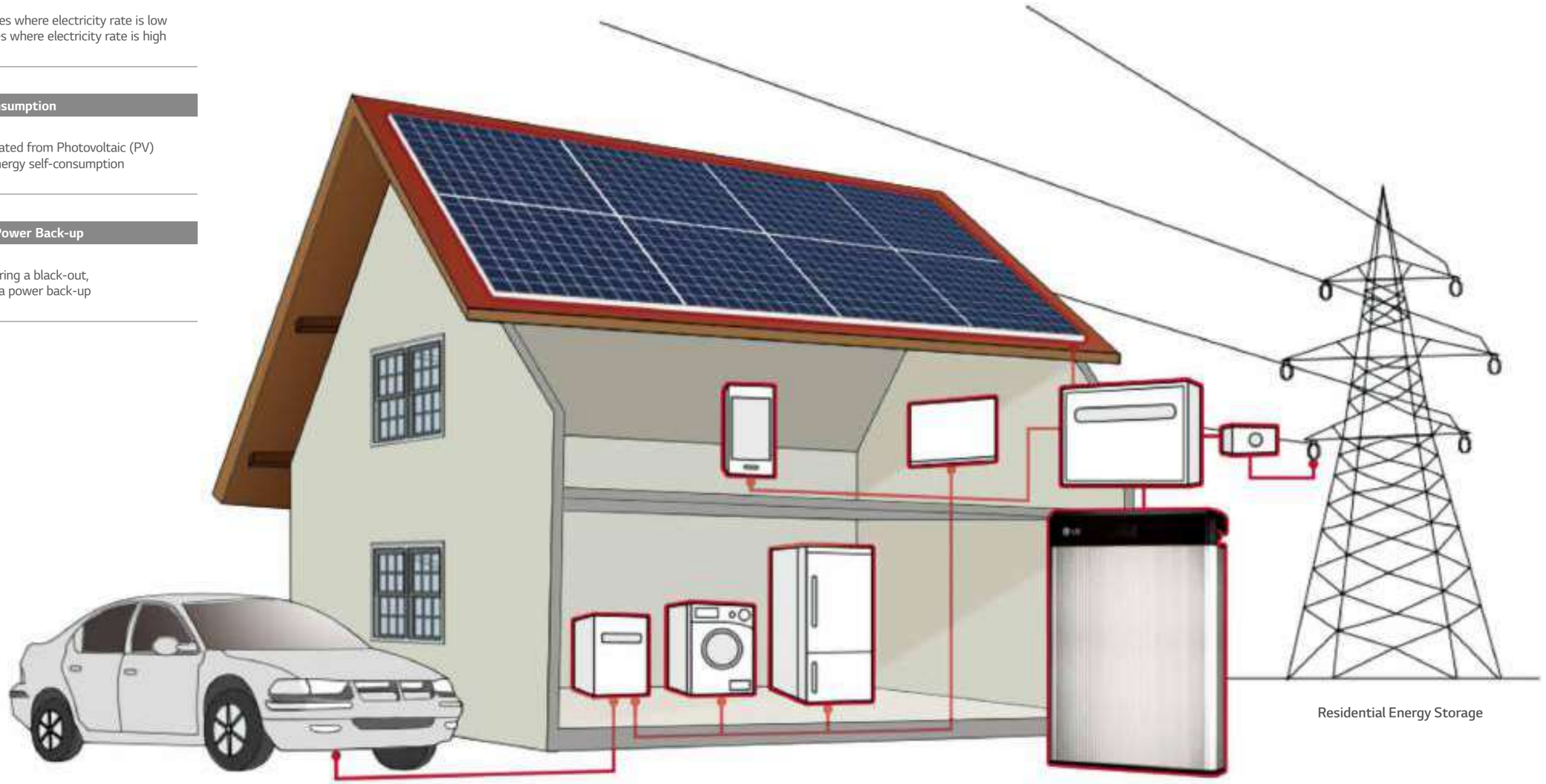
- Charge during off-peak times where electricity rate is low
- Discharge during peak times where electricity rate is high

Self-consumption

- Store solar energy generated from Photovoltaic (PV) panels allowing an energy self-consumption

Emergency Power Back-up

- Discharge during a black-out, functioning as a power back-up



Residential Energy Storage

SOLAR (PHOTOVOLTAIC)

Heat Pump System

LG NeON® R

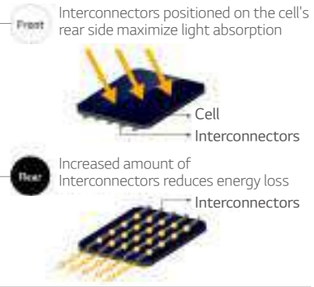
370 W
365 W
360 W

LG NeON® R
60Cell

The LG NeON®R is a sleek molecule that eliminates metal electrodes on the front side. The module's environmental and aesthetic design is ideal for roofs, offering a clean, sleek modern exterior and increasing the home's value.

Delivers premium
black frame

Eliminates electrodes
on the front of cells



LG NeON® 2

340 W
335 W
330 W

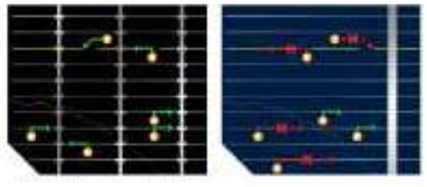
LG NeON® 2
60Cell

320 W

LG NeON® 2 Black
60Cell

400 W
395 W

LG NeON® 2
72Cell



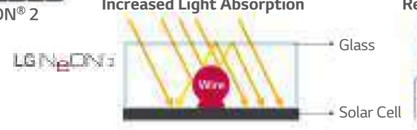
Multiple electrical paths maintained by wires

Technical Feature

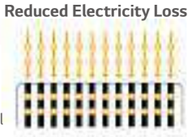
Cello Technology™

12 Wires

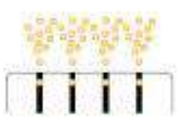
Increased Light Absorption



Reduced Electricity Loss



Conventional
Ribbon Product



LG NeON® 2 BiFacial

340 W
335 W
330 W

LG NeON® 2 Bifacial
72Cell

N-type Cell (double-sided generation cell structure)

The LG NeON® cell which can generate energy on both sides, LG developed the optimized module for bifacial generation.

LG NeON® 2 BiFacial

Conventional Monofacial Product

Product Model	LG NeON® R 60cell		
Cell Type	Monocrystalline / N-type		
# of Cells	60cell (6 x 10)		
Maximum Power	370W	365W	360W
Module Efficiency	21.4%	21.1%	20.8%
Dimensions (L x W x H)	1,700 x 1,016 x 40 mm		
Weight	18.5kg		
Output Warranty of Pmax	Linear Warranty (First year : 98%, After 1st year : 0.4% annual degradation, 25years : 88.4%)		
Product Warranty	25years		

Product Model	LG NeON® R 60cell		LG NeON® 2 Black 60cell
Cell Type	Monocrystalline / N-type		Monocrystalline / N-type
# of Cells	60cell (6 x 10)		60cell (6 x 10)
Maximum Power	340W	335W	320W
Module Efficiency	19.8%	19.6%	18.7%
Dimensions (L x W x H)	1,686 x 1,016 x 40 mm		1,686 x 1,016 x 40 mm
Weight	18.5kg		18kg
Output Warranty of Pmax	Linear Warranty (First year : 98%, After 1st year : 0.5% annual degradation, 25years : 86%)		
Product Warranty	25years		

Product Model	LG NeON® 2 Silver 60Cell		LG NeON® 2 Black 72cell	
Cell Type	Monocrystalline / N-type		Monocrystalline / N-type	
# of Cells	60cell (6 x 10)		72cell (6 x 12)	
Maximum Power	335W	330W	400W	395W
Module Efficiency	19.6%	19.3%	19.3%	19.1%
Dimensions (L x W x H)	1,686 x 1,016 x 40 mm		2,024 x 1,024 x 40 mm	
Weight	18.5kg		21.7kg	
Output Warranty of Pmax	Linear Warranty (First year : 98%, After 1st year : 0.5% annual degradation, 25years : 86%)			
Product Warranty	25years			

Product Model	LG NeON® R BiFacial	
Cell Type	Monocrystalline / N-type	
# of Cells	72cell (6 x 12)	
Maximum Power	395W	390W
Module Efficiency	18.7%	18.5%
Dimensions (L x W x H)	2,024 x 1,024 x 40 mm	
Weight	22.1kg	
Output Warranty of Pmax	Linear Warranty (First year : 98%, After 1st year : 0.5% annual degradation, 25years : 86%)	
Product Warranty	25years	

Solar & ESS

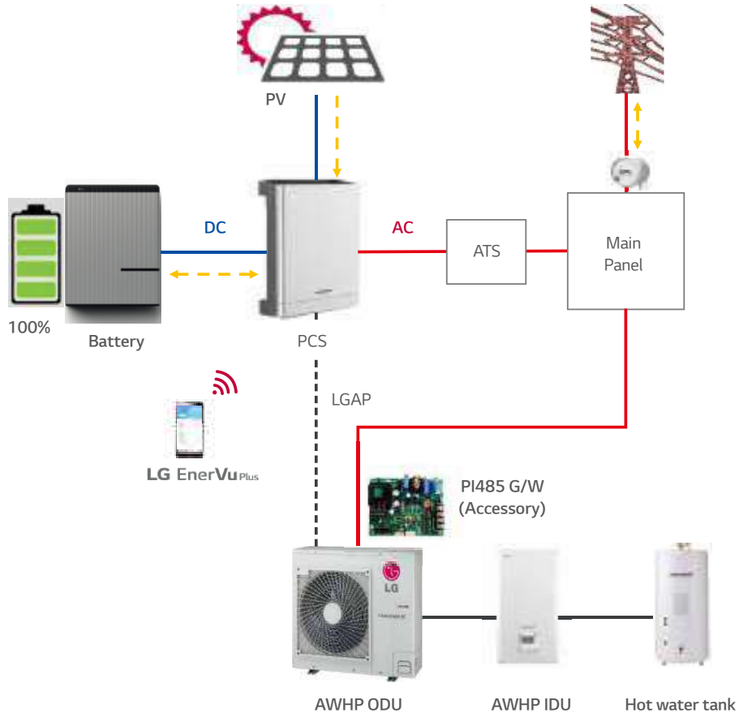
ESS (ENERGY STORAGE SYSTEM)

Our innovative Smart Home Energy Package is the world's first all-integrated energy package comprising all the main systems needed to generate energy at home. By combining three products in one package, (PV Solar, Energy Storage System, Air-to-Water Heat Pump), it enables customers to generate their own renewable energy and store it intelligently to use it later when needed.

[PV Solar Module]

[Energy storage system]

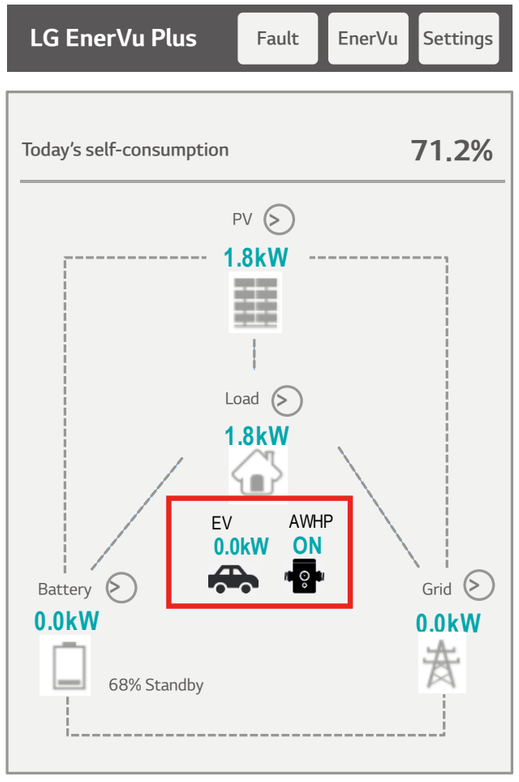
[Air to Water Heat pump]



PV + LG ESS + LG Therma V integration (by LGAP)
For Modbus, please connect LG engineer

UX FEATURES (HOME – ENERGY OVERVIEW)

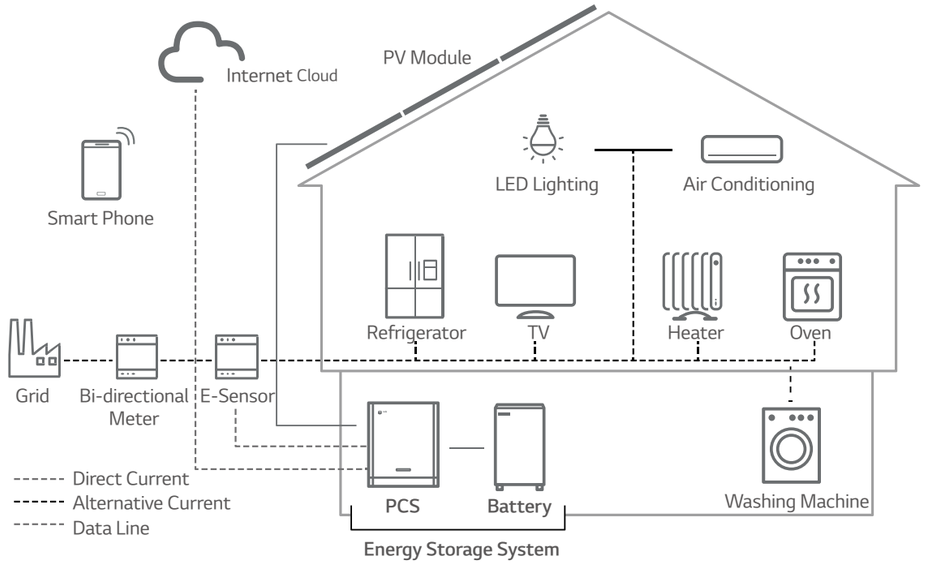
AWHP ON / OFF status indication when AWHP is installed



Possible to check your mobile app. for the energy information

Solar & ESS

ESS (ENERGY STORAGE SYSTEM)



LG Electronics provides energy storage system to enhance self- consumption rate of photovoltaic systems. LG's DC-coupled ESS converts power more efficiently than AC-coupled ESS. Thus, LG ESS can achieve higher efficiency.
Furthermore, LG ESS generates the three-phase AC current producing the balanced grid power.
Above all, the user-friendly mobile application helps the easy system set-up. The web monitoring function also allows installers and users to check their system status anytime and anywhere.

5kW / 6.4 kWh

5 kW / 12.8 kWh
(with expansion pack)

* Expansion pack includes one expansion kit and one battery pack
** If you wish to install additional batteries, we recommend within 1 year after the first ESS installation date.

DC Input

Max. Input Voltage	880 V
Min. Input Voltage	210 V
Max. DC Power	6.6 kW (3.3kW per MPPT)
Input Voltage Range MPPT at Rated AC Output Power	210 ~ 680 V
Number of MPPT	2
Number of String per MPPT	1
Max. Input Current per MPT	13 A

AC Output

Rated Grid Voltage	3-NPE 400 V/230 V
AC Voltage Range	319 ~ 458 V / 184 ~ 264.5 V
Frequency (Frequency Range)	50 Hz (47.5 Hz ~ 51.5 Hz)
Max. Output power	5.6 kVA
Rated Output Power	5 kW
Max. Output Current	8 A
Total Harmonic Distortion / Power Factor with Rated Power	< 5 % / ±0.9
Phases	3

Battery

Battery Type	Lithium Polymer
Max. Charger Power	3.0 kW
Capacity (Expandable)	6.4 kWh (max. 12.8 kWh)
DoD	90 %
Current Capacity	31.5 Ah
Rated Input Voltage	207.2 V

Energy Meter Compatibility List

Manufacturer	Model
ABB	B23 112-100, B23 212-100, B23 312-100

Efficiency (PCS)

Max. Efficiency (PV to Grid)	97.7 %
European Efficiency (PV to Grid)	96 %

General Data

Dimension (W/H/D, mm)	408/490/185 (PCS) 408/682/180 (Battery)
Weight (PCS/Battery)	25 kg / 58 kg
Operation Temperature	0°C ~ 40°C

Feature & Function

Noise emission (Typical)	< 40 dB
Cooling Type	Forced Convection
Topology	Transformerless
Degree of Protection	IP21
Max. Permissible Value of Relative Humidity (Non-condensing)	85 % (Climate Class 3K5)
Warranty (PCS)	10 years
Warranty (Battery)	10 years (SOH 80 %)
Certification (PCS)	IEC/EN 62109-1/-2, VDE-AR-N 4105, VDE 0126-1-1, OVE/ONORM E 8001-4-712, TOR D4:2016, IEC61000 Series
Certification (Battery)	CE/IEC 62133/IEC 62619/UN38.3

Battery Expansion Kit (option)

Model : APEPT000008

Dimension (W/H/D, mm)	300/270/85
Weight	3.7 kg
Operating Voltage Range	168 - 232.4 Vdc
Max. Charging/Discharging Current	19 A
Communication	CAN
Safety	IEC 62477-1
Degree of Protection	IP21
Warranty	10 years

Certifications for Germany, Swizerland and Austria

	Old version	New version	Coverage
PCS	IEC 62109-1 / -2 VDE AR-N 4105 VDE 0126-1-1	IEC 610000 series IEC / EN 52109 -1/-2 VDE-AR-N 4105 VDE 0126-1-1	Germany Swizerland
PCS	OVE/OMORM E 8001-4-712 TOR D4 : 2016		Austria
Battery Pack	CE / IEC 621133 / IEC 62619 / UN38.3		Aoo European countries

Check list

Iris Hellas
Technology Innovations
www.irishellas.com

Check list

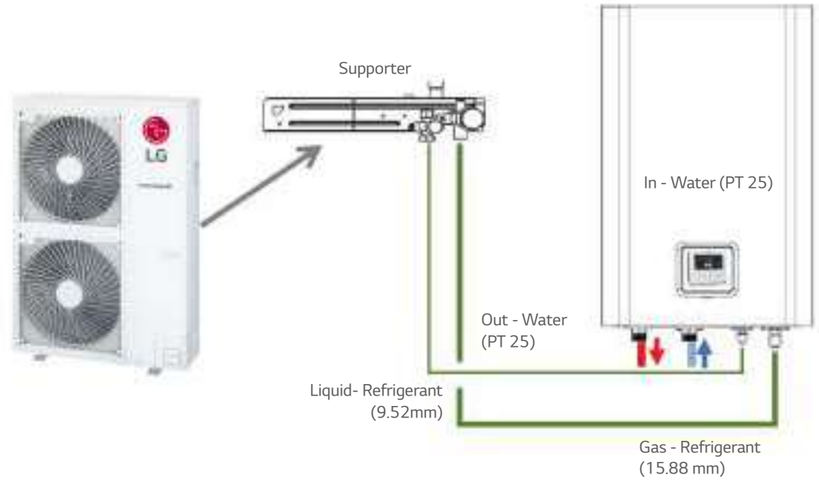
Make sure to check for OK on all items in the checklist below after installing the product.

Sort	Product	Contents	Check (OK / NO)
Installation	Split	Are pipings correctly connected?	
Refrigerant	Split	Was the standard airtight test run to check if there is any leakage from pipings and the product? (For R410A: 24-hour test with nitrogen pressure of 38kg)	
Refrigerant	Split	Is vacuum level kept at or below 0.5 torr or is there any change with vacuum for 1 hour after stopping the vacuum pump?	
Refrigerant	Split	Was additional amount of refrigerant correctly calculated based on the length of added piping and was the weight of refrigerant measured correctly with an electronic scale before injection?	
Refrigerant	Split	Is there any leakage after connecting the refrigerant pipings? Check gas detector and use soap bubbles to find any leakage.	
Installation	Split	Is the indoor unit installed in the building and installed and fixed according to the installation manual?	
Installation	Common	Is the outdoor unit installed and fixed firmly? Removal of wooden pallet and fixing with anchor	
Installation	Common	Is the outdoor unit installed at an appropriate location? (Consider air flow, noise and being under the eaves and etc.)	
Installation	Common	Is it possible to secure appropriate service area for the indoor unit? (More than 600mm to the front and 400mm to sides)	
Electric	Common	Is there a proper protective measure or earthing against lightning?	
Electric	Common	Is capacity of power lines and circuit breaker selected based on the atest catalogue of LG Electronics and is pull-in power for both indoor and outdoor units normal? (Power/control cables, earth leakage breaker) 3-phase 4-wire AC 380V for general purpose / 3-phase 3-wire AC 380V for factories Check pull-in power for the indoor unit (1-phase 2-wire AC 220V)	
Water pipe	Common	Is it proper to design the pipe diameter?	
Water pipe	Common	Is the quality of heat source water acceptable?	
Water pipe	Common	Is there an appropriate measure against freezing and bursting plate heat exchanger in winter? (Use antifreeze solution or operate either pumps or auxiliary heater)	
Water pipe	Common	Is water filled in the system? Is water pipe pressure at the appropriate level?	
Water pipe	Common	Is it flushed?	
Water pipe	Common	Is the magnetic type strainer installed?	
Water pipe	Common	Is there any leakage from water pipe? (Check with visual inspection)	
Water pipe	Common	Is air vent valve installed and opened at the angled part of water pipe?	
Water pipe	Common	Are buffer tank and auxiliary pump installed? (Option)	

Items to check	Are pipings correctly connected? (Water piping, refrigerant piping)	**Result**
Purpose	**Check piping connection**	
Applicants	AWHP	

Check in/out flow of water pipe connections
Check connections of refrigerant piping and gas/liquid piping

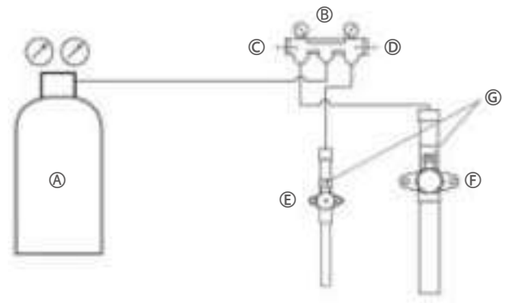
Therma V - Split



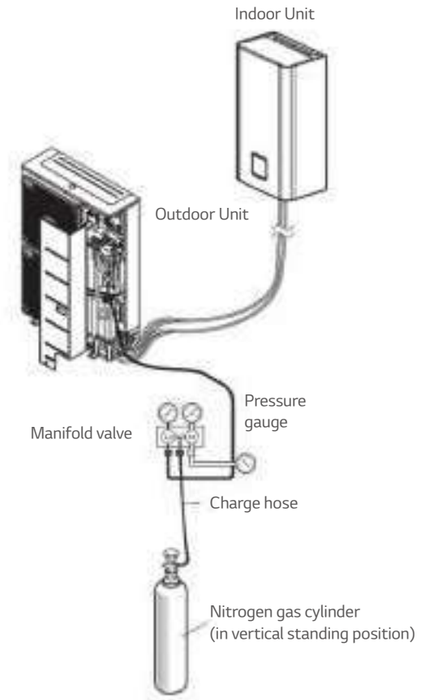
Therma V - Mono

Check list

Items to check	Was the standard airtight test run?	**Result**
Purpose	**Check for leakage on pipings**	
Applicants	AWHP	



Ⓐ Nitrogen gas
Ⓑ Manifold gauge
Ⓒ Low pressure cover
Ⓓ High pressure cover
Ⓔ Liquid pipe
Ⓕ Gas pipe
Ⓖ Service port



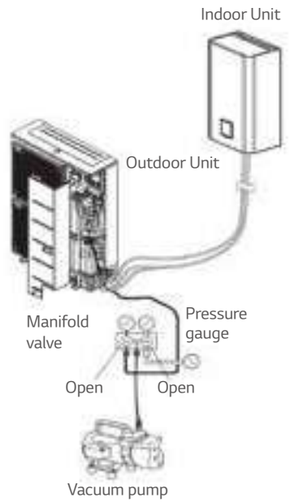
Be sure to use a manifold valve for leakage test.
If it is not available, use a stop valve for this purpose.
The "Hi" knob of the manifold valve must always be kept close.

Pressurize the system to no more than 3.0 Mpa with dry nitrogen gas and close the cylinder valve when the gauge reading reaches 3.0 Mpa Next, test for leaks with liquid soap.
After the system is found to be free of leaks, relieve the nitrogen pressure by loosening the charge hose connector at the nitrogen cylinder. When the system pressure is reduced to normal, disconnect the hose from the cylinder

Items to check	Is the vacuum level kept at or below 0.5 torr or is there any change with vacuum for 1 hour after stopping the vacuum pump?	**Result**
Purpose	**Check for leakage on pipings**	
Applicants	AWHP	

The operation time for evacuation varies with tubing length and capacity of the pump. The following table shows the time required for evacuation.

Required time for evacuation when 30 gal/h vacuum pump is used	
If tubing length is less than 10 m (33 ft)	If tubing length is longer than 10 m (33 ft)
30 min. or more	60 min. or more
0.5 torr or less	

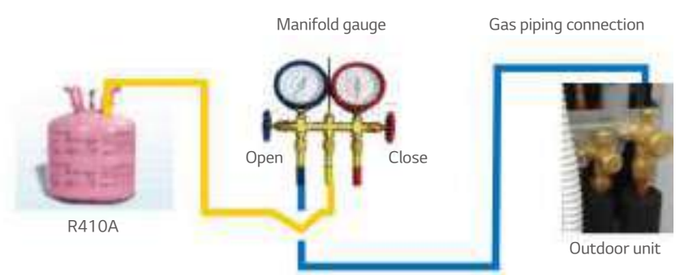


① Close both valves of manifold gauge, connect center house (connection part of vacuum pump) to refrigerant tank to release air from hose from manifold gauge to charging cylinder (Open charging cylinder valve shortly to release air)
② Open manifold gauge (Low compression: Blue) to fill gas first time and power on/operate the product and fill more gas.

Finishing the job

1. With a service valve wrench, turn the valve stem of liquid side valve counter-clockwise to fully open the valve.
2. Turn the valve stem of gas side valve counter-clockwise to fully open the valve.
3. Loosen the charge hose connected to the gas side service port slightly to release the pressure, then remove the hose.
4. Replace the flare nut and its bonnet on the gas side service port and fasten the flare nut securely with an adjustable wrench.
   This process is very important to prevent leakage from the system.
5. Replace the valve caps at both gas and liquid side service valves and fasten them tight. This completes air purging with a vacuum pump.
   The air conditioner is now ready to test run.

Filling refrigerant (If refrigerant is filled additionally after repair or additional charging is needed)



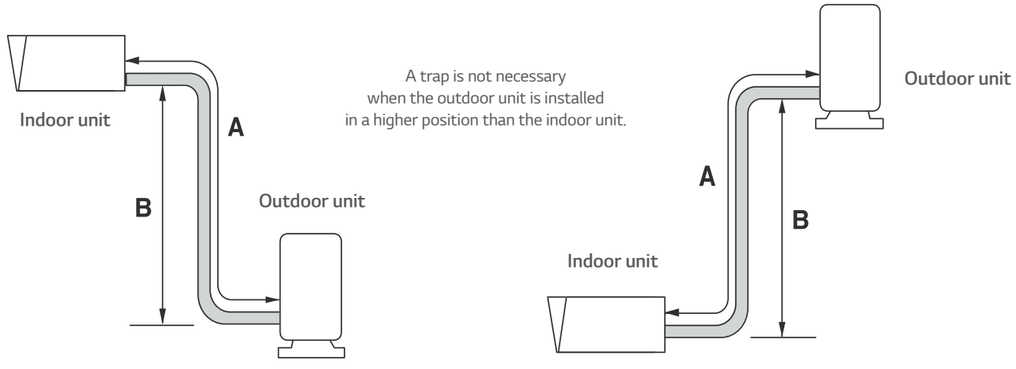
Open gas/liquid piping
Open cap and turn counter clock wise

Check list

Items to check	Was additional amount of refrigerant correctly calculated based on the length of added piping and was the weight of refrigerant measured correctly with an electronic scale before injection?	**Result**
Purpose	**Add refrigerant according to length of pipings**	
Applicants	AWHP	

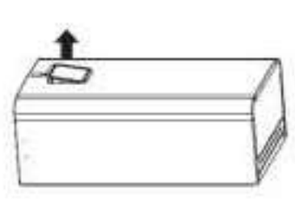
1. Standard pipe length is 7.5m If the pipe length is longer than 7.5m, additional charge of the refrigerant is required according to the table.
   • Example : If 16kW model is installed at a distance of 50m, 1,700g of refrigerant should be added according to following formula : (50-7.5) x 40g = 1,700g
2. Rated capacity of the product is based on standard length and maximum allowable length is based on the product reliability in the operation.
3. Improper refrigerant charge may result in abnormal operation.

Capacity	Pipe Size (mm : inch) (Diameter : Ø)		Length A (m)		Elevation B (m)		* Additional Refrigerant (g/m)
	Gas	Liquid	Standard	Max.	Standard	Max.	
5 kW	15.88 (5/8")	9.52 (3/8")	7.5	50	0	30	40
7 kW							
9 kW							
12 kW							
14 kW							
16 kW							

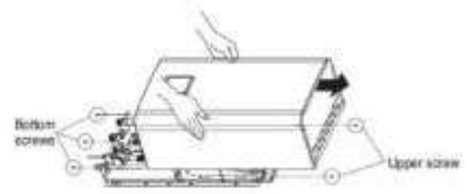


Items to check	Is the indoor unit installed in the building and installed and fixed according to the installation manual?	**Result**
Purpose	**Installation of indoor unit**	
Applicants	AWHP	

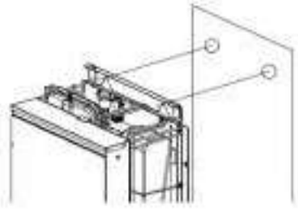
The installation place should be free from outdoor weather conditions such as rain, snow, wind, frost, etc.
- Choose the place where is water-resistant or good drainage.
- Service space should be secured.
- No flammable materials around the indoor unit.
- The place should be free of mouse from entering the indoor unit or attacking wires.
- Do not place anything in front of the indoor unit to ensure air circulation around the indoor unit.
- Do not locate anything under the indoor unit to be free from unexpected water out.
- In case of water pressure increasing to 3 bar, water drainage should be treated when water is drained by safety valve.



Step 1. Disconnect the remote control case from the front panel and disconnect the remote control cable

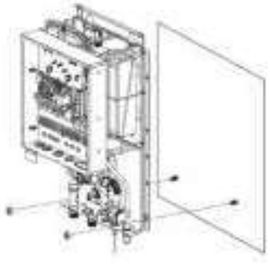


Step 2. After releasing five screws, detach front cover from the indoor unit. While detaching the front cover, grab the left and right sides of the front cover. Then pull into upward direction.



Step 3. Attach "Installation Sheet" to the wall and mark the location of bolts. This sheet helps to find correct location to the bolts.

Step 4. Detach the Installation sheet. Screw bolts at the hole marks on the wall. When screwing bolts, use M8 ~ M11 anchor bolts to secure hanging the indoor unit.



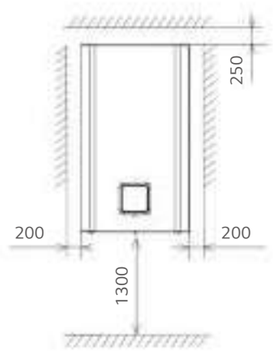
Step 5. Hang the indoor unit at the supporting plate.

Check list

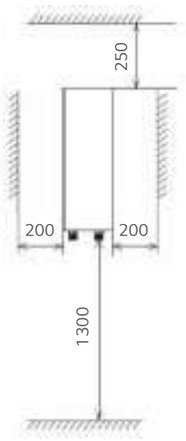
Items to check	Is it possible to secure appropriate service area for the indoor unit and Backup heater?	**Result**
Purpose	**Installation of indoor unit and back up heater**	
Applicants	AWHP	

Ensure that the spaces indicated by arrows around bottom, side, and top side.

- Wider spaces are preferred for easy maintenance and piping.
- If minimum service space is not secured, air circulation can be a problem and internal parts of the indoor unit can be damaged by overheating.



Minimum service space
(unit : mm)



Minimum service space
(unit : mm)

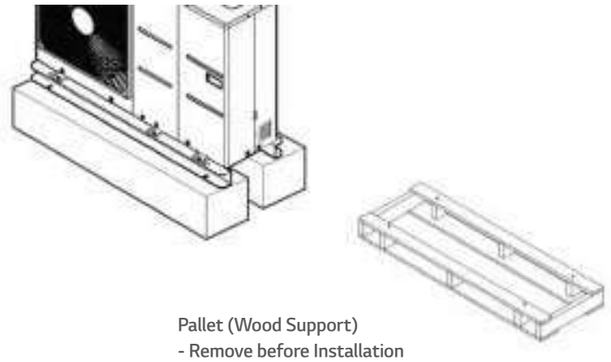
Items to check	Is the outdoor unit installed and fixed firmly? Removal of wooden pallet and fixing with anchor	**Result**
Purpose	**Installation of indoor unit**	
Applicants	AWHP	

Check the strength and level of the installation ground so that the unit will not cause any vibration or noise after installation.

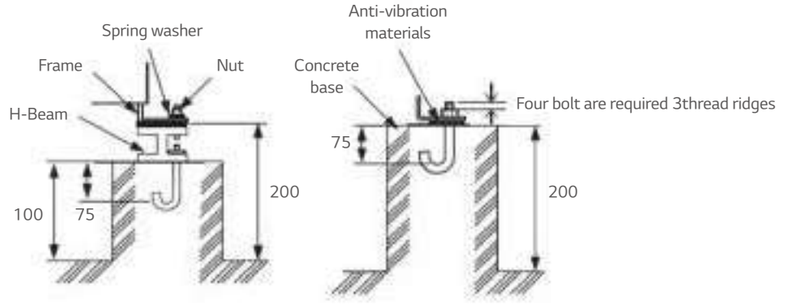
- Fix the unit securely by means of the foundation bolts. (Prepare 4sets of M12 foundation bolts, nuts and washers each which are available on the market.)
- It is best to screw in the foundation bolts until their length are 20mm from the foundation surface.

Be sure to remove the Pallet (Wood Support) of the bottom side of the unit Base Pan before fixing the bolt.
It may cause the unstable state of the unit settlement, and may cause freezing of the heat exchanger resulting in abnormal operations.

- Be sure to remove the Pallet (Wood Support) of the bottom side of the unit before welding.
  Not removing Pallet (Wood Support) causes hazard of fire during welding.



Pallet (Wood Support)
- Remove before Installation

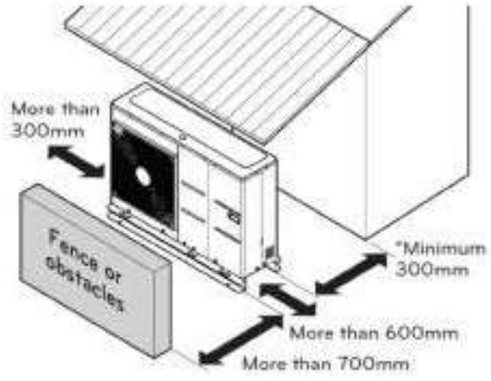


Check list

Items to check	Is the outdoor unit installed at an appropriate location? (Consider air flow, noise and being under the eaves and etc.)	**Result**
Purpose	I**nstallation of outdoor unit**	
Applicants	AWHP	

If an awning is built over the unit to prevent direct sunlight or rain exposure, make sure that heat radiation from the condenser is not restricted.

- Ensure that the spaces indicated by arrows around front, back and side of the unit.
- Do not place animals and plants in the path of the warm air.
- Take the air conditioner weight into account and select a place where noise and vibration are minimum.
- Select a place so that the warm air and noise from the air conditioner do not disturb neighbors.
- Place that can sufficiently endure the weight and vibration of the outdoor unit and where even installation is possible
- Place that has no direct influence of snow or rain
- Place with no danger of snowfall or icicle drop
- Place without weak floor or base such as decrepit part of the building or with a lot of snow accumulation



Items to check	Is there a proper protective measure or earthing against lightning?	**Result**
Purpose	**Protection of product from lightning**	
Applicants	Common	

When connecting earth cable, the diameter of cable should be bigger than 1.6mm2 to secure safety.
The earth cable is connected to the terminal block where earth symbol is marked.

Be sure to correct the outdoor unit to earth. Do not connect earth line to any gas pipe, liquid pipe, lightening rod or telephone earth line. If earth is incomplete, it may cause an electric shock.

In order to ensure compliance with regulations on electrical equipment and cabling, follow the government regulations and instructions of power company.

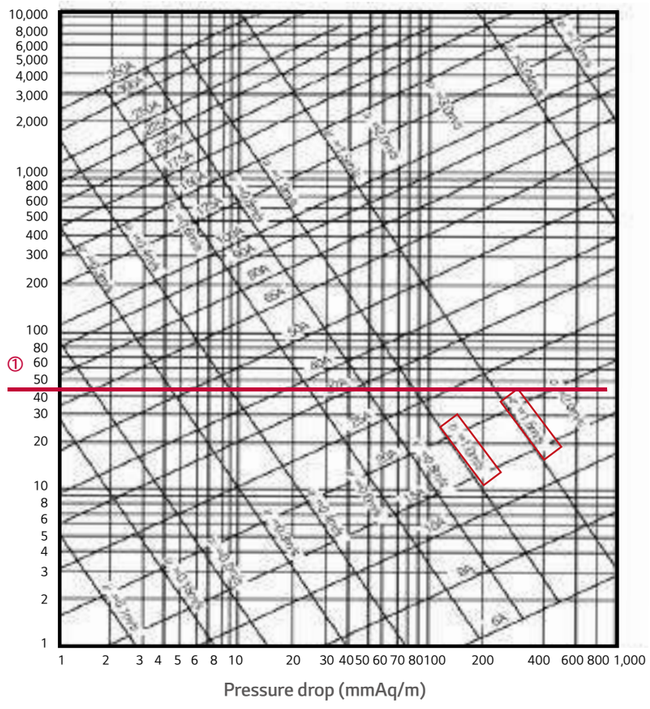
Check list

Items to check	Is it proper to design the pipe diameter?	**Result**
Purpose	**Check water velocity and pressure drop**	
Applicants	Common	

An easy method for selecting the piping diameter is as follows.

- Method by water Velocity (0.3 m/s ~ 3 m/s)
- Method by Pressure drop (40 kPa/m ~ 100 kPa/m)

Method by water Velocity (0.3 m/s ~ 3 m/s)



Ex) 16kW Therma V
① Rated water flow rate : 46lpm (Δ5℃)
② Velocity 1 ~ 1.5m/s

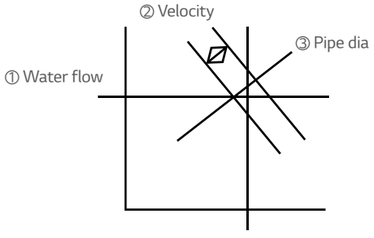
Select the pipe in the flow velocity range based on the y-axis flow line

Result : 25A or 32A (Pipe spec)

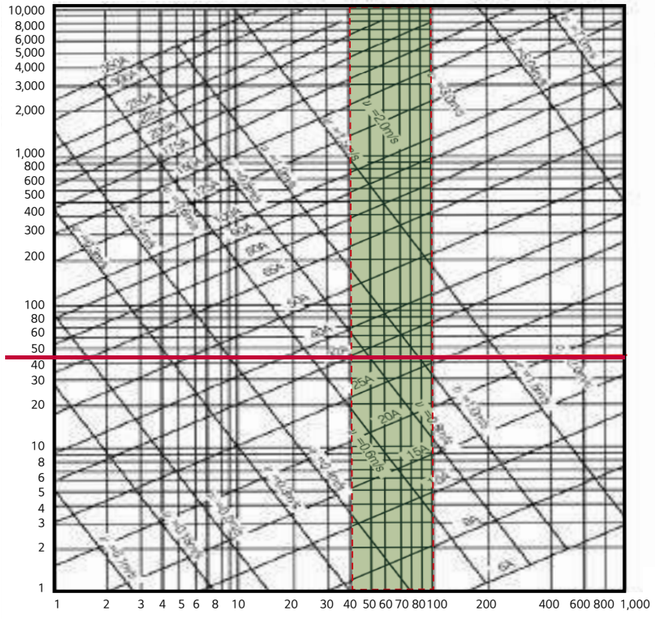
Remark)

If select 32A :
1) High material cost
2) Difficult to make layout

If select 20A :
1) High Pressure drop by high velocity
2) Noise



Method by Pressure drop (40kPa/m ~ 100kPa/m)



Ex) 16kW Therma V
① Rated water flow rate : 46lpm (Δ5℃)
② Pressure drop range : 40 ~ 100 kPa/m

Select the pipe in the pressure drop range based on the y-axis flow line

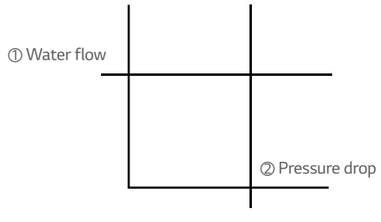
Considering flow velocity, select the pipe diameter

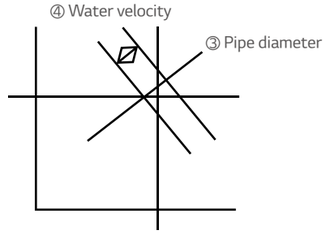
Result : 25A or 32A (Pipe spec)

Remark)

If select 32A :
1) High material cost
2) Difficult to make layout

If select 25A :
1) Higher pressure drop than 32A
2) Cost-effective



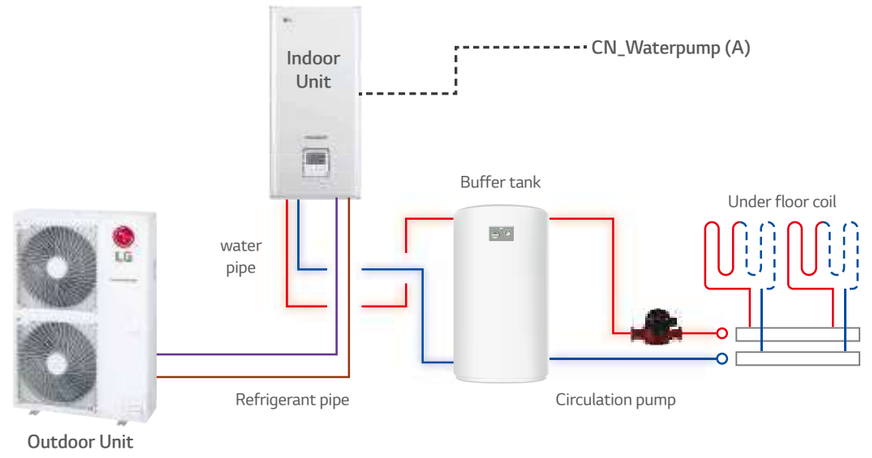


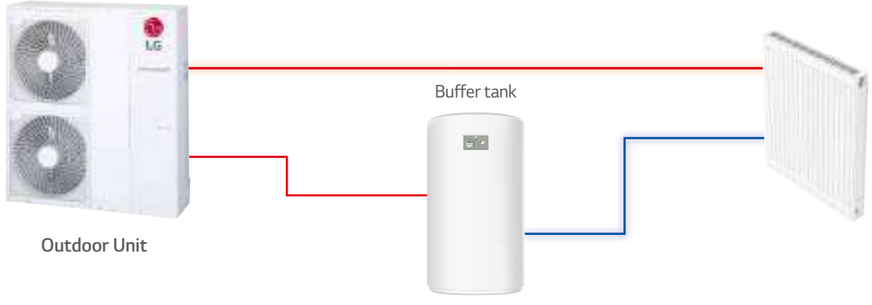
Check list

Items to check	Are buffer tank and auxiliary pump installed?	**Result**
Purpose	**Secure flow and see if system is stabilized**	
Applicants	Common	

Install the buffer tank with the following goals (Field scope).
1. For floor heating and if flow resistance is too high
2. For defrosting, oil retrieval operation and continuous heating
3. Preventing short cycle from load variation

Secondary pump needs to be installed if the buffer tank is to be installed (Field scope)
Generally a third party controller is installed to control the pump at the load side.

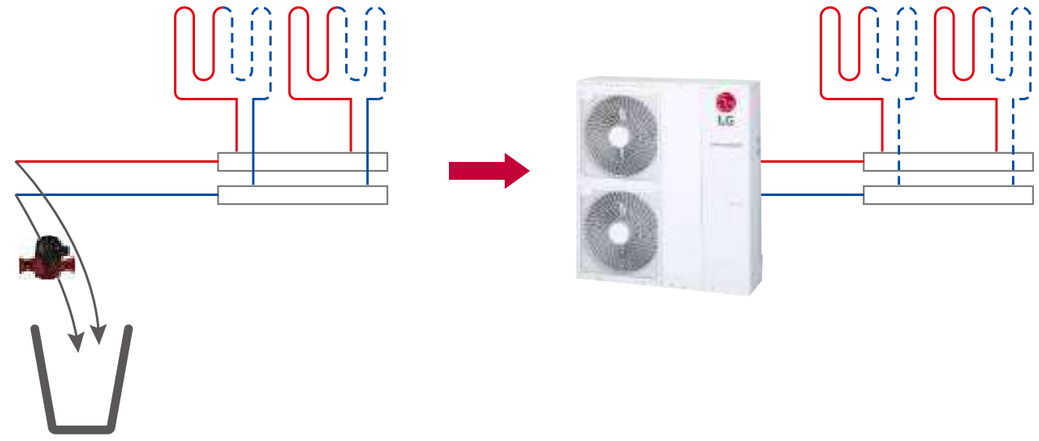




Items to check	Was flushing done?	**Result**
Purpose	**Remove foreign objects and secure flow**	
Applicants	Common	

There may be some foreign objects after new piping installation or equipment replacement.
Thus, connect the indoor unit only after clearing pipings so that there may be no foreign object in the piping.

Flushing can be done with the service valve and a separate pump and tap water.



Strainer Fine

Strainer No Flushing Done

Check list

Items to check	Is quality of heat source water acceptable?	**Result**
Purpose	**Protect product, secure flow**	
Applicants	Common	

Water quality check should be implemented before completing the installation of system.
(Water range will be according s/UNE 122076:2004 IN and EN12499)
Detailed guide can be found in the table as below.

If the product is installed at existing hydronic water loop, it is important to clean hydronic pipes to remove sludge and scale.

- Installing sludge strainer in the water loop is very important to prevent performance degrade.
- Chemical treatment to prevent rust should be performed by installer.
- It is strongly recommended to install an additional filter on the heating water circuit. Especially to remove metallic particles from the heating piping, it is advised to use a magnetic or cyclone filter, which can remove small particles. Small particles may damage the unit and will NOT remove by the standard filter of the heat pump system.

Use a simple measuring instrument or diagnosis kit to check water quality to verify the following.
Also, LSI (Langelier saturation index) can be used as a reference by checking pH, TDS (Total dissolved Solid), and water quality contents into fomular.

[Table]

Water contents	Concenturation			
pH	7.5 ~ 9.0			
Conductivity	10 ~ 500 uS/cm			
TDS (Total dissolved solids)	8 ~ 400 ppm			
Alaklinity (HCO_3^-)	60 ~ 300 (mg/L)			
Total hardness	4 ~ 8.5 °dH 71.4 ~ 151.7 (mg/L)			
Iron (Fe)	≤ 0.2 (mg/L)			
Sulphate (SO_4^{2-})	≤ 100 (mg/L)			
Nitrite (NO_3^-)	≤ 100 (mg/L)			
Free chlorine (Cl_2)	≤ 1 (mg/L)			
Chlorides (Cl^-)	ppm		STS316	STS304
	pH7	15℃	3000	180
		40℃	500	50
		60℃	200	30
		80℃	125	20
	pH9	15℃	18000	700
		40℃	2600	250
		60℃	1000	170
		80℃	550	130

To caluate LSI, Need to measure pH, Temperature, Calcium Hardness (ppm), Alkalinity (ppm_CaCO3), Total Dissolved Solids (ppm) by using water quality test kits

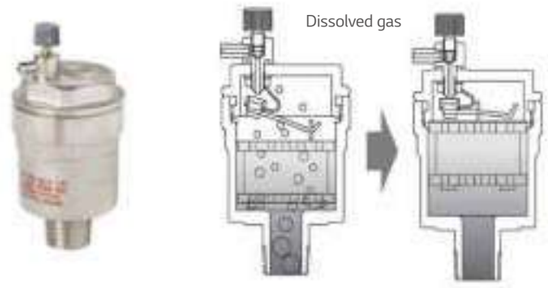
[LSI]

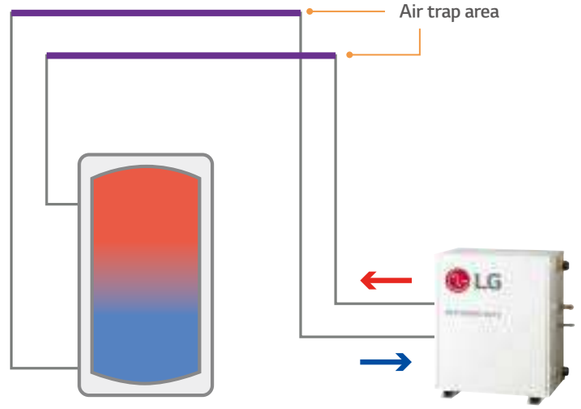
Saturation Index	Remarks	Recommendation
-5	Severe Corrosion	Treatment Recommended
-3	Moderate Corrosion	Treatment Recommended
-2	Moderate Corrosion	Treatment may be Needed
-1	Moderate Corrosion	Treatment may be Needed
- 0.5	Mild Corrosion	Probably No treament
0	None-Mild Corrosion	No Treatment
0.5	Near Balanced	Probably No treament
1	Some Faint Coating	Treatment may be Needed
2	Mild Scale Coating	Treatment may be Needed
3	Moderate Scale Forming	Treatment Recommended
4	Severe Scale Forming	Treatment Recommended

Items to check	Is air vent valve installed and open at the angled part of water pipe??	**Result**
Purpose	**Remove air from water pipe**	
Applicants	Common	

Air vent valve is integrated in the product by default but additional ones may be needed if there are bent parts when pipings are installed.
Air Vent Valve is a device designed to remove air automatically from the hydronic heat pump system such as air remaining in the piping, dissolved air, and air that flowed in during installation.

- The air vent valve should be installed at every high point of the system.
- At the beginning and end of the curve
- At the water inlet/outlet pipe of the heat pump and heat exchanger
- At each branch piping connected to the main piping, when connecting multiple heat pumps



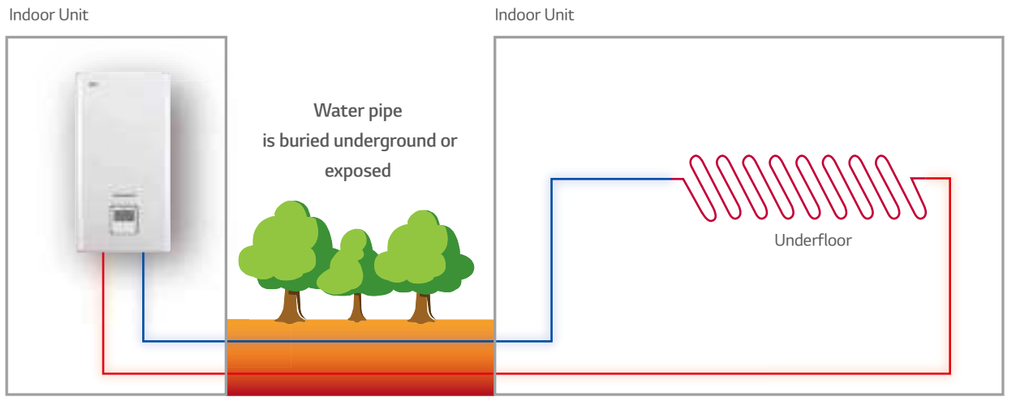


Check list

Items to check	Is there an appropriate measure to prevent freezing and bursting plate heat exchanger in winter? (Use antifreeze solution or operate either pumps or auxiliary heater)?	**Result**
Purpose	**Subjects of preventing freezing**	
Applicants	AWHP	

Antifreeze solution is needed to prevent freezing and bursting if outdoor temperature is too low or the product is to be out of use for extended period.
Adjust amount of antifreeze solution based on the site's conditions.
Check concentration of antifreeze solution and add more solution if concentration is too weak to maintain proper level of concentration.
Our own antifreeze logic is active by default but the protective logic may not work if the product fails, thus other physical measures need to be considered.

	Antifreezing mixing ratio (by volume)					
Freezing Point	**0 °C**	**-5 °C**	**-10 °C**	**-15 °C**	**-20 °C**	**-25 °C**
Ethylene glycol	0	12.8	22	29	33.5	38
Propylene glycol	0	15.5	26	33	39	44
Ethanol	0	14	24.8	32	37.3	42.2



Items to check	Is water pipe pressure at appropriate level?	**Result**
Purpose	**Secure flow, protect system**	
Applicants	AWHP SPLIT, Monobloc	

Check water pipe pressure when supplying tap water after first installation work.
Check pressure on the gauge either on the product or the gauge installed on site inside the piping.
Default pressure is 1bar and maximum is 3bar.
(Release water with relief valve inside the product if pressure is higher than 3bar)
Supply tap water until pressure is stabilized and maintained, and start supplying tap water when pressure reaches minimum of 0.3bar.

Pressure gauge inside product

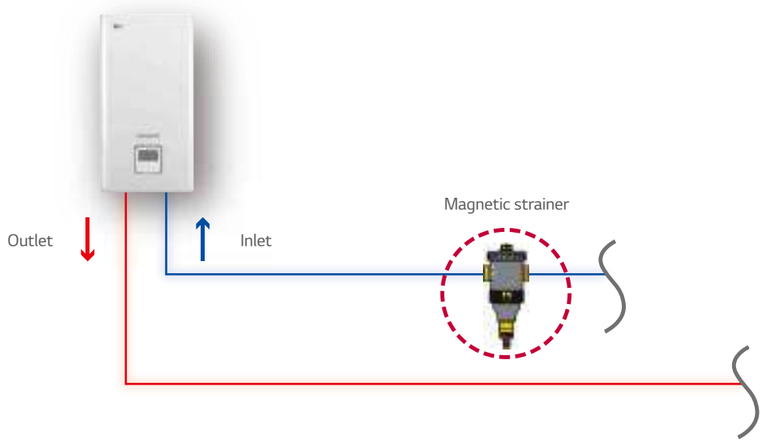
Pressure gauge inside piping

Check list

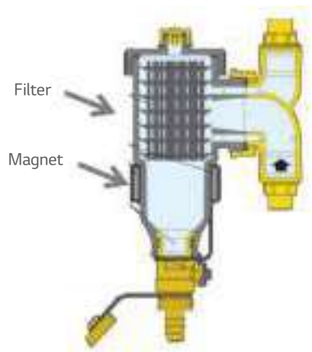
Items to check	Was magnetic type strainer installed?	**Result**
Purpose	**Secure flow, protect system**	
Applicants	Common	

Especially to remove metallic particles from foul heating piping, it is recommended to use a magnetic or cyclone filter, which can remove small particles. Small particles may damage the unit and will NOT be removed by the standard filter of the heat pump system.

Magnetic strainer is separately available.
Install strainer on the water supply/inlet side for indoor unit.
Observe instructions of manufacturer of magnetic strainer.



Magnetic filter



Memo