

THERMA VIM

Air-to-Water Heat Pump / Split Type R410A/50Hz 5BPU0-02G (Replaces 5BPU0-02F)

# TOTALHVAC SOLUTION PROVIDER ENGINEERING PRODUCT DATA BOOK



P/No.: MFL66101112

# THERMA V<sub>TM</sub> Split Type

General Information
Indoor Unit
Hydro Box Unit
Design and installation
DHW Tank Integrated Unit
Outdoor unit
Design and installation



# **General Information**

- 1. Model Line Up
- 2. Nomenclature

# 1. Model line up

# 1.1 Indoor Units

				Model Name	
Category	Туре	External Appearance	Heater Capacity [kW]	Heating Capacity class* (kW)	Features
			į	16.0	
	Hydro Box Type	*	6.0	AHNW16606A3 [HN1616 NK3]	Prividing eco-friendly heating     High energy efficiency     Easy installation     Space heating, cooling, and Domestic Hot
		THE STREET VI	9.0	AHNW16809A3 [HN1639 NK3]	Water heating
AWHP Split Type	DHW Tank Integrated Type	Pressure.V.	6.0	AHNW16606B0 [HN1616T NB0]	Providing Eco-friendly heating High energy efficiency Pressure Control & Quick Operating Response Quiet operation All in one solution Hydro Box for Space heating/cooling + Domestic How Water Tank + Buffer Tank Small space for product installation Easy and quick installation Weather dependent operation

# 1.2 Outdoor Units

Category		Model Name							
		Heating Capacity (kW)							
		5.0	7.0	9.0	12.0	14.0	16.0		
1 Phase 1 Ø, 220-24		AHUW056A3 [HU051 U43]	AHUW076A3 [HU071 U43]	AHUW096A3 [HU091 U43]	AHUW126A3 [HU121 U33]	AHUW146A3 [HU141 U33]	AHUW166A3 [HU161 U33]		
Combination	AHNW16606A3 [HN1616 NK3]	0	0	0	0	0	0		
Combination	AHNW16606B0 [HN1616T NB0]	-	-	0	0	0	0		
	3 Phase Model 3 Ø, 380-415 V, 50 Hz		-	-	AHUW128A3 [HU123 U33]	AHUW148A3 [HU143 U33]	AHUW168A3 [HU163 U33]		
Combination	AHNW16809A3 [HN1639 NK3]	-	-	-	0	0	0		
Combination	AHNW16606B0 [HN1616T NB0]	-	-	-	0	0	0		
External Appearance		· Box shall be a series of the	€ LG			LG THOMAS V			

**Note**\*: Actual system capacity would be different accordance with combination of outdoor unit.

# 2.1 Indoor Unit

# **■** Factory Model Name

Model Name	АН	N	w	16	6	06	Α	3
No.	1	2	3	4	5	6	7	8

No.	Signification
1	Air-to-Water Heat Pump for R410A
	Classification
2	N : Indoor unit of Split type U : Outdoor unit of Split type B : Monobloc type
	Model Type
3	W : Inverter Heat Pump H : Heat Pump
4	Heating Capacity (kW)
4	Ex) 9kW → '09', 12kW → '12'
	Heater Electrical ratings
5	6 : 1Ø, 220-240V, 50 Hz 8 : 3Ø, 380-415V, 50Hz A : 3Ø, 220V, 50Hz
	Heater Capacity (kW)
6	06 : 6kW Heater 09 : 9kW Heater
	Function
7	A : General heating heat pump H : Domestic Hot heating only T : High temperature heating heat pump
	B : DHW tank integrated model
8	Serial number
0	3 Series

# **■** Buyer Model Name

Model Name	Н	N	16	1	6	Т	•	N	В	0
No.	1	2	3	4	5	6*		7	8	9

No.	Signification
1	Air-to-Water Heat Pump for R410A
	Classification
2	N : Indoor unit of Split type U : Outdoor unit of Split type M : Monobloc type
3	Heating Capacity (kW)
3	Ex) 9kW → '09', 12kW → '12'
	Heater Electrical ratings
4	1 : 1Ø, 220-240V, 50 Hz 2 : 3Ø, 220V, 50Hz 3 : 3Ø, 380-415V, 50Hz
	Nominal Heater Capacity (kW)
5	00 : None Heater 04 : 4kW heater
	Functions
6*	T : DHW tank integrated model H : High Temperature heating model (* In case of Hydro Box Low temperature type, here is blank.)
	Classification
7	N : Indoor unit of Split type U : Outdoor unit of Split type M : Monobloc type
	Platform (Chassis code)
8	K : K2,K3 Chassis B : DHW tank integrated Flatform
9	Serial number

# 2.2 Outdoor Unit

# **■** Factory Model Name

Model Name	АН	U	w	09	6	Α	3
No.	1	2	3	4	5	6	7

No.	Signification
1	Air-to-Water Heat Pump for R410A
	Classification
2	N : Indoor unit U : Outdoor unit - : Set
	Model Type
3	W : Inverter Heat Pump H : Heat Pump
4	Heating Capacity (kW)
4	Ex) 5kW : '05', 16kW : '16'
	Electrical ratings
5	6 : 1Ø, 220-240V AC 50 Hz 8 : 3Ø, 380-415V AC 50 Hz
	Function
6	A : General heating heat pump H : Domestic Hot heating only T : High temperature heating heat pump
7	Serial number
/	3 Series

# **■** Buyer Model Name

Model Name	Н	U	05	1	-	U	4	3
No.	1	2	3	4		5	6	7

No.	Signification
1	H : Air-to-Water Heat Pump for R410A
2	Classification
	U : Outdoor unit
3	Heating Capacity (kW)
	Ex) 5kW : '05', 16kW : '16'
	Electrical ratings
4	1 : 1Ø, 220-240V AC 50 Hz 3 : 3Ø, 380-415V AC 50 Hz
	Classification
5	N : Indoor unit of Split type U : Outdoor unit of Split type M : Monobloc type
	Platform (Chassis code)
6	4 : U4 Chassis 3 : U3 Chassis
7	Serial number



**Indoor Unit** 

Hydro Box Unit DHW Tank Integrated Unit



# **Hydro Box Unit**

- 1.List of Functions
- 2. Specification
- 3. Dimensions
- 4. Wiring Diagram
- **5. Piping Diagram**
- **6. Hydraulic Performance**
- 7. Sound Levels

# 1. List of Functions

### **■** Basic functions of Unit

Category	Function	AHNW16606A3 [HN1616 NK3] AHNW16809A3 [HN1639 NK3]
Installation	Backup heater (Operation)	0
Reliability	Self diagnosis	0
Reliability	Auto Restart	0
	Child lock	0
Canvanianas	Sleep mode	0
Convenience	Timer(on/off)	0
	Timer(weekly)	0
	Two thermistor control	X
Network function	Network solution(LGAP)	0
	Anti-Condensation on floor (cooling)	0
	Digital output for external pump	0
	Flow sensor	X
	Flow Switch Control	0
	Thermostat Interface (230V AC)	0
	Thermostat Interface (24V AC)	X
	DHW(Domestic Hot Water) tank kit	O (Accessory)
	Therma V solar kit	O (Accessory)
	PHEX anti-freezing control	0
	Water pump anti-stuck function	0
	Weather compensation for heating and cooling (Auto mode)	0
Air to Water Heat Pump Functions	Silent Operation	0
diodolo	Anti-overheating of water pipe	0
	Emergency operation	0
	Weather Dependent Operation with Thermostat	0
	Scheduler (DHW Tank Heater)	0
	Timer (DHW Tank Heater)	0
	Quick DHW Tank Heating	0
	Backup Heater Capacity Control	0
	Screed Drying Mode	0
	Sump Heater	X
	Base Pan Heater	0
	Integrated Dry Contact (CN-EXT)	0

### Note

O : Applied, X : Not applied
 Accessory : Ordered and purchased separately the accessory package referring to the model name provided and install at field.
 Accessory line-ups varies by region, so check your local catalogue or local sales material.

# 1. List of Functions

# ■ Accessory Compatibility List

	Category	Product	Remark	AHNW16606A3 [HN1616 NK3] AHNW16809A3 [HN1639 NK3]
Wired Remote Controller	Standard	PREMTW101	New standard (White)	0
	Simple Contact	PDRYCB000	Simple Dry Contact	0
Dm. Contact		PDRYCB400	2 Points Dry Contact (For Setback)	X
Dry Contact	Communication Type	PDRYCB300	For 3rd party Thermostat	0
		PDRYCB500	Dry Contact for Modbus	X
	Remote temperature sensor	PQRSTA0	-	0
	Group control wire	PZCWRCG3	0.25 m	X
	2-Remo Control Wire	PZCWRC2	0.25 m	0
	Extension wire	PZCWRC1	10 m	0
ETC	Wi-Fi controller *	PWFMDD200	USB Cable : 0.6 m Extension cable : 0.5 m	0
	Wi-Fi Extension cable	PWYREW000	USB Extension cable : 10 m	0
	Meter Interface Module ***	PENKTH000	Interface between IDU and Meter	0
	Modbus RTU	PMBUSB00A	-	0
	2 Zone Valve Controller	PZNVVB200	-	X
		OSHW-200F	200 L	0
	DHW tanks (Single coil)	OSHW-300F	300 L	0
		OSHW-500F	500 L	0
	DHW tanks (Double coil)	OSHW-300FD	300 L	0
	DHW tank kit	PHLTA	For Split	0
	DHW tank kit	PHLTB	For Monobloc	X
	DHW sensor	PHRSTA0	included in PHLTA kit	0
	Mixing valve	OSHA-MV	3/4" DN20	0
Accessory Kit for AWHP	Mixing valve	OSHA-MV1	1" DN20	0
IOI AVVIIE	3way valve	OSHA-3V	-	0
	Solar thermal kit	PHLLA	-	0
	2nd Circuit Thermistor	PRSTAT5K10	-	0
	Backup heater	AHEH036A [HA031M E1] AHEH066A [HA061M E1]	220-240 V, 1Ф	X
	Drain pan	PHDPB	-	0
	Cover plate	PDC-HK10	For K1 Chassis only	0

- 1. O: Possible, X: Impossible, -: Not applicable
- 2. \* : Some advanced functions controlled by individual controller cannot be operated. 3. \*\* : ACP or AC Smart is needed.
- If you need more detail, please refer to the manual of product.
   (http://partner.lge.com/global : Home> Doc.Library> Product > Control(BECON))
  - \*\*\* Meter interface cannot be connected at the same time with 3rd-party controller.

# 2. Specifications

		Indoor Units			AHNW16606A3 [HN1616 NK3]	AHNW16809A3 [HN1639 NK3]
Combination Outdoor Units				AHUW056A3 [HU051 U43] AHUW076A3 [HU071 U43] AHUW096A3 [HU091 U43] AHUW126A3 [HU121 U33] AHUW146A3 [HU141 U33] AHUW166A3 [HU161 U33] AHUW126A4 [HU121MA U33] AHUW146A4 [HU121MA U33] AHUW146A4 [HU141MA U33] AHUW166A4 [HU161MA U33]	AHUW128A3 [HU123 U33] AHUW148A3 [HU143 U33] AHUW168A3 [HU163 U33] AHUW128A4 [HU123MA U33] AHUW148A4 [HU143MA U33] AHUW168A4 [HU163MA U33]	
	Cooling	For Fan Coil Unit	Min. ~ Max.	°C	5 ~ 27	5 ~ 27
Operation	Cooling	For under floor	Min. ~ Max.	°C	16 ~ 27	16 ~ 27
Range (Leaving	Heating	For Fan Coil Unit / Radiator	Min. ~ Max.	°C	15 ~ 57	15 ~ 57
Water)		For under floor	Min. ~ Max.	°C	15 ~ 57	15 ~ 57
	DHW(Domes	tic Hot Water)*	Min. ~ Max.	°C	15 ~ 80	15 ~ 80
	Туре			-	Non-Self-Priming	Type of DC Pump
) A/- 4 D	Motor type			-	BLDC	BLDC
Water Pump	Number of R	evolution (setting rai	nge)	RPM	500 ~ 3,500	500 ~ 3,500
	Power input		Rated	W	130	130
	Туре		•	-	Brazed Plate HEX	Brazed Plate HEX
Heat Exchanger	Quantity			-	1	1
Exchanger	Number of P	ate		EA	76	76
	Volume			l	8.0	8.0
Expansion Vessel	Water Pressure Max.			bar	3	3
vessei	Water Pressure Pre-charged			bar	1	1
	Mesh size			-	28 mesh	28 mesh
Strainer	Material			-	Stainless Steel	Stainless Steel
Safety Valve	Pressure Lim	nit	Upper Limit	bar	3	3
,				-	Mano	meter
	0: "			-	Drain Valve / Fill Valve	
Devices for Wat	er Circuit			-	Shut Off Valve	
				-	Air Vent	
	Water	Inlet	Inner Dia.	mm(inch)	Male PT 25.4(1)	Male PT 25.4(1)
Piping	Circuit	Outlet	Inner Dia.	mm(inch)	Male PT 25.4(1)	Male PT 25.4(1)
Connections	Refrigerant	Gas	Outer Dia.	mm(inch)	Ø 15.88 (5/8)	Ø 15.88 (5/8)
	Circuit	Liquid	Outer Dia.	mm(inch)	Ø 9.52 (3/8)	Ø 9.52 (3/8)
Sound Power Level	Heating	•	Rated	dB(A)	44	44
Dimensions	Unit		WxHxD	mm	490 x 850 x 315	490 x 850 x 315
Dimensions	Packed Unit		WxHxD	mm	563 x 1082 x 375	563 x 1082 x 375
Weight	Unit			kg	42.2	45.0
(Without water)	Packed Unit			kg	48.2	51.0
	Туре	Туре			Indirect heating Indirect heating (+Backup heater) (+Backup heater)	
	Heater Capa	city	Max.	kW	3	3
	Power Suppl	y		V / Ø / Hz	230 / 1 / 50	230 / 1 / 50
	Power Suppl	•		-	Separated power source	Separated power source
DHW Tank**	Thermal Prot	• • •	Max.	°C	90	90
(Field Supply)	Relay Contac			-	Needed	Needed
	ELCB			Α	40	40
	Sensor Adap	tor Diameter		mm(inch)	12.7 (1/2)	12.7 (1/2)
		t Model Name***		-	PHLTA (LG Supply)	PHLTA (LG Supply)
	MCCB			Α	32	32

<sup>\*:</sup> DHW 58 ~ 80 °C Operating is available only when the booster heater is operating.

<sup>\*\* :</sup> This information is given as a guideline about the connection of DHW tank.

<sup>\*\*\* :</sup> This Accessory Kit is required only when you want to use the Backup heater function at DHW tank. If not, it's not necessary.

Therma V indoor unit itself already has Backup heater function.

# 2. Specifications

Electrical Specification			AHNW16606A3 [HN1616 NK3]	AHNW16809A3 [HN1639 NK3]
	Туре	-	Sheath	Sheath
	Number of Heating Coil	EA	2	3
	Capacity Combination	kW	3.0 + 3.0	3.0 + 3.0 + 3.0
Packup booter	Operation	-	Automatic	Automatic
Backup heater	Heating Steps	Step	2	2
	Power Supply	V, Ø, Hz	1, 220-240, 50	3, 380-415, 50
	Rated Current	Α	25.0	25.0
	Maximum Current	Α	32.0	32.0
Wiring Connections	Power and Communication Cable (H07RN-F) (Included Earth)	mm² x cores	1.5 x 3	1.5 x 3

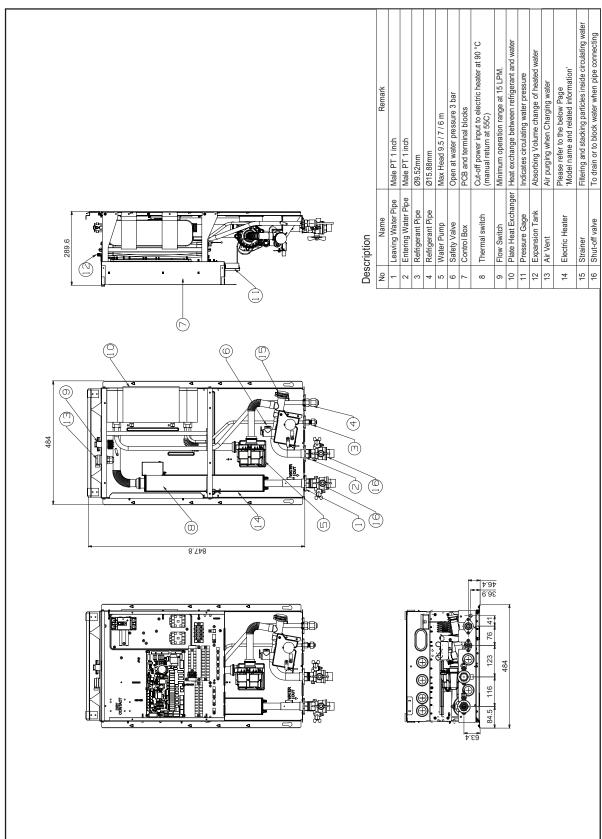
### Note

- 1. Due to our policy of innovation some specifications may be changed without notification.
- 2. Wiring cable size must comply with the applicable local and national codes. And "Electric characteristics" chapter should be considered for electrical work and design. Especially the power cable and circuit breaker should be selected in accordance with that.
- Sound power level is measured on the rated condition in the reverberation rooms by ISO 3741 standard. Therefore, these values can be increased owing to ambient conditions during operation.
- 4. Performances are based on the following conditions (It is according to EN14511):
  - Interconnected Pipe Length is standard length and difference of Elevation (Outdoor ~ Indoor Unit) is 0m.
- 5. This product contains Fluorinated greenhouse gases.

# 3. Dimensions

### 3.1 Internal

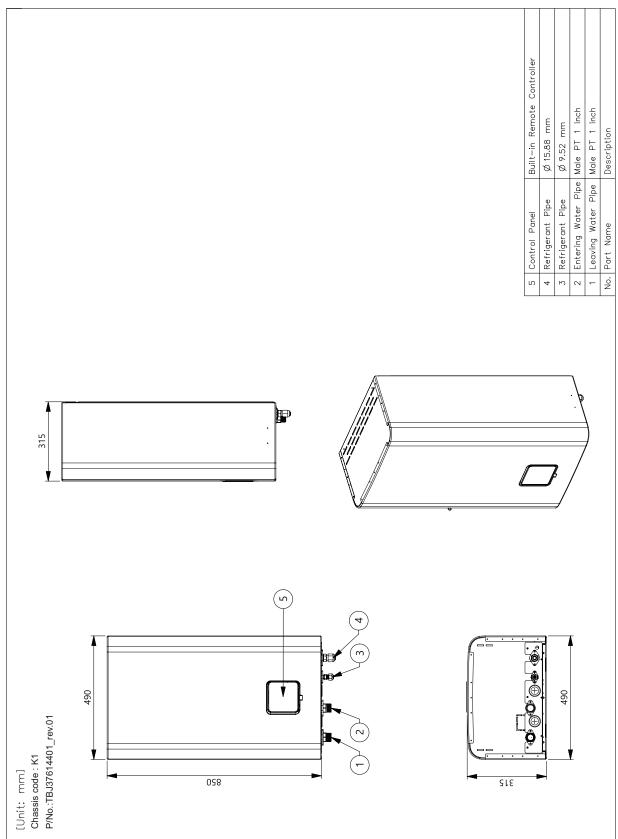
◆ AHNW16606A3 [HN1616 NK3], AHNW16809A3 [HN1639 NK3]



# 3. Dimensions

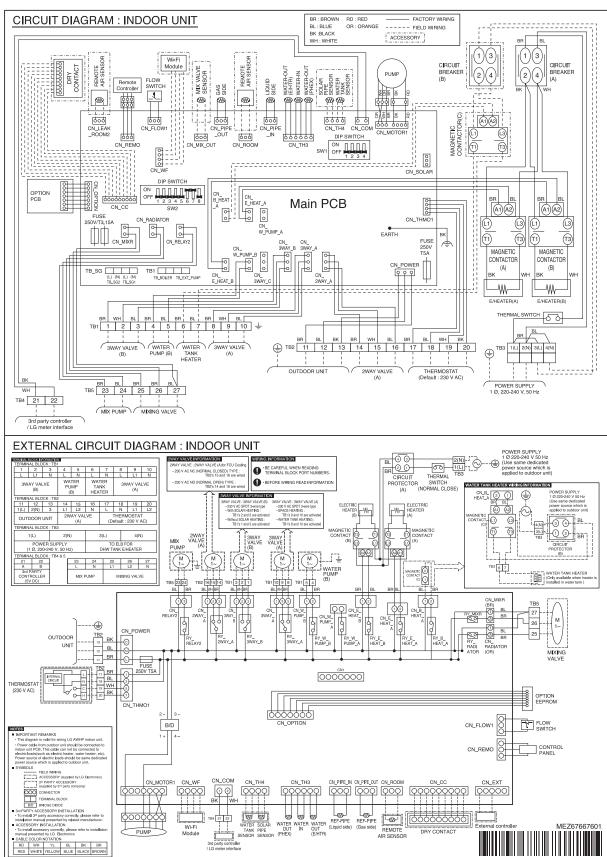
# 3.2 External

◆ AHNW16606A3 [HN1616 NK3], AHNW16606A3 [HN1616 NK3]



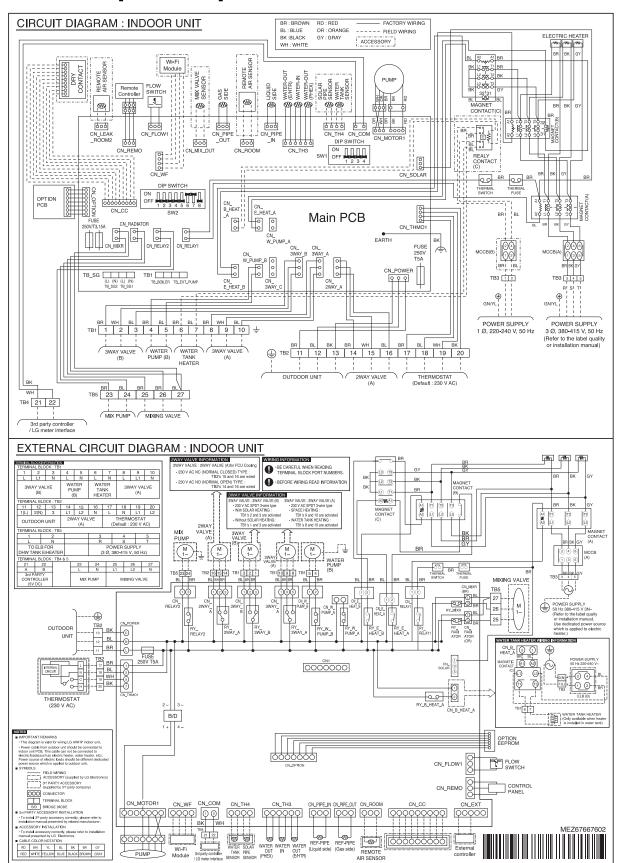
# 4. Wiring Diagrams

### ■ AHNW16606A3 [HN1616 NK3]



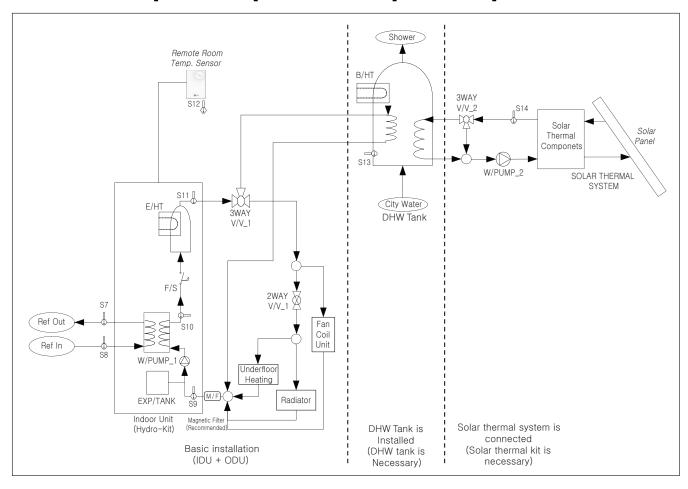
# 4. Wiring Diagrams

### ■ AHNW16809A3 [HN1639 NK3]



# 5. Piping Diagram

# ■ AHNW16606A3 [HN1616 NK3] / AHNW16809A3 [HN1639 NK3]



# 5. Piping Diagram

Category	Symbol	Meaning	PCB Connector	Remarks	
	<b>S</b> 7	Refrigerant temperature sensor (Gas side)	CN_PIPE_OUT	- Meaning is expressed based on Cooling	
	S8	Refrigerant temperature sensor (Liquid side)	CN_PIPE_IN	mode.	
	S9	Entering Water temperature sensor			
	S10	Leaving Water temperature sensor	CN_TH3	- S9, S10 and S11 are connected at 6 pin	
	S11	Backup heater outlet temperature sensor	011_1110	type connector CN_TH3.	
	F/S	Flow Switch	CN_FLOW1		
Indoor Unit	E/HT	Backup heater	CN_E/HEAT(A) CN_E/HEAT(B)	- Heating capacity is divided into two level : partial capacity by E/HEAT(A) and full capacity by E/HEAT(A) + E/HEAT(B) Operating power(230 V AC 50 Hz) of E/HEAT(A) and E/HEAT(B) are supplied by external power source via relay connector and ELB.	
	W_PUMP1	Internal Water Pump	CN_MOTOR1	- Water Pump is connected at CN_MOTOR1	
	EXP/TANK	Expansion Tank	(no connector)	- Absorb volume change of heated water,	
	S12	Remote Air temperature sensor	CN_ROOM	- Optional accessory (sold separately) - Model : PQRSTA0	
	CTR/PNL	Control Panel (or 'Remote Controller')	CN_REMO	- Pre built-in at indoor unit	
	2WAY V/V_1	To control water flow for Fan Coil Unit	CN_2WAY(A)	- 3rd party accessory and Field installation (sold separately)     - 2 wire NO or NC type 2way valve is supported.	
	M/F	Magnetic Filter	(No connector)	3rd party accessory and Field installation (sold separately)     It is strongly recommended to install an additional filter on the heating water circuit.	
	W/TANK	DHW Tank	(No connector)	- 3rd party accessory and Field installation (sold separately)     - Generating and storing DHW by AWHP or built-in Backup heater	
Water	В/НТ	Backup heater	CN_B/HEAT(A)	- 3rd party accessory and Field installation (usually built-in at W/TANK)     - Supplying additional water heating capacity.	
Heating	3WAY V/V_1	- Flow control for water which is leaving from indoor unit Flow direction switching between underfloor and water tank	CN_3WAY(A)	- 3rd party accessory and Field installation (sold separately) - SPDT type 3way valve is supported.	
	CITY WATER	Water to be heated by Indoor unit and B/HT of W/TANK	(no connector)	- Field installation	
	SHOWER	Water supplied to end-user	(no connector)	- Field installation	
	\$13 \$14	W/TANK water temperature sensor  Solar-heated water temperature sensor	CN_TH4	- S13 and S14 are connected at 4 pin type connector CN_TH4 S13 is a part of DHW tank kit.(Model:PHLTA) - S14 is a part of solar thermal kit (Model:PHLLA)	
	3WAY V/V_2	- Flow control for water which is heated and circulated by SOLAR THERMAL SYSTEM Flow direction switching between SOLAR THERMAL SYSTEM and W/TANK	CN_3WAY(B)	- 3rd party accessory and Field installation (sold separately) - SPDT type 3way valve is supported.	
Solar Heating	W_PUMP/2	External Water Pump	CN_W/PUMP(B)	- 3rd party accessory and Field installation (sold separately)     - If water pump of SOLAR THERMAL SYSTEM is incapable of circulation, external water pump can be used.	
	SOLAR THERMAL SYSTEM	- This system can include following components: Solar panel, Sensors, Thermostats, Interim heat exchanger, Water pump, etc To utilized hot water heated by SOLAR THERMAL SYSTEM, end-user must by LG AWHP Solar-Kit.	(no connector)	- 3rd party accessory and Field installation (sold separately)	

# 6. Hydraulic Performance

# **6.1 Water Pump Capacity**

The water pump is variable type which is capable to change flow rate, so it may be required to change default water pump capacity in case of noise by water flow. In most case, however, it is strongly recommended to set capacity as Maximum.

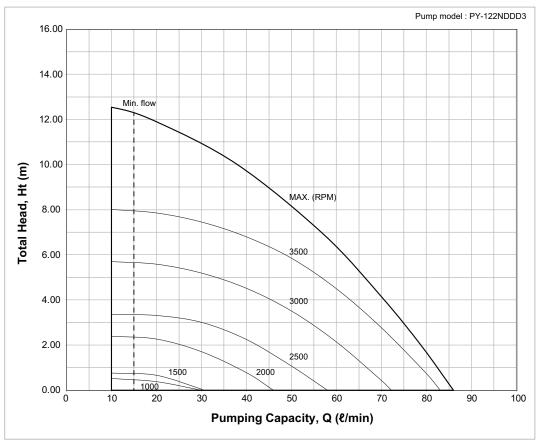
### ■ Pressure Drop

Capacity [kW]	Rated flow-rate [LPM]	Pump Head [m] (at rated flow-rate)	Product pressure drop [m] (Plate heat exchanger)	Serviceable Head [m]
16	46.0	9.5	1.4	8.1
14	40.0	10.0	1.1	8.9
12	34.0	10.7	0.8	9.9
9	26.0	11.3	0.4	10.9
7	20.0	11.6	0.3	11.3
5	17.0	11.8	0.2	11.6

### Note

- To secure enough water flow rate, do not set water pump capacity as Minimum.
   It can lead unexpected flow rate error CH14.
- · When installing the product, install additional pump in consideration of the pressure loss and pump performance.
- If flow-rate is low, overloading of product can occur.

### ◆ AHNW16606A3, AHNW16809A3



Performance test based on standard ISO 9906 with pre-pressure 2.0bar and liquid temperature 20°C.



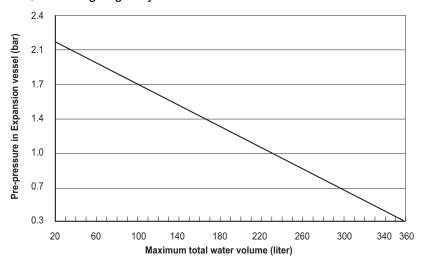
Selecting a water flowrate outside the curves can cause damage to or malfunction of the unit.

# 6. Hydraulic Performance

# 6.2 Water Volume and Expansion Vessel Pressure

Expansion vessel inside Hydro Box Unit is included which is 8 liter capacity with 1 bar pre-pressure. That means, according to the volume-pressure graph, total water volume of 230 liter is supported as default. If total water volume is changed because of installation condition, the pre-pressure should be adjusted to secure proper operation.

- · Minimum total water volume is 20 liter.
- Pre-pressure is adjusted by the total water volume. If the indoor unit is located at the highestposition of the water circuit, adjustment is not required.
- To adjust pre-pressure, use nitrogen gas by certificated installer.



### Adjusting pre-pressure of expansion vessel

• Step 1. Refer "Volume-Height" table.

	V < 230 ℓ	V ≥ 230 ℓ
H < 7m	Case B	Case A
H ≥ 7m	Case A	Case C

H: difference between indoor unit and the highest water pipe

V: total water volume of installation scene

If installation scene is belong to Case A, go to Step 2.

Otherwise, if it is Case B, do nothing. (pre-pressure adjustment is not required.)

Otherwise, if it is Case C, go to Step 3.

Step 2. Adjust pre-pressure by following equation.

Pre-pressure [bar] = (0.1xH+0.3) [bar]where H: difference between indoor unit and the highest water pipe0.3: minimum water pressure to secure product operation

• Step 3. Volume of expansion vessel is less than installation scene.

Please install additional expansion vessel at the external water circuit.

# 7. Sound levels

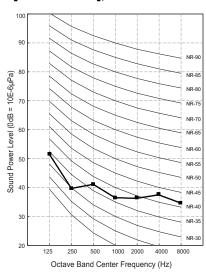
### **■** Sound Power Level

### Note

- 1. Data is valid at diffuse field condition.
- 2. Reference acoustic intensity  $0dB = 10E-6\mu W/m^2$
- 3. Sound power level is measured on the rated condition in the reverberation rooms. Refer to the Model Specifications for nominal conditions(Power source and Ambient temperature, etc)
- 4. Sound levels can be increased in accordance with installation and operating conditions.
- 5. Sound level will vary depending on a range of factors such as the construction (acoustic absorption coefficient) of particular installed place in which the equipment in installed.
- 6. Sound power level is measured on the rated condition in the reverberation rooms by ISO 3741 standard. Therefore, these values can be increased owing to ambient conditions during operation.

Model	Sound Power Level [dB(A)]
AHNW16606A3 [HN1616 NK3]	44
AHNW16809A3 [HN1639 NK3]	44

### AHNW16606A3 [HN1616 NK3], AHNW16809A3 [HN1639 NK3]





# **Design and installation**

- 1. Select the Best Location
- 2.Installation Space
- 3. Water Piping System
- **4.Water Control**
- 5. Dip Switch Setting

# 1. Select the Best Location

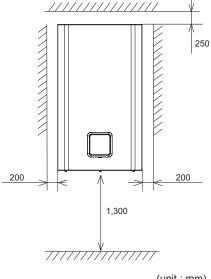
Select space for installing unit, which will meet the following conditions:

- The place where the unit shall be installed inside.
- The place shall easily bear a load exceeding four times of the unit weight.
- · The place where the unit shall be leveled.
- The place shall allow easy water drainage.
- The place where the unit shall be connected to the outdoor unit.
- The place where the unit is not affected by an electrical noise.
- The place where there should not be any heat source or steam near the unit.

# 2. Installation Space

### 2.1 General considerations

- 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.
- · Ensure that the spaces indicated by arrows around bottom, side, and top
- · Wider spaces are preferred for easy maintenance and piping.
- · If minimum service space is not secured, air circulation can be troubled and internal parts of the indoor unit can be damaged by overheating.



### (unit: mm)

### Note

· The default setting of the product is for heating only. To use the cooling system together, DIP S/W 4 should be turned ON and additional drain pan accessory should be installed.

# 3. Water Control

# 3.1 Water quality

Water quality should be complied with EN 98/83 EC Directives.

### **CAUTION**

- If the product is installed at existing hydraulic water loop, it is important to clean hydraulic 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 be removed by the standard filter of the heat pump system.
- Water quality check should be implemented before completing the installation of system. Detailed guide can be found in the table as below.

Water contents	Value						
рН	7.5~9.0						
Conductivity		10~500 uS/cm					
TDS (Total dissolved solids)		8~40	0 ppm				
Alkalinity (HCO <sub>3</sub> -)		60~300	) (mg/L)				
Total hardness			.5 °dH				
		71.4 ~ 15	1.7 (mg/L)				
Iron (Fe)		≤ 0.2 (mg/L)					
Sulphate (SO <sub>4</sub> <sup>2-</sup> )	≤ 100 (mg/L)						
Nitrite (NO <sub>3</sub> -)		≤ 100 (mg/L)					
Free chlorine (Cl <sub>2</sub> )		≤ 1 (	mg/L)				
		ppm	STS316	STS304			
		15℃	3,000	180			
	ml 17	40℃	500	50			
	pH7	60℃	200	30			
Chlorides (Cl⁻)		80℃	125	20			
		15℃	18,000	700			
	-110	40℃	2,600	250			
	pH9	60℃	1,000	170			
		80℃	550	130			



# 3.2 Frost protection

In areas of the country where entering water temperatures drop below 0 °C, the water pipe must be protected by using an approved antifreeze solution. Consult your heat pump unit supplier for locally approved solutions in your area.

Calculate the approximate volume of water in the system. And add the water volume contained in the heat pump to this total volume.

Antifreeze type	Antifreeze mixing ratio (by volume)					
Antineeze type	0°C	-5°C	-10°C	-15°C	-20°C	-25°C
Methanol	0%	6%	12%	16%	24%	30%
Ethylene glycol	0%	12%	20%	30%	-	-
Propylene glycol	0%	17%	25%	33%	-	-

### **CAUTION**

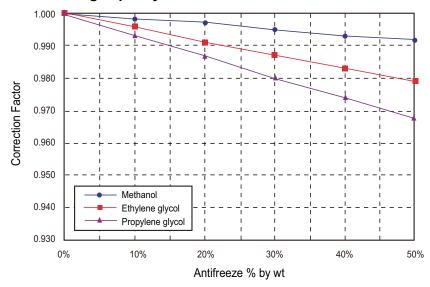
- Use only one of the above antifreeze.
- If a antifreeze is used, pressure drop and capability degradation of the system can be occurred.
- If one of antifreezes is used, corrosion can be occurred. So please add corrosion inhibitor.
- Please check the concentration of the antifreeze periodically to keep same concentration.
- When the antifreeze is used (for installation or operation), take care to ensure that antifreeze must not be touched.
- Ensure to respect all laws and norms of your country about antifreeze usage.

# 3. Water Control

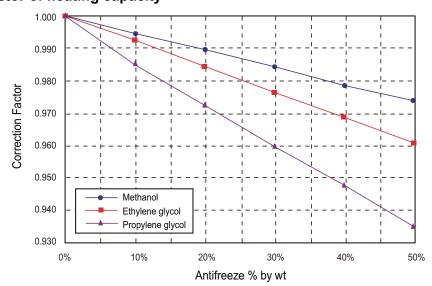
# 3.3 Capacity correction factor by antifreeze

Antifreeze Type	Item	Antifreeze % by wt				
Antifreeze Type	item	10%	20%	30%	40%	50%
	Cooling	0.998	0.997	0.995	0.993	0.992
Methanol	Heating	0.995	0.990	0.985	0.979	0.974
	Pressure Drop	1.023	1.057	1.091	1.122	1.160
	Cooling	0.996	0.991	0.987	0.983	0.979
Ethylene glycol	Heating	0.993	0.985	0.977	0.969	0.961
	Pressure Drop	1.024	1.068	1.124	1.188	1.263
	Cooling	0.993	0.987	0.980	0.974	0.968
Propylene glycol	Heating	0.966	0.973	0.960	0.948	0.935
	Pressure Drop	1.040	1.098	1.174	1.273	1.405

### ◆ Correction factor of cooling capacity



# ◆ Correction factor of heating capacity



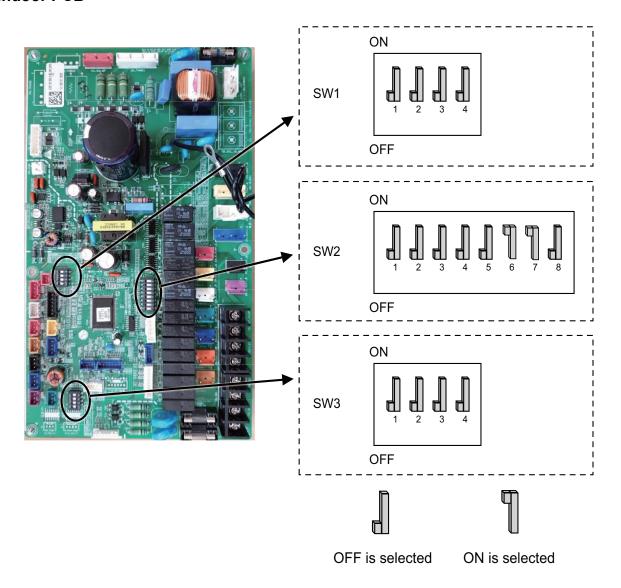
# 4. Dip Switch Setting

# 4.1 Information

Turn off electric power supply before setting DIP switch

• Whenever adjusting DIP switch, turn off electric power supply to avoid electric shock.

### **■** Indoor PCB



# 4. Dip Switch Setting

# ◆ Option Switch 1

Description		Setting	Default
MODBUS	1 🌡	1 As Master (LG extension modules)	
Communication Type	1 ¶	As Slave (3rd party controller)	1
Unused	2 2	Unused	2 🗐
Unused	<b>1 1</b> 3 3	Unused	3
Unused	1 1 4 4	Unused	4 🖟

### ♦ Option Switch 3

Description		Setting	Default	
Remote Room air sensor	1 🌡	Remote sensor is not installed	4	
(Accessory)	1 ¶	Remote sensor is installed	1	
Antifreeze agent	2 🌡	Antifreeze agent is not used	2	
Antineeze agent	2 ¶	Antifreeze agent is used *		
Unused	<b>1 1</b> 3 3	Unused	3 🖟	
Unused	1 T	Unused	4 🖟	

<sup>\*</sup> Possibility to allow colder water temperature by setting.

Bridge at CN\_FLOW2 on Hydro-PCB must be dis-connected to enable setting.

# 4. Dip Switch Setting

# ♦ Option Switch 2

Description		Setting	Default	
Role when central	1 🌡	As Master		
controller is equipped	1 ¶	As Slave	1 📗	
	2 3	Heat pump is installed (Heating(Cooling) circuit only)		
Accessory installation information	2 3	Heat pump + DHW tank is installed	2	
	2 3	Heat pump + DHW tank + Solar thermal system is installed	2 📗	
	2 3	Unused		
Cycle	4 📗	Heating Only	4 1	
Cycle	4 ¶	Heating & Cooling	4	
Flow Switch	5	Always	5 📗	
Detection	5 ¶	While water pump is on	े बा	
	6 7	Backup Heater is not used		
Selecting Backup Heater capacity	6 7	1Ø model : Half capacity is used 3Ø model : 1/3 capacity is used	6 ¶	
	<b>1 1</b> 6 7	Unused	7 ¶	
	¶ ¶ 6 7	Full capacity is used		
Thermostat installation	8 📗	Thermostat is NOT installed	o n	
information	8	Thermostat is installed	8	



# **DHW Tank Integrated Unit**

- 1. Features
- 2. List of functions
- 3. Specification
- 4. Drawing
- **5.Wiring Diagrams**
- **6.Piping Diagrams**
- 7. Performance Data
- 8. Water Pump Capacity
- 9. Accessories

# 1. List of Functions

### **♦** List of functions

Category	Functions	AHNW16606B0 [HN1616T NB0]
Installation	Backup heater	0
	Domestic Hot Water Tank heater (Install Kit)	X
	Screed Drying Mode	0
Reliability	Self diagnosis	0
	Auto Restart operation	0
	Child lock	0
	Sleep mode	X
Convenience	Timer (on/off)	0
	Timer (weekly)	0
	Group Control	X
	Remote room temperature sensing	X
	Outdoor Temperature sensing	X
	Zone control (2 heating circuits)	0
	Zone control (max. 4 heating circuits)	X
	Pool cooling heat utilisation	X
Special function kit	Solar / Biomass heat utilisation	X
	Wi-Fi control	X
	Group control wire	X
	2-Remo control wire	X
	Extension wire	X
	Thermostat Interface (230V AC)	X
	Thermostat Interface (24V AC)	X
	Water Pump ON / OFF Control	0
	Water Pump Forced Operation	0
	Flow Switch Control	0
	Solar-Thermal kit interface with Domestic Hot Water Tank	0
	Anti-Condensation on floor (cooling)	0
	PHEX Anti-Freezing Control	0
	Anti-overheating of Water Pipe	0
Water Circuit	Emergency Operation	0
Control	Autosetting according to Ambient Temperature	0
	Weather Dependent Operation with Thermostat	0
	Silent Operation	0
	Scheduler (Domestic Hot Water Tank Heater)	0
	Timer (Domestic Hot Water Tank Heater)	0
	Quick Domestic Hot Water Tank Heating	0
	Backup heater Capacity Control	0
	Sump Heater	X
	Dry Contact	X
	Gas/Oil boiler heat utilisation (hybrid function)	0
Remote Controller	Wired Remote Controller	X
Supply	Wireless Remote Controller	X

### Note

1. O : Applied, X : Not applied
Accessory : Ordered and purchased separately the accessory package referring to the model name provided and install at field.
Accessory line-ups varies by region, so check your local catalogue or local sales material.

- 2. Some functions can be limited by remote controller.
- 3. \*: These functions need to connect the wired remote controller.

### **◆** Accessory Compatibility List

Accessory		Accessory Function	AHNW16606B0	
Category	Model name	Accessory Function	[HN1616T NB0]	
PI485	PP485B00K	Gateway for communication indoor unit and outdoor unit     Connected on the outdoor unit	0	

# 2. Specifications

### **♦** Technical Specifications

	Indoor	AHNW16606B0 [HN1616T NB0]			
	Cooling For Fan Coil Unit			°C	7 ~ 25
Operation Dance	(Min.~Max.)	For under floor		°C	7 ~ 25
Operation Range	Heating	For Fan Coil Unit /F	Radiator	°C	25 ~ 58
(Leaving Water)	(Min.~Max.)	For under floor		°C	25 ~ 58
	Domestic Hot V	Water (Min.~Max.)		°C	10 ~ 60
Operation Range (A				°C	5 ~ 35
	Туре			-	Hydro module with integrated boiler
	Material			-	Enameled steel
	Water Volume		Rated	l	200
DHW Tank	Internal Thermal Protect limit			°C	95
	Maximum water temperature			°C	52
	Maximum wate	r pressure limit		bar	10
		Material		-	Polyurethane foam
	Insulation	Thickness		mm	50
		Heat loss (for 24hr)		kWh	1.67
	Water Volume		Rated	l	40
Buffer Tank	Material			-	Steel powder coated
	Insulation Mate	erial		-	Closed cell foamed rubber
	Type			-	Canned type for hot water circulation
	Model			-	Yonos PARA RS25/7 PWM1
	Motor type			-	BLDC
Water Pump	Steps of Speed	d		EA	Variable speed 13% to 100%
water Fump	Power input			W	3 ~ 45
	Water Flow Rate			ℓ / min	16.00
	Rat		Rated	ℓ / min	46.00
	Pressure drop		Max.	kPa	70
	Туре			-	Brazed Plate HEX
Hart Erribanian	Quantity			-	1
Heat Exchanger	Water Volume			l	3.3
(Water Side)	Water Flow Rate (Min. ~ Max.)			ℓ / min	13 ~ 70
	Insulation Material			-	Closed cell foamed rubber
Safety Valve	Pressure Limit		Max.	bar	3
				-	Manometer
Davis for \\/-top C	::4			-	Drain Valve / Fill Valve
Devices for Water Ci	ircuit			-	Shut Off Valve
				-	Air Vent
	Refrigerant	Gas (Outer Dia.)		mm(inch)	Ø 15.88 (5/8)
	Circuit	Liquid (Outer Dia.)		mm(inch)	Ø 9.52 (3/8)
	Water	Inlet (Inner Dia.)		mm(inch)	Male PT 25.4 (1)
Piping Connections	Circuit	Outlet (Inner Dia.)		mm(inch)	Male PT 25.4 (1)
. •	DHW Tank	Cold Inlet (Outer Dia.)		mm(inch)	Male PT 19.05 (3/4)
	Water	Hot Outlet (Outer Dia.)		mm(inch)	Male PT 25.4 (1)
	Circuit	Recirculation (Oute	r Ďia.)	mm(inch)	Male PT 19.05 (3/4)
Sound Pressure Level (at 1m)				dB(A)	27
Sound Power Level				dB(A)	36
Dimonsions (M × ⊔	~ D)	Unit		mm	607 × 2,079 × 725
Dimensions (W × H × D)  Shipping				mm	640 × 2,195 × 790
Unit					
Weight (without wate	or)	Unit Shipping		kg	228 238

### Note

- 1. Due to our policy of innovation some specifications may be changed without notification.
- Wiring cable size must comply with the applicable local and national code. And "Electric characteristics" chapter should be considered for electrical
  work and design. Especially the power cable and circuit breaker should be selected in accordance with that.
- 3. Sound pressure level is measured on the rated condition in the anechoic rooms by ISO 3745 standard. Sound power level is measured on the rated condition in the reverberation rooms by ISO 3741 standard. Therefore, these values can be increased owing to ambient conditions during operation.
- 4. This is true for pipe connections of suitable dimensions and joint distance of up to 20m.
- Pipe dimensions and types of pumps must always be verified or determined by the designing engineer of electrical installations. Circulation pumps must be dimensioned in such a way so as to ensure rated voltage (see table) through the device.

# 2. Specifications

### **♦** Electrical Specifications

	Indoor Unit Model Name	AHNW16606B0 [HN1616T NB0]	
	Power Supply	V, Ø, Hz	230, 1, 50
	Power Cable (H07RN-F) (Included Earth) <sup>1)</sup>	mm² x cores	4.0 x 3
	Power connection wiring <sup>2)</sup>	-	L1,N,Earth
	Heater Type	-	Sheath
Backup	Number of Heating Coil	EA	1
Heater (1) (1 Phase)	Capacity Combination	kW	2.0
	Operation	-	Automatic
( ,	Heating Steps	Step	1
	Rated Current	A	8.7
	Maximum Current	A	11.1
	Fuses	A	16
	Maximum electrical power <sup>3)</sup>	kW	2.52
	Power Supply	V, Ø, Hz	230, 1, 50
	Power Cable (H07RN-F) (Included Earth) <sup>1)</sup>	mm² x cores	4.0 x 3
	Power connection wiring <sup>2)</sup>	-	L1,N,Earth
	•		(needs connect Bridge to L2 from L1)
	Heater Type	-	Sheath
Backup	Number of Heating Coil	EA	2
Heater (2)	Capacity Combination	kW	2.0 + 2.0
(1 Phase)	Operation	-	Automatic
	Heating Steps	Step	<u> </u>
	Rated Current	Α	17.4
	Maximum Current	Α	19.9
	Fuses	A	20
	Maximum electrical power <sup>3)</sup>	kW	4.52
	Power Supply	V, Ø, Hz	400, 3, 50
	Power Cable (H07RN-F) (Included Earth) <sup>1)</sup>	mm² x cores	2.5 x 5
	Power connection wiring <sup>2)</sup>	-	L1,L2,L3,N,Earth
	Heater Type	-	Sheath
Backup	Number of Heating Coil	EA	3
Heater (3)	Capacity Combination	kW	2.0 + 2.0 + 2.0
(3 Phase)	Operation	-	Automatic
	Heating Steps	Step	1
	Rated Current	A	8.7
	Maximum Current	A	11.1
	Fuses	A	16 + 16 + 16
	Maximum electrical power <sup>3)</sup>	kW	6.52

### Noto

<sup>1.</sup> Wiring cable size must comply with the applicable local and national codes. And "Electric characteristics" chapter should be considered for electricalwork and design. Especially the power cable and circuit breaker should be selected in accordance with that.

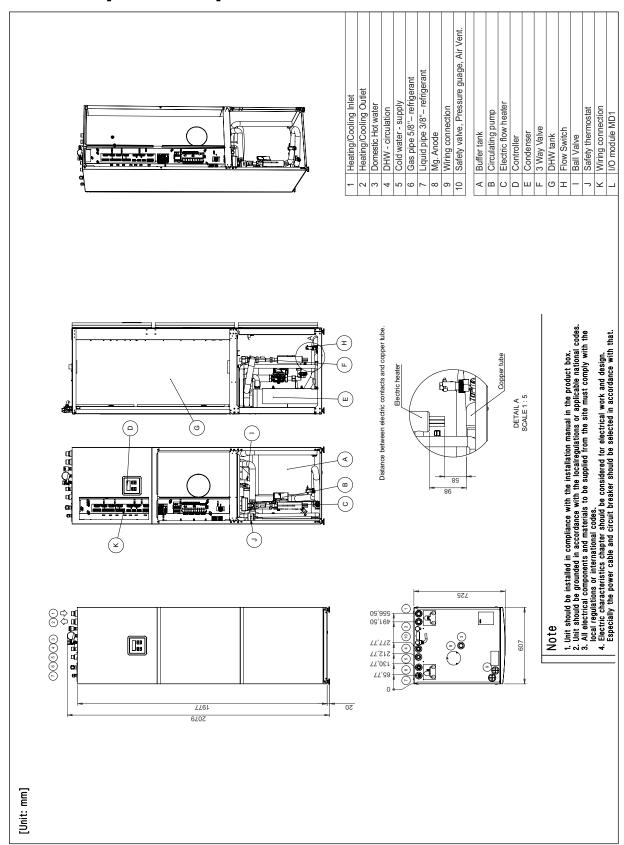
<sup>2.</sup> The guideline about cable is taken into account laying B2 from the table A.52.4 – IEC 60364-5-52. The cable in the installation pipe is fixed to the wall.

<sup>3.</sup> The size of Electrical Heater and the Fuses depend on the choice of the connection power.

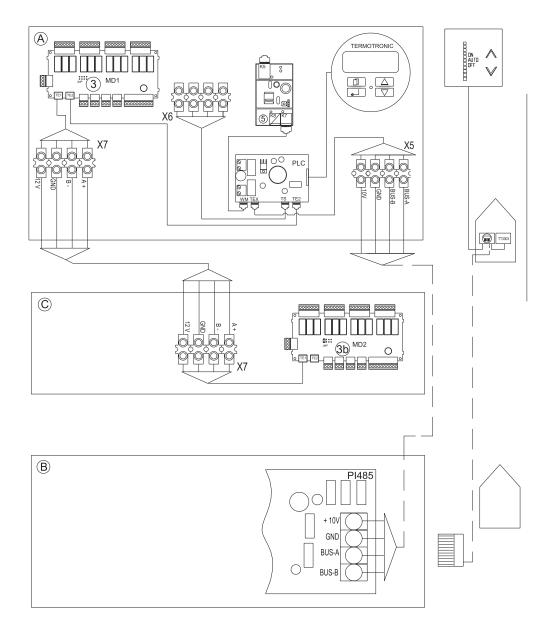
Joint maximal load (circulation pumps, electronic valves ...) which can be connected to or powered by the internal unit, must not exceed the specifiedvalue. Higher consumed parts (i.e. pumps) should have their own supply.

# 3. Drawing

# AHNW16606B0 [HN1616T NB0]

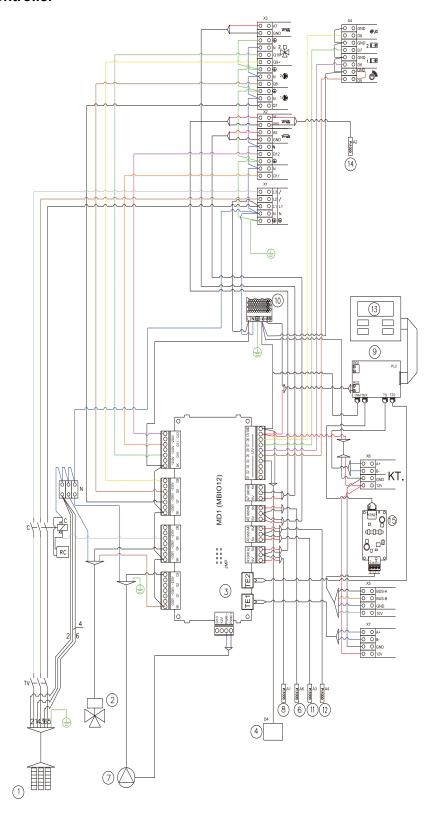


# ■ AHNW16606B0 [HN1616T NB0]



Elements mark	Connecting Terminals	Description
A : Indoor unit C	ontroller	
	-	Basic input/output module MD1
3	TE1	Communication with I/O module MD2
	TE2	Communication with the control electronics of the PLC screen module
JMP	-	Set-up of bridges (without)
	-	Connecting terminal for communication with expansion module MD2
X7	A+, B-	Communication
	GND, 12V	Power supply
	-	Connecting terminal for spatial corrector (optional)
X6	A+, B-	Communication
	GND, 12V	Power supply
	-	Connecting terminal for communication with external module Gateway PI485 in WPLV device
X5	BUS-A, BUS-B	Communication
	GND, 10V	Power supply
	-	Connecting terminal for communication with external module Gateway PI485 in WPLV device
5	TW MODBUS	Communication with PLC
	TX MODBUS	Not in use
	Ethernet	Internet (Ethernet) connection
	-	Process module
	WM	Communication with Web module
PLC	TEX	Communication with outdoor unit - PI485 Gateway
	TS	Communication with the spatial corrector
	TE2	Communication with the basic V/I module MD1
B : Gateway PI 4	85 in the outdoo	r unit
	-	External PI485 in the outdoor unit
PI485	BUS-A, BUS-B	Communication with the control electronics of the Process module PLC
	GND, + 10V	Power supply
C : Expansion w	all unit (3rd party	()
	-	Expansion input/output module MD2
3b	TE1	Communication with the basic V/I module MD1
	TE2	Not in use
JMP	-	Set-up of bridges (in first position)
	-	Connecting terminal for communication with I/O module MD1
X7	A+, B-	Communication
	GND, 12V	Power supply

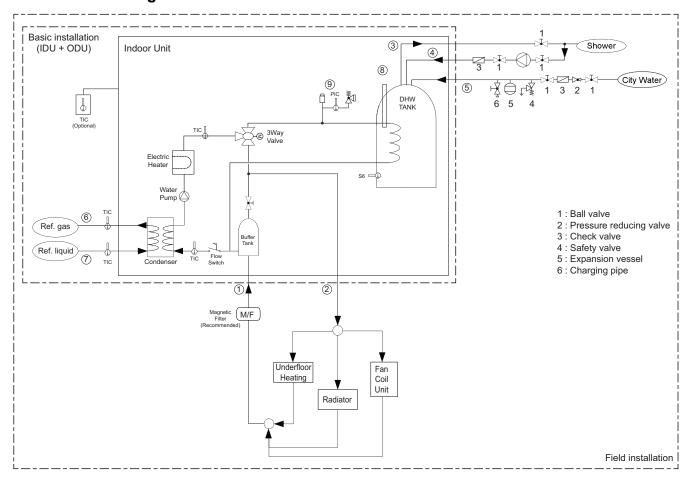
# ♦ Indoor unit Controller



Element Marks	<b>Connecting Terminals</b>	Description
X1	L1, L2, L3, N, PE	Power cable
	A5, GND	Temperature sensor for external temperature
X2	Q11, N	Cooling valve
	Q12, N, PE	Additional external source
	Q7, N, PE	Circulation pump of heating cycle 1 (optional)
хз	Q8, N, PE	Circulation pump of heating cycle 2 (optional)
^3	N, Q9+, Q10-	Mixing valve of heating cycle 2 (optional)
-	A7, GND	Temperature sensor of mixing-heating cycle 2 (optional)
	D8, GND	Switch heating/cooling and/or PV signal (optional)
X4	D7, GND	Thermostat of heating cycle 2 (optional)
^4	D6, GND	Thermostat of heating cycle 1 (optional)
	D5, GND	Remote on/off (optional)
X5	BUS-A, BUS-B, GND, 10 V	Communication with the ODU
X6	A+, B-, 12 V, GND	Communication spatial corrector (optional)
X7	A+, B-, 12 V, GND	Communication with expansion unit (optional)
1	-	Flow electrical heater
2	-	Tree way valve for switching between heating and DHW
3	-	Basic input/output module MD1
4	D4	Flow switch
	-	Web module (OPTIONAL)
_	TW Modbus	Communication with PLC
5	TX Modbus	Not in use
	Ethernet	Internet connection
6	A6	Temperature sensor of the supply pipe
7	Q3	Main circulation pump
8	A1	Temperature sensor of the return line
_	-	Process module - PLC
-	WM	Communication with the Web module
	TEX	MODBUS communication with the ODU
9	TS	Communication with the spatial corrector
	TE2	Communication with the basic module MD1
-	RQ1	ALARM dry contact
-	RQ2	RESET dry contact
	-	Power supply ~ 230 V / 12 V
-	L	Phase 230 V 50 Hz
-	N	Neutral 230 V 50 Hz
10	<del>-</del>	Protective earth
_	V-	GND
-	V+	12 V dc
11	A3	Temperature sensor refrigerant pipe - condenser inlet.
12	A4	Temperature sensor refrigerant pipe - condenser outlet.
13	-	Membrane Keyboard
14	A2	Temperature sensor of DHW
C	-	Electrical contactor of the electrical heater
TV	<del>-</del>	Thermal protection of the electrical heater
RC		RC Filter.
1.0		Optocoupler RS485
15	A+, B-, GND, +	Communication with ODU
10	KON2	Communication with PLC

# 5. Piping diagrams

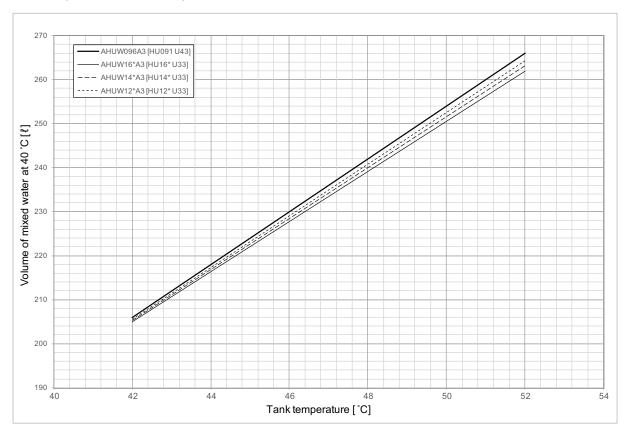
# ■ DHW Tank Integrated Unit



Symbol	System	Description
1	Cooling / Heating	Return flow
2		Heating Supply flow
3		Hot Water Outlet
4	Domestic Hot Water	Circulation flow Inlet
(5)		Cold Water Outleet
6	Outdoor Unit of Heat Pump	Gas pipe to ODU (based Cooling)
7	Outdoor Offic of Fleat Fulfip	Liquid pipe from ODU (based Cooling)
8		Mg. Annode
9	Devices of Indoor Unit	Safety group (Pressure indicator, safety valve, automatic air vent)
TIC	Devices of fridoor Offic	Temperature sensor
PIC		Pressure indicator
M/F	Magnetic Filter	3rd party accessory and Field installationIt is mandatory to install an additional filter on the heating water circuit.

# **6.1 Domestic Hot Water Volume**

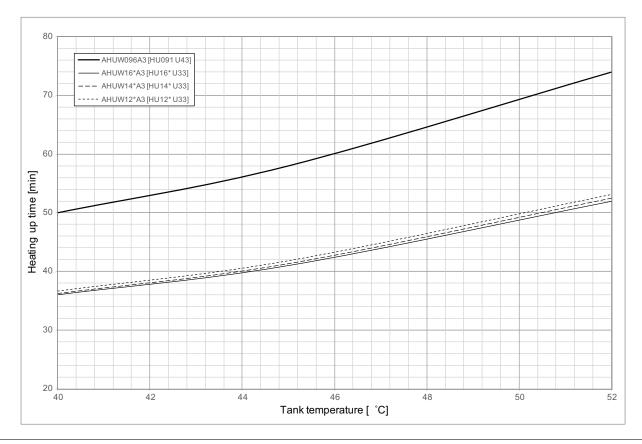
Water Volume means amount of water that can be tapped with a temperature of  $40\,^{\circ}$ C when the DHW tank has been heated up to a indicated temperature.



- It is based on the condition that water inlet temperature is 10 ℃.
- For using a higher daily Volume, additional heat up operation by electrical heater are required within 24 hours. Refer to the Owners or Installation manual for more information.
- · Heat losses of domestic hot water tank (According to EN 12897; XL-profile)

Tank Volume (ℓ)	Heat Lossed (kWh/24h)	
200	1.67	

# **6.2 Domestic Hot Water Performance**



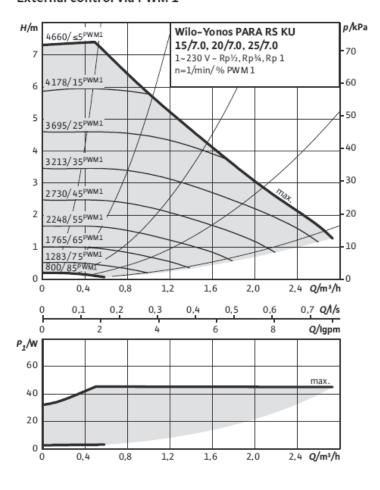
- Heat up time means time required to heat up the water in tank starting from a temperature of 10 °C up to the indicated temperature.
- It is based on heatpump only operation.

# 7. Water Pump Capacity

The water pump is three speed-adjustable (Maximum / Medium / Minimum), but Minimum step is not used. It is recommended to use Maximum or Medium steps. In case of noise by water flow, it may be required to change default water pump speed. In most case, however, it is strongly recommended to set speed as Maximum.

#### ♦ Yonos PARA RS 25/7.0 PWM1 Ku

#### External control via PWM 1



#### Note

- · Max.: high speed setting
- Operation cutoff range
- To secure enough water flow rate, do not set water pump speed as "Min."

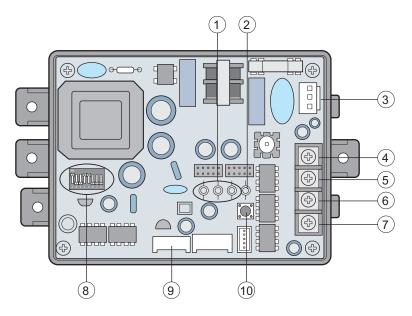


• Selecting a water flowrate outside the curves can cause damage to or malfunction of the unit.

# 8. Accessories

# 8.1 Modbus Converter (PP485B00K)

# 8.1.1 Part Description



# ■ Modbus Gateway For Indoor Unit

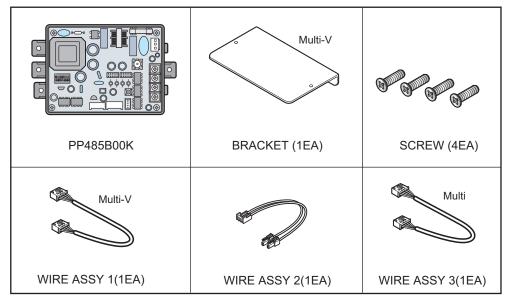
- ① LED01G, 02G, 03G: Communication Status LED
- ② LED1:RS-485 Status LED
- 3 CN PWR: 220V~ Connector
- (4) +10V: DC 10 V Terminal
- 5 GND: Ground
- 6 BUS\_A: \*RS-485 (+) Terminal (Refer to note)
- ⑦ BUS B: \*RS-485 (-) Terminal
- ® DIP Switch: Product Selection (Refer to the 「DIP Switch Configuration」)
- 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.

### 8. Accessories

### ■ Accessory Part List



Others: Tie Wrap (3 EA) - Cable Tie Clamp (1 EA)

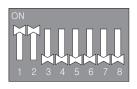
# 8.1.2 Installation Guide

- 1. 9 Connect CN\_OUT with Outdoor Unit by the cable(provided).
- 2. ⑥, ⑦ Connect RS-485 BUS\_A(+) and BUS\_(B)(-) with other network products. (ex. Central Controller, I-Gateway.....)
- 3. 8 Select DIP Switch Configuration.
- 4. Connect CN PWR with Outdoor PCB Power connector.
- 5. After Power is ON, check the Communication LED①
  - LED2G(Yellow), LED3G(Orange)
    - Normal : LED blinks continuously
    - Error : Check the DIP Switch setting & wiring connections0
- 6. ② Check RS-485 Communication Status LED:
  - Normal: LED blinks when PI485 receives data from central controller.
  - Error : Check the wiring connections.
- 7. Finally if all of the above steps are OK, then tie the cables by tie wraps & clamp



· Install the modbus converter after checking the hole for screw.

# 8.1.3 DIP Switch Configuration



### **A** CAUTION

- Switch No.1 and 2 sould be ON, and all others should be OFF.
- The wrong setting of DIP switches could cause malfunctioning.
   Switch setting must be done carefully.
- · Push the Reset button after changing the DIP switch.

# **THERMA** V<sub>TM</sub> Split Type

# **Outdoor unit**

- 1.List of functions
- 2. Specification
- 3. Dimensions
- 4. Wiring Diagram
- **5. Piping Diagram**
- **6.Performance Data**
- 7. Operation Range
- **8. Electric Characteristics**
- 9. Sound Levels

# 1. List of functions

### **■** Basic functions of Unit

	Category	AHUW056A3 [HU051 U43] AHUW076A3 [HU071 U43] AHUW096A3 [HU091 U43] AHUW126A3 [HU121 U33] AHUW146A3 [HU141 U33] AHUW166A3 [HU161 U33] AHUW128A3 [HU123 U33] AHUW148A3 [HU143 U33] AHUW148A3 [HU143 U33] AHUW168A3 [HU163 U33]
	Defrost / Deicing	0
	High pressure switch	X
	Low pressure switch	X
Reliability	Phase protection	Х
•	Restart delay (3-minutes)	0
	Self diagnosis	0
	Soft start	X
	Test function	X
	Wiring Error Check	X
	Peak Control	X
Convenience	Mode Lock	0
	Low Noise Operation	0
	Forced Cooling Operation (Outdoor Unit)	X
	SLC (Smart Load Control)	X
Network function	Network solution (LGAP)	X
ODU Dry Contact function	on	X

#### Note

Accessory: Ordered and purchased separately the accessory package referring to the model name provided and install at field. Accessory line-ups varies by region, so check your local catalogue or local sales material.

### ■ Accessory Compatibility List

Category		Product	Remark	AHUW056A3 [HU051 U43] AHUW076A3 [HU071 U43] AHUW096A3 [HU091 U43] AHUW126A3 [HU121 U33] AHUW146A3 [HU141 U33] AHUW166A3 [HU161 U33] AHUW128A3 [HU123 U33] AHUW148A3 [HU143 U33] AHUW168A3 [HU163 U33]
	AC EZ	PQCSZ250S0	AC EZ	X
	AC Ez Touch	PACEZA000	AC Ez Touch	0
	AC Smart	PACS4B000	AC Smart IV	0
Central Controller		PACS5A000	AC Smart 5	0
Central Controller	ACP	PACP4B000	ACP IV	0
		PACP5A000	ACP 5	0
	AC Manager **	PACM4B000	AC Manager IV	0
		PACM5A000	AC Manager 5	0
	ODU PI485	PMNFP14A1	PI 485 Gateway	0
Gateway	BACnet	PQNFB17C0	ACP BACnet	0
	Lonworks	PLNWKB000	ACP Lonworks	0
	PDI	PPWRDB000	PDI Standard	0
ETC	FUI	PQNUD1S40	PDI Premium	0
	ACS IO Module	PEXPMB000	-	X

<sup>1.</sup> O : Applied, X : Not applied

<sup>1.</sup> O: Possible, X: Impossible, -: Not applicable

<sup>2. \*:</sup> Some advanced functions controlled by individual controller cannot be operated.

<sup>3. \*\* :</sup> ACP or AC Smart is needed.

If you need more detail, please refer to the manual of product. (http://partner.lge.com/global: Home> Doc.Library> Product > Control(BECON))

# 2.1 Nominal Capacity and Power Input

### ■ Combination with Hydro Box type

Model Names	Outdoor Unit		AHUW056A3 [HU051 U43]	AHUW076A3 [HU071 U43]	
woder Names	Indoor Unit		AHNW16606A3 [HN1616 NK3]	AHNW16606A3 [HN1616 NK3]	
Capacity (Rated)	Cooling	kW	5.0	7.0	
Capacity (Nateu)	Heating	kW	5.0	7.0	
Power Input (Rated)	Cooling	kW	1.09	1.56	
rower input (Nateu)	Heating	kW	1.01	1.47	
Current (Rated)	Cooling	A	4.7	6.8	
Current (Nateu)	Heating	Α	4.4	6.4	
Maximum Running Current	Cooling	Α	19.0	19.0	
waxiindiii Ruilliilig Cullelit	Heating	Α	19.0	19.0	
EER	Cooling	W/W	4.60	4.50	
COP	Heating	W/W	4.93	4.75	
Prated (Low temp. Average)		kW	5.50	6.00	
Prated (High temp. Average) k\		kW	5.60	5.60	
SCOP (Low temp. Average)* W/		W/W	4.52	4.45	
SCOP (High temp. Average)*		W/W	3.23	3.23	

Model Names	Outdoor Unit		AHUW096A3 [HU091 U43]	AHUW126A3 [HU121 U33]
Wioder Names	Indoor Unit		AHNW16606A3 [HN1616 NK3]	AHNW16606A3 [HN1616 NK3]
Capacity (Rated)	Cooling	kW	9.0	10.4
Capacity (Nated)	Heating	kW	9.0	12.0
Power Input (Rated)	Cooling	kW	2.37	2.60
1 ower input (Nateu)	Heating	kW	2.05	2.64
Current (Rated)	Cooling	Α	10.3	11.3
Odirent (Nated)	Heating	Α	8.9	11.5
Maximum Running Current	Cooling	Α	19.0	25.0
	Heating	Α	19.0	25.0
EER	Cooling	W/W	3.80	4.00
COP	Heating	W/W	4.40	4.55
Prated (Low temp. Average)		kW	6.50	9.00
Prated (High temp. Average)		kW	5.60	9.90
SCOP (Low temp. Average)*		W/W	4.34	4.45
SCOP (High temp. Average)*		W/W	3.23	3.32

Model Names	Outdoor Unit		AHUW146A3 [HU141 U33]	AHUW166A3 [HU161 U33]
Woder Names	Indoor Unit		AHNW16606A3 [HN1616 NK3]	AHNW16606A3 [HN1616 NK3]
Capacity (Rated)	Cooling	kW	12.0	13.0
Capacity (Nateu)	Heating	kW	14.0	16.0
Power Input (Rated)	Cooling	kW	3.08	3.60
Tower input (Nateu)	Heating	kW	3.18	3.76
Current (Rated)	Cooling	Α	13.4	15.7
Current (Nateu)	Heating	A	13.8	16.3
Maximum Running Current	Cooling	A	25.0	25.0
Maximum Running Current	Heating	A	25.0	25.0
EER	Cooling	W/W	3.90	3.61
COP	Heating	W/W	4.41	4.26
Prated (Low temp. Average)		kW	9.50	10.00
Prated (High temp. Average)		kW	9.90	9.90
SCOP (Low temp. Average)*		W/W	4.45	4.30
SCOP (High temp. Average)*		W/W	3.32	3.32

- 1. Due to our policy of innovation some specifications may be changed without notification.
- 2. Wiring cable size must comply with the applicable local and national codes. And "Electric characteristics" chapter should be considered for electrical work and design. Especially the power cable and circuit breaker should be selected in accordance with that.
- Sound power level is measured on the rated condition in the reverberation rooms by ISO 3741 standard. Therefore, these values can be increased owing to ambient conditions during operation.
- 4. Performances are based on the following conditions (It is according to EN14511):
  - Interconnected Pipe Length is standard length and difference of Elevation (Outdoor ~ Indoor Unit) is 0m.
- 5. This product contains Fluorinated greenhouse gases.
  - \*: This values are accordance with EN14825.

Model Names	Outdoor Unit		AHUW128A3 [HU123 U33]	AHUW148A3 [HU143 U33]	
Model Names	Indoor Unit		AHNW16809A3 [HN1639 NK3]	AHNW16809A3 [HN1639 NK3]	
Capacity (Rated)	Cooling	kW	10.4	12.0	
Capacity (Nateu)	Heating	kW	12.0	14.0	
Power Input (Rated)	Cooling	kW	2.60	3.08	
Fower input (Nateu)	Heating	kW	2.64	3.18	
Current (Rated)	Cooling	Α	6.5	7.7	
Current (Nateu)	Heating	Α	6.6	8.0	
Maximum Running Current	Cooling	Α	16.1	16.1	
Maximum Rumming Current	Heating	Α	16.1	16.1	
EER	Cooling	W/W	4.00	3.90	
COP	Heating	W/W	4.55	4.41	
Prated (Low temp. Average)		kW	9.00	9.50	
Prated (High temp. Average)		kW	9.90	9.90	
SCOP (Low temp. Average)*		W/W	4.45	4.45	
SCOP (High temp. Average)*		W/W	3.32	3.32	

Model Names	Outdoor Unit Indoor Unit		AHUW168A3 [HU163 U33]
woder names			AHNW16809A3 [HN1639 NK3]
Capacity (Rated)	Cooling	kW	13.0
Capacity (Nateu)	Heating	kW	16.0
Power Input (Rated)	Cooling	kW	3.60
rower input (ixated)	Heating	kW	3.76
Current (Rated)	Cooling	A	9.0
Current (Nateu)	Heating	A	9.4
Maximum Running Current	Cooling	A	16.1
waxiinani Kunning Current	Heating	A	16.1
EER	Cooling	W/W	3.61
COP	Heating	W/W	4.26
Prated (Low temp. Average)		kW	10.00
Prated (High temp. Average)		kW	9.90
SCOP (Low temp. Average)*		W/W	4.30
SCOP (High temp. Average)*		W/W	3.32

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- 3. Sound power level is measured on the rated condition in the reverberation rooms by ISO 3741 standard. Therefore, these values can be increased owing to ambient conditions during operation.
- 4. Performances are based on the following conditions (It is according to EN14511):
  - Interconnected Pipe Length is standard length and difference of Elevation (Outdoor ~ Indoor Unit) is 0m.
- 5. This product contains Fluorinated greenhouse gases.
  - \*: This values are accordance with EN14825.

### ■ Combination with DHW tank Integrated type

Model Names	Outdoor Unit		AHUW096A3 [HU091 U43]	AHUW126A3 [HU121 U33]
Woder Names	Indoor Unit		AHNW16606B0 [HN1616T NB0]	AHNW16606B0 [HN1616T NB0]
Capacity (Rated)	Cooling	kW	9.0	10.4
Capacity (Nateu)	Heating	kW	9.0	12.0
Power Input (Rated)	Cooling	kW	2.88	3.30
Tower input (Nated)	Heating	kW	2.23	2.78
Current (Rated)	Cooling	Α	12.5	14.3
Current (realed)	Heating	Α	9.7	12.1
Maximum Running Current	Cooling	Α	19.0	25.0
	Heating	Α	19.0	25.0
EER	Cooling	W/W	3.12	3.15
COP	Heating	W/W	4.04	4.32
Prated (Low temp. Average)		kW	6.50	9.80
Prated (High temp. Average)		kW	5.60	9.80
SCOP (Low temp. Average)*		W/W	4.04	4.20
SCOP (High temp. Average)*		W/W	2.88	3.00

Model Names	Outdoor Unit		AHUW146A3 [HU141 U33]	AHUW166A3 [HU161 U33]
Woder Names	Indoor Unit		AHNW16606B0 [HN1616T NB0]	AHNW16606B0 [HN1616T NB0]
Capacity (Rated)	Cooling	kW	11.0	12.0
Capacity (Nateu)	Heating	kW	14.0	16.0
Power Input (Rated)	Cooling	kW	3.53	4.00
Fower input (Rateu)	Heating	kW	3.43	4.18
Current (Rated)	Cooling	A	15.3	17.4
Current (Nateu)	Heating	A	14.9	18.2
Maximum Running Current	Cooling	A	25.0	25.0
Maximum Running Current	Heating	A	25.0	25.0
EER	Cooling	W/W	3.12	3.00
COP	Heating	W/W	4.08	3.83
Prated (Low temp. Average)	•	kW	10.40	10.80
Prated (High temp. Average)		kW	9.80	9.80
SCOP (Low temp. Average)*		W/W	4.15	4.15
SCOP (High temp. Average)*		W/W	3.00	3.00

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- Sound power level is measured on the rated condition in the reverberation rooms by ISO 3741 standard. Therefore, these values can be increased owing to ambient conditions during operation.
- 4. Performances are based on the following conditions (It is according to EN14511) :
  - Interconnected Pipe Length is standard length and difference of Elevation (Outdoor ~ Indoor Unit) is 0m.
- 5. This product contains Fluorinated greenhouse gases.
- \*: This values are accordance with EN14825.

Model Names	Outdoor Unit		AHUW128A3 [HU123 U33]	AHUW148A3 [HU143 U33]
Woder Names	Indoor Unit		AHNW16606B0 [HN1616T NB0]	AHNW16606B0 [HN1616T NB0]
Capacity (Rated)	Cooling	kW	10.4	11.0
Capacity (Nateu)	Heating	kW	12.0	14.0
Power Input (Rated)	Cooling	kW	3.30	3.53
Fower input (Nateu)	Heating	kW	2.78	3.43
Current (Rated)	Cooling	A	8.3	8.8
Current (Nateu)	Heating	A	7.0	8.6
Maximum Running Current	Cooling	A	16.1	16.1
I waxiinuin Kunning Current	Heating	A	16.1	16.1
EER	Cooling	W/W	3.15	3.12
COP	Heating	W/W	4.32	4.08
Prated (Low temp. Average)		kW	9.80	10.40
Prated (High temp. Average)		kW	9.80	9.80
SCOP (Low temp. Average)*		W/W	4.20	4.15
SCOP (High temp. Average)*		W/W	3.00	3.00

Model Names	Outdoor Unit		AHUW168A3 [HU163 U33]
woder names	Indoor Unit		AHNW16606B0 [HN1616T NB0]
Capacity (Rated)	Cooling	kW	12.0
Capacity (Nateu)	Heating	kW	16.0
Power Input (Rated)	Cooling	kW	4.00
rower input (ixated)	Heating	kW	4.18
Current (Rated)	Cooling	A	10.0
Current (Nateu)	Heating	A	10.5
Maximum Running Current	Cooling	A	16.1
waxiindiii Ruilliilig Cullelit	Heating	A	16.1
EER	Cooling	W/W	3.00
COP	Heating	W/W	3.83
Prated (Low temp. Average)		kW	10.80
Prated (High temp. Average)		kW	9.80
SCOP (Low temp. Average)*		W/W	4.15
SCOP (High temp. Average)*		W/W	3.00

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- 3. Sound power level is measured on the rated condition in the reverberation rooms by ISO 3741 standard. Therefore, these values can be increased owing to ambient conditions during operation.
- 4. Performances are based on the following conditions (It is according to EN14511):
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- 5. This product contains Fluorinated greenhouse gases.
  - \*: This values are accordance with EN14825.

# 2.2 Outdoor Unit Specifications

	Outdoor Un	its		AHUW056A3 [HU051 U43]	AHUW076A3 [HU071 U43]
Power Supply			V, Ø, Hz	220-240 / 1 / 50	220-240 / 1 / 50
Operation Denge	Cooling	Min. ~ Max.	°C DB	5 ~ 48	5 ~ 48
Operation Range (Outdoor Tempera-	Heating	Min. ~ Max.	°C DB	-20 ~ 35	-20 ~ 35
ture)	Domestic Hot Water	Min. ~ Max.	°C DB	-	-
	Туре		-	Hermetic Motor	Hermetic Motor
	Model		Model x No.	GJT240MAA x 1	GJT240MAA x 1
Compressor	Diplacement		cm³/Rev.	24	24
Compressor	Capacity		kW	7.41	7.41
	Motor Type		-	BLDC	BLDC
	Motor Output	Rated	W x No.	2,137 x 1	2,137 x 1
	Туре		-	R410A	R410A
	GWP (Global Warmir	ng Potential)	-	2,087.5	2,087.5
Defrigerent	Precharged An	nount	g	1,800	1,800
Refrigerant	t-CO2 eq.		-	3.758	3.758
	Chargeless-Pip	e Length	m	7.5	7.5
	Additional Cha	rging Volume	g/m	40	40
	Control		-	Electronic Expansion Valve	Electronic Expansion Valve
Defrigerent Oil	Туре		-	FVC68D	FVC68D
Refrigerant Oil	Charged Volun	ne	cc x No.	570 x 1	570 x 1
Heat Exchanger	Row x Column	x FPI	-	2 x 38 x 14	2 x 38 x 14
Tieat Exchanger	No.		EA	1	1
Fan	Туре		-	Propeller	Propeller
Fall	Air Flow Rate	Rated	m³/min x No.	58 x 1	58 x 1
Fan Motor	Туре		-	BLDC	BLDC
	Output		W x No.	124 x 1	124 x 1
Sound Power Level	Heating	Rated	dB(A)	65	65
	Liquid	Type	-	Flare	Flare
Piping Connections	Liquid	Outer Dia.	mm(inch)	Ø 9.52 (3/8)	Ø 9.52 (3/8)
Piping Connections	Gas	Type	-	Flare	Flare
	Gas	Outer Dia.	mm(inch)	Ø 15.88 (5/8)	Ø 15.88 (5/8)
Piping Length		Standard	m	7.5	7.5
Piping Length		Max.	m	50	50
Piping Level Difference	Outdoor Unit ~ Indoor Unit	Max.	m	30	30
Dimensions	Unit	WxHxD	mm	950 x 834 x 330	950 x 834 x 330
	Packed Unit	WxHxD	mm	1,065 x 918 x 461	1,065 x 918 x 461
Woight	Unit		kg	59.0	59.0
Weight	Packed Unit		kg	65.0	65.0
Wiring Connections	Power Supply (H07RN-F) (Inc	Cable cluded Earth)	mm² x cores	4.0 x 3	4.0 x 3

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   Therefore, these values can be increased owing to ambient conditions during operation.
- 4. Performances are based on the following conditions (It is according to EN14511):
  - Interconnected Pipe Length is standard length and difference of Elevation (Outdoor ~ Indoor Unit) is 0m.
- 5. This product contains Fluorinated greenhouse gases.

	Outdoor Un	ts		AHUW096A3 [HU091 U43]	AHUW126A3 [HU121 U33]
Power Supply			V, Ø, Hz	220-240 / 1 / 50	220-240 / 1 / 50
Operation Range	Cooling	Min. ~ Max.	°C DB	5 ~ 48	5 ~ 48
(Outdoor Tempera-	Heating	Min. ~ Max.	°C DB	-20 ~ 35	-20 ~ 35
ture)	Domestic Hot Water	Min. ~ Max.	°C DB	-	220-240 / 1 / 50  5 ~ 48  -20 ~ 35  -  Hermetic Motor GPT442MAA x 1  44.2  13.92  BLDC  4,000 x 1  R410A  2,087.5  2,300  4.801  7.5  40
	Туре		-	Hermetic Motor	
	Model		Model x No.	GJT240MAA x 1	
Compressor	Diplacement		cm³/Rev.	24	
Compressor	Capacity		kW	7.41	
	Motor Type		-	BLDC	BLDC
	Motor Output	Rated	W x No.	2,137 x 1	
	Туре		-	R410A	R410A
	GWP			2.087.5	2 007 F
	(Global Warmii		-	2,067.5	•
Defrigerent	Precharged An	nount	g	1,800	2,300
Refrigerant	t-CO2 eq.		-	3.758	4.801
	Chargeless-Pip	e Length	m	7.5	7.5
	Additional Cha	rging Volume	g/m	40	40
	Control		-	Electronic Expansion Valve	Electronic Expansion Valve
Defrigarent Oil	Туре		-	FVC68D	FVC68D
Refrigerant Oil	Charged Volun	ne	cc x No.	570 x 1	1,300 x 1
Heat Exchanger	Row x Column	x FPI	-	2 x 38 x 14	2 x 32 x 14
Heat Exchanger	No.		EA	1	2
Fan	Туре		-	Propeller	
Fall	Air Flow Rate	Rated	m³/min x No.	58 x 1	55 x 2
Fan Motor	Туре		-	BLDC	
Fan Motor	Output		W x No.	124 x 1	124 x 2
Sound Power Level	Heating	Rated	dB(A)	65	66
	Liquid	Type	-	Flare	
Piping Connections	Liquid	Outer Dia.	mm(inch)	Ø 9.52 (3/8)	
Piping Connections	Gas	Type	-	Flare	Flare
	Gas	Outer Dia.	mm(inch)	Ø 15.88 (5/8)	Ø 15.88 (5/8)
Dining Longth	•	Standard	m	7.5	7.5
Piping Length		Max.	m	50	50
Piping Level Difference	Outdoor Unit ~ Indoor Unit	Max.	m	30	
Dimensions	Unit	WxHxD	mm	950 x 834 x 330	950 x 1,380 x 330
Dillicusions	Packed Unit	WxHxD	mm	1,065 x 918 x 461	1,140 x 1,462 x 461
Moight	Unit		kg	59.0	
Weight	Packed Unit		kg	65.0	107.0
Wiring Connections	Power Supply (H07RN-F) (Inc	Cable cluded Earth)	mm² x cores	4.0 x 3	6.0 x 3

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- 3. Sound power level is measured on the rated condition in the reverberation rooms by ISO 3741 standard. Therefore, these values can be increased owing to ambient conditions during operation.
- 4. Performances are based on the following conditions (It is according to EN14511):
  - Interconnected Pipe Length is standard length and difference of Elevation (Outdoor ~ Indoor Unit) is 0m.
- 5. This product contains Fluorinated greenhouse gases.

	Outdoor Un	its		AHUW146A3 [HU141 U33]	AHUW166A3 [HU161 U33]
Power Supply			V, Ø, Hz	220-240 / 1 / 50	220-240 / 1 / 50
Operation Range	Cooling	Min. ~ Max.	°C DB	5 ~ 48	5 ~ 48
Outdoor Tempera-	Heating	Min. ~ Max.	°C DB	-20 ~ 35	-20 ~ 35
ture)	Domestic Hot Water	Min. ~ Max.	°C DB	-	-
	Туре		-	Hermetic Motor	Hermetic Motor
	Model		Model x No.	GPT442MAA x 1	GPT442MAA x 1
6	Diplacement		cm³/Rev.	44.2	44.2
Compressor	Capacity		kW	13.92	13.92
	Motor Type		-	BLDC	BLDC
	Motor Output	Rated	W x No.	4,000 x 1	4,000 x 1
	Туре		-	R410A	R410A
	GWP (Global Warmin	ng Potential)	-	2,087.5	2,087.5
	Precharged An		g	2,300	2,300
Refrigerant	t-CO2 eq.		-	4.801	4.801
	Chargeless-Pip	ne Lenath	m	7.5	7.5
	Additional Cha		g/m	40	40
	Control	ignig volunio	-	Electronic Expansion Valve	Electronic Expansion Valve
	Туре		-	FVC68D	FVC68D
Refrigerant Oil	Charged Volun	ne	cc x No.	1,300 x 1	1,300 x 1
	Row x Column		-	2 x 32 x 14	2 x 32 x 14
Heat Exchanger	No.		EA	2	2
_	Туре		-	Propeller	Propeller
Fan	Air Flow Rate	Rated	m³/min x No.	55 x 2	55 x 2
	Туре		-	BLDC	BLDC
Fan Motor	Output		W x No.	124 x 2	124 x 2
Sound Power Level	Heating	Rated	dB(A)	66	66
	T T	Type	- '	Flare	Flare
5	Liquid	Outer Dia.	mm(inch)	Ø 9.52 (3/8)	Ø 9.52 (3/8)
Piping Connections		Type	- '	Flare	Flare
	Gas	Outer Dia.	mm(inch)	Ø 15.88 (5/8)	Ø 15.88 (5/8)
Distinct Lawrette		Standard	m	7.5	7.5
Piping Length		Max.	m	50	50
Piping Level Difference	Outdoor Unit ~ Indoor Unit	Max.	m	30	30
Dimensions	Unit	WxHxD	mm	950 x 1,380 x 330	950 x 1,380 x 330
Dimensions	Packed Unit	WxHxD	mm	1,140 x 1,462 x 461	1,140 x 1,462 x 461
\\/a:= a a4	Unit		kg	94.0	94.0
Weight	Packed Unit		kg	107.0	107.0
Wiring Connections	Power Supply (H07RN-F) (Inc		mm² x cores	6.0 x 3	6.0 x 3

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- 4. Performances are based on the following conditions (It is according to EN14511):
- Interconnected Pipe Length is standard length and difference of Elevation (Outdoor ~ Indoor Unit) is 0m.
- 5. This product contains Fluorinated greenhouse gases.

	Outdoor Un	its		AHUW128A3 [HU123 U33]	AHUW148A3 [HU143 U33]
Power Supply			V, Ø, Hz	380-415 / 1 / 50	380-415 / 1 / 50
Operation Bango	Cooling	Min. ~ Max.	°C DB	5 ~ 48	5 ~ 48
	Heating	Min. ~ Max.	°C DB	-20 ~ 35	-20 ~ 35
ture)	Domestic Hot Water	Min. ~ Max.	°C DB	-	-
	Туре		-	Hermetic Motor	Hermetic Motor
	Model		Model x No.	GPT442MAA x 1	GPT442MAA x 1
Compressor	Diplacement		cm³/Rev.	44.2	44.2
Compressor	Capacity		kW	13.92	13.92
	Motor Type		-	BLDC	BLDC
	Motor Output	Rated	W x No.	4,000 x 1	4,000 x 1
	Туре		-	R410A	R410A
	GWP (Global Warmin	ng Potential)	-	2,087.5	2,087.5
	Precharged An	nount	g	2,300	2,300
Refrigerant	t-CO2 eq.		-	4.801	4.801
	Chargeless-Pip	ne Lenath	m	7.5	7.5
	Additional Cha	raina Volume	g/m	40	40
Deperation Range Dutdoor Tempera- Jure)  Jure Scompressor  Jure Sc	Control	.gg retaine	-	Electronic Expansion Valve	Electronic Expansion Valve
	Туре		-	FVC68D	FVC68D
Refrigerant Oil	Charged Volu		cc x No.	1,300 x 1	1,300 x 1
	Charged Voit		-	2 x 32 x 14	2 x 32 x 14
Heat Exchanger	No.		EA	2	2
F	Type		-	Propeller	Propeller
ran	Air Flow Rate	Rated	m³/min x No.	55 x 2	55 x 2
Can Matan	Туре		-	BLDC	BLDC
Fan Motor	Output		W x No.	124 x 2	124 x 2
Sound Power Level	Heating	Rated	dB(A)	66	66
	Limuid	Type	- ′	Flare	Flare
Dining Connections	Liquid	Outer Dia.	mm(inch)	Ø 9.52 (3/8)	Ø 9.52 (3/8)
Piping Connections	Gas	Type	-	Flare	Flare
	Gas	Outer Dia.	mm(inch)	Ø 15.88 (5/8)	Ø 15.88 (5/8)
Dining Longth	•	Standard	m	7.5	7.5
Piping Length		Max.	m	50	50
Piping Level Difference	Outdoor Unit ~ Indoor Unit	Max.	m	30	30
Dimensions	Unit	WxHxD	mm	950 x 1,380 x 330	950 x 1,380 x 330
Dimensions	Packed Unit	WxHxD	mm	1,140 x 1,462 x 461	1,140 x 1,462 x 461
Majabt	Unit		kg	94.0	94.0
vveignt	Packed Unit		kg	107.0	107.0
Wiring Connections	Power Supply (H07RN-F) (Inc	Cable cluded Earth)	mm² x cores	2.5 x 5	2.5 x 5

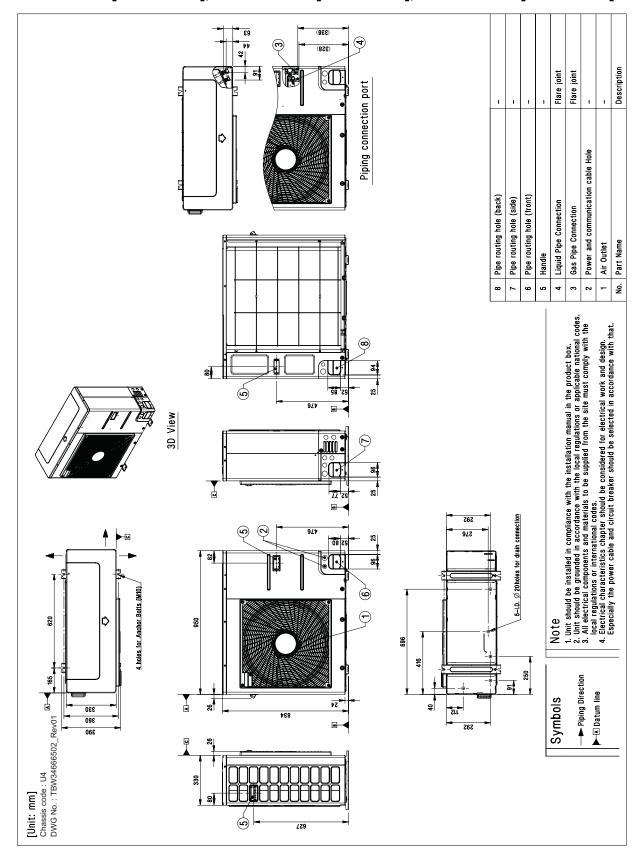
- 1. Due to our policy of innovation some specifications may be changed without notification.
- Wiring cable size must comply with the applicable local and national codes. And "Electric characteristics" chapter should be considered for electrical work and design. Especially the power cable and circuit breaker should be selected in accordance with that.
- 3. Sound power level is measured on the rated condition in the reverberation rooms by ISO 3741 standard. Therefore, these values can be increased owing to ambient conditions during operation.
- 4. Performances are based on the following conditions (It is according to EN14511):
  - Interconnected Pipe Length is standard length and difference of Elevation (Outdoor ~ Indoor Unit) is 0m.
- 5. This product contains Fluorinated greenhouse gases.

	Outdoor Un	its		AHUW168A3 [HU163 U33]
Power Supply			V, Ø, Hz	380-415 / 3 / 50
Operation Range	Cooling	Min. ~ Max.	°C DB	5 ~ 48
(Outdoor Tempera-	Heating	Min. ~ Max.	°C DB	-20 ~ 35
ture)	Domestic Hot Water	Min. ~ Max.	°C DB	-
	Туре		-	Hermetic Motor
	Model		Model x No.	GPT442MAA x 1
Compressor	Diplacement		cm³/Rev.	44.2
Compressor	Capacity		kW	13.92
	Motor Type		-	BLDC
	Motor Output	Rated	W x No.	4,000 x 1
	Туре		-	R410A
	GWP			2,087.5
	(Global Warmir	ng Potential)	-	,
Refrigerant	Precharged Am	nount	g	2,300
Reingerani	t-CO2 eq.		-	4.801
	Chargeless-Pip	e Length	m	7.5
	Additional Cha	rging Volume	g/m	40
	Control		-	Electronic Expansion Valve
Refrigerant Oil	Туре		-	FVC68D
Reingerant Oil	Charged Volum		cc x No.	1,300
Heat Exchanger	Row x Column	x FPI	-	2 x 32 x 14
Heat Exchanger	No.		EA	2
Fan	Туре		-	Propeller
raii	Air Flow Rate	Rated	m³/min x No.	55 x 2
Fan Motor	Туре		-	BLDC
ran wotor	Output		W x No.	124 x 2
Sound Power Level	Heating	Rated	dB(A)	66
	Liquid	Type	-	Flare
Piping Connections	Liquid	Outer Dia.	mm(inch)	Ø 9.52 (3/8)
Fibility Confidentions	Gas	Type	-	Flare
	Gas	Outer Dia.	mm(inch)	Ø 15.88 (5/8)
Piping Length		Standard	m	7.5
i ipilig Leligili		Max.	m	50
Piping Level Difference	Outdoor Unit ~ Indoor Unit	Max.	m	30
Dimensions	Unit	WxHxD	mm	950 x 1,380 x 330
סוווסווסוווס	Packed Unit	WxHxD	mm	1,140 x 1,462 x 461
Weight	Unit		kg	94.0
vvcigiit	Packed Unit		kg	107.0
Wiring Connections	Power Supply (H07RN-F) (Inc	Cable cluded Earth)	mm² x cores	2.5 x 5

- 1. Due to our policy of innovation some specifications may be changed without notification.
- Wiring cable size must comply with the applicable local and national codes. And "Electric characteristics" chapter should be considered for electrical work and design. Especially the power cable and circuit breaker should be selected in accordance with that.
- 3. Sound power level is measured on the rated condition in the reverberation rooms by ISO 3741 standard.
- Therefore, these values can be increased owing to ambient conditions during operation.
- 4. Performances are based on the following conditions (It is according to EN14511):
  - Interconnected Pipe Length is standard length and difference of Elevation (Outdoor ~ Indoor Unit) is 0m.
- 5. This product contains Fluorinated greenhouse gases.

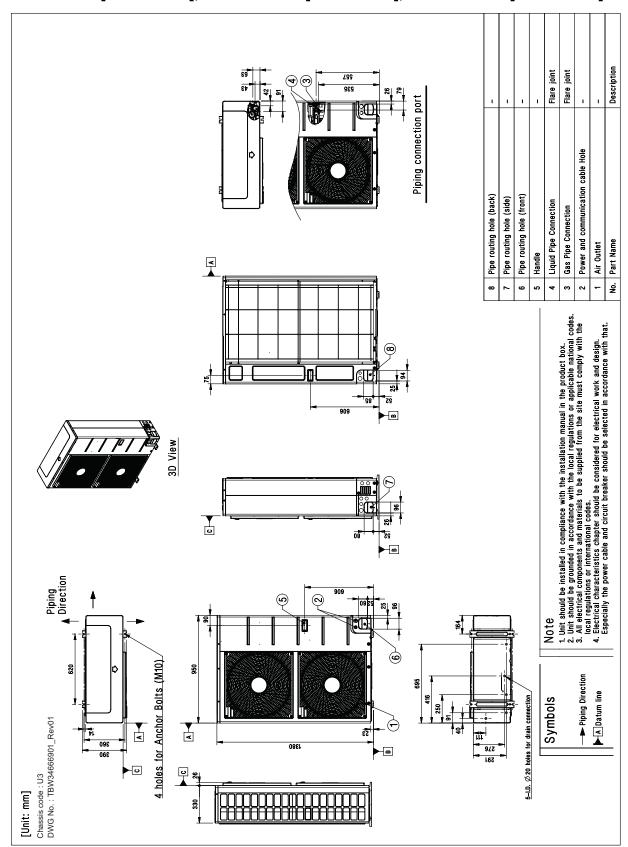
# 3. Dimensions

# ■ AHUW056A3 [HU051 U43], AHUW076A3 [HU071 U43], AHUW096A3 [HU091 U43]

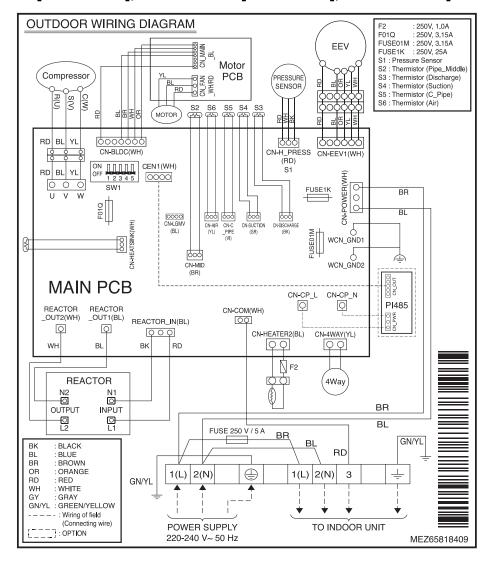


# 3. Dimensions

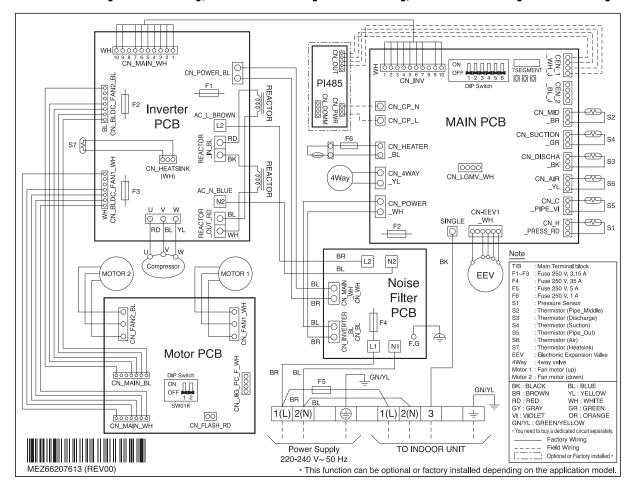
■ AHUW146A3 [HU141 U33], AHUW166A3 [HU161 U33], AHUW128A3 [HU123 U33], AHUW148A3 [HU143 U33], AHUW168A3 [HU163 U33], AHUW126A3 [HU121 U33]



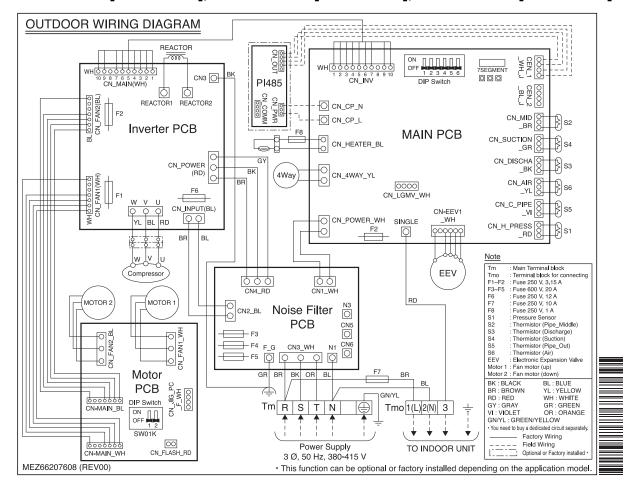
# ■ AHUW056A3 [HU051 U43], AHUW076A3 [HU071 U43], AHUW096A3 [HU091 U43]



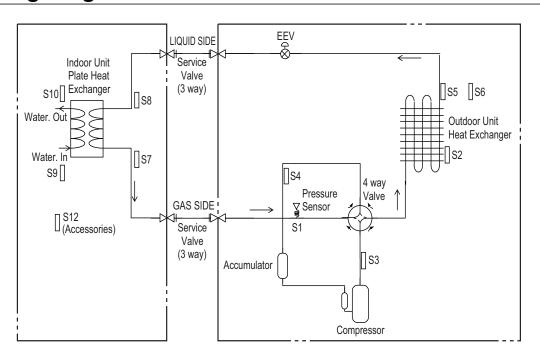
# ■ AHUW126A3 [HU121 U33], AHUW146A3 [HU141 U33], AHUW166A3 [HU161 U33]



# ■ AHUW128A3 [HU123 U33], AHUW148A3 [HU143 U33], AHUW168A3 [HU163 U33]



# 5. Piping Diagram



# **♦** Description

Category	Symbol	Meaning	PCBConnector	Remarks
	S1	Pressure sensor	CN_H_PRESS	
	S2	Condenser middle temperature sensor	CN_MID	
	S3	Compressor-discharge pipe temperature sensor	CN_DISCHA	
Outdoor Unit	S4	Compressor-suction pipe temperature sensor	CN_SUCTION	
	S5	Condenser temperature sensor	CN_C_PIPE	- Description is expressed based on Cooling mode.
	S6	Outdoor air temperature sensor	CN_AIR	
	EEV	Electronic Expansion Valve	CN_EEV1_WH	
	S7	Outlet evaporator temperature sensor	CN_PIPE_OUT	- Meaning is expressed based on Cooling mode.
	S8	Inlet evaporator temperature sensor	CN_PIPE_IN	- Meaning is expressed based on Cooling mode.
	S9	Entering water temperature sensor		
Indoor Unit	S10	Leaving water temperature sensor	CN TH3	
	S2 Conden S3 Compre tempera Compre tempera S4 Compre sensor S5 Conden S6 Outdoor EEV Electror S7 Outlet e S8 Inlet eva S9 Entering cor Unit S10 Leaving S11 Backup sensor	Backup heater outlet temperature sensor	011_1110	
	S12	Remote air temperature sensor	CN_ROOM	- Optional accessory (being sold separately)- Not shown in diagram

# **6.1 Cooling Operation**

# 6.1.1 Combination with Hydro Box type

### ■ AHUW056A3 [HU051 U43] + AHNW16606A3 [HN1616 NK3]

Outdoor	LWT	7°C	LWT 10°C		LWT	LWT 13°C LWT 15°C			LWT 18°C		LWT 20°C		LWT 22°C	
Temperature	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	4.70	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	5.00	1.09	5.17	1.17	5.37	1.21
40℃ DB	3.64	1.24	3.86	1.28	4.24	1.31	4.50	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	1.40	4.40	1.42	4.54	1.40	4.68	1.39

### ■ AHUW076A3 [HU071 U43] + AHNW16606A3 [HN1616 NK3]

Outdoor	LWT	7°C	LWT	LWT 10°C		LWT 13°C		LWT 15°C		LWT 18°C		LWT 20°C		LWT 22°C	
Temperature	TC	PI	TC	PI	TC	PI	TC	PI	TC	PI	TC	PI	TC	PI	
20℃ DB	5.12	0.95	5.75	1.02	6.40	1.09	6.95	1.16	7.54	1.23	8.06	1.30	-	-	
30℃ DB	5.81	1.48	6.09	1.50	6.58	1.62	7.19	1.56	7.34	1.54	7.66	1.52	-	-	
35℃ DB	5.34	1.60	5.83	1.66	6.28	1.68	6.79	1.69	7.00	1.56	7.23	1.67	7.51	1.73	
40℃ DB	5.09	1.77	5.40	1.82	5.93	1.87	6.30	1.89	6.42	1.73	6.66	1.75	6.92	1.79	
45℃ DB	4.30	1.90	4.77	1.94	5.24	1.97	5.68	2.00	6.16	2.04	6.35	2.01	6.55	1.98	

### ■ AHUW096A3 [HU091 U43] + AHNW16606A3 [HN1616 NK3]

Outdoor	LWT	7°C	LWT	10°C	LWT	LWT 13°C		LWT 15°C		LWT 18°C		LWT 20°C		LWT 22°C	
Temperature	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	7.50	2.51	8.07	2.55	8.74	2.58	9.00	2.37	9.30	2.53	9.66	2.63	
40℃ DB	6.54	2.70	6.94	2.76	7.62	2.84	8.10	2.87	8.25	2.62	8.56	2.66	8.90	2.73	
45℃ DB	5.52	2.89	6.13	2.93	6.74	3.00	7.30	3.03	7.91	3.09	8.16	3.05	8.42	3.01	

- 1. DB : Dry bulb temperature(°C), LWT : Leaving water temperature(°C)
- 2. TC: Total capacity(kW), PI: Power Input(kW)
- 3. Direct interpolation is permissible. Do not extrapolate.
- 4. Measuring procedure follows EN14511.
  - · 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.

### ■ AHUW126A3 [HU121 U33] + AHNW16606A3 [HN1616 NK3]

### ■ AHUW128A3 [HU123 U33] + AHNW16809A3 [HN1639 NK3]

Outdoor	LWT	7°C	LWT	10°C	LWT	13°C	LWT	15°C	LWT	18°C	LWT	20°C	LWT	22°C
Temperature	TC	PI	TC	PI	TC	PI	TC	PI	TC	PI	TC	PI	TC	PI
20℃ DB	7.60	1.59	8.55	1.70	9.51	1.82	10.33	1.94	11.19	2.05	11.98	2.17	-	-
30℃ DB	8.62	2.46	9.05	2.50	9.78	2.71	10.67	2.60	10.90	2.57	11.37	2.53	-	-
35℃ DB	7.94	2.66	8.66	2.75	9.33	2.80	10.10	2.82	10.40	2.60	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	3.30

### ■ AHUW146A3 [HU141 U33] + AHNW16606A3 [HN1616 NK3]

### ■ AHUW148A3 [HU143 U33] + AHNW16809A3 [HN1639 NK3]

Outdoor	LWT	7°C	LWT	10°C	LWT	13°C	LWT	15°C	LWT	18°C	LWT	20°C	LWT	22°C
Temperature	TC	PI	TC	PI	TC	PI	TC	PI	TC	PI	TC	PI	TC	PI
20℃ DB	8.13	1.80	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	8.50	3.03	9.99	3.25	10.76	3.32	11.65	3.35	12.00	3.08	12.40	3.29	12.88	3.41
40℃ DB	8.10	3.37	9.25	3.59	10.17	3.69	10.80	3.73	11.01	3.40	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]

### ■ AHUW168A3 [HU163 U33] + AHNW16809A3 [HN1639 NK3]

Outdoor	LWT	7°C	LWT	10°C	LWT	13°C	LWT	15°C	LWT	18°C	LWT	20°C	LWT	22°C
Temperature	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	9.70	3.07	11.31	3.47	12.22	3.75	13.34	3.60	13.63	3.55	14.21	3.50	-	-
35℃ DB	8.92	3.30	10.82	3.81	11.66	3.88	12.63	3.91	13.00	3.60	13.43	3.85	13.96	3.98
40℃ DB	8.51	3.67	10.03	4.19	11.02	4.31	11.70	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	11.80	4.64	12.16	4.58

- 1. DB : Dry bulb temperature( $^{\circ}$ C), LWT : Leaving water temperature( $^{\circ}$ C)
- 2. TC : Total capacity(kW), PI : Power Input(kW)
- 3. Direct interpolation is permissible. Do not extrapolate.
- 4. Measuring procedure follows EN14511.
  - 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.

# 6.1.2 Combination with DHW tank Integrated type

### ■ AHUW096A3 [HU091 U43] + AHNW16606B0 [HN1616T NB0]

Outdoor	LWT	7°C	LWT	10°C	LWT	13°C	LWT	15°C	LWT	18°C	LWT	20°C	LWT	22°C
Temperature	TC	PI	TC	PI	TC	PI	TC	PI	TC	PI	TC	PI	TC	PI
20℃ DB	9.00	2.64	9.33	2.63	9.66	2.62	9.88	2.62	10.21	2.61	10.75	2.63	-	-
30℃ DB	9.00	3.18	9.11	3.07	9.22	2.97	9.29	2.90	9.40	2.79	9.89	2.81	-	-
35℃ DB	9.00	3.45	9.00	3.29	9.00	3.14	9.00	3.04	9.00	2.88	9.47	2.90	9.94	2.91
40℃ DB	7.80	3.35	8.13	3.31	8.45	3.27	8.67	3.24	9.00	3.20	9.25	3.10	9.49	3.01
45℃ DB	6.60	3.25	7.25	3.32	7.91	3.39	8.35	3.44	9.00	3.51	9.02	3.31	9.04	3.10

### ■ AHUW126A3 [HU121 U33] + AHNW16606B0 [HN1616T NB0]

### ■ AHUW128A3 [HU123 U33] + AHNW16606B0 [HN1616T NB0]

Outdoor	LWT	7°C	LWT	10°C	LWT	13°C	LWT	15°C	LWT	18°C	LWT	20°C	LWT	22°C
Temperature	TC	PI												
20℃ DB	10.40	3.62	10.51	3.31	10.63	3.00	10.71	2.80	10.82	2.49	11.51	2.50	-	-
30℃ DB	10.40	4.28	10.44	3.94	10.48	3.60	10.50	3.37	10.54	3.03	11.21	3.05	-	-
35℃ DB	10.40	4.61	10.40	4.25	10.40	3.90	10.40	3.66	10.40	3.30	11.07	3.32	11.73	3.34
40℃ DB	9.73	4.85	9.91	4.55	10.09	4.25	10.22	4.05	10.40	3.75	10.99	3.68	11.57	3.61
45℃ DB	9.06	5.09	9.42	4.84	9.79	4.60	10.03	4.44	10.40	4.20	10.91	4.05	11.41	3.89

### ■ AHUW146A3 [HU141 U33] + AHNW16606B0 [HN1616T NB0]

### ■ AHUW148A3 [HU143 U33] + AHNW16606B0 [HN1616T NB0]

Outdoor	LWT	7°C	LWT	10°C	LWT	13°C	LWT	15°C	LWT	18°C	LWT	20°C	LWT	22°C
Temperature	TC	PI												
20℃ DB	11.00	3.85	11.12	3.53	11.25	3.20	11.33	2.98	11.45	2.66	12.18	2.68	-	-
30℃ DB	11.00	4.55	11.04	4.19	11.08	3.84	11.11	3.60	11.15	3.24	11.86	3.26	-	-
35℃ DB	11.00	4.90	11.00	4.53	11.00	4.15	11.00	3.90	11.00	3.53	11.70	3.55	12.40	3.57
40℃ DB	10.29	5.16	10.48	4.84	10.68	4.51	10.81	4.30	11.00	3.97	11.62	3.92	12.23	3.86
45℃ DB	9.58	5.42	9.97	5.15	10.35	4.87	10.61	4.69	11.00	4.41	11.53	4.29	12.06	4.16

### ■ AHUW166A3 [HU161 U33] + AHNW16606B0 [HN1616T NB0]

### ■ AHUW168A3 [HU163 U33] + AHNW16606B0 [HN1616T NB0]

Outdoor	LWT	7°C	LWT	10°C	LWT	13°C	LWT	15°C	LWT	18°C	LWT	20°C	LWT	22°C
Temperature	TC	PI												
20℃ DB	12.00	4.43	12.13	4.05	12.27	3.66	12.36	3.40	12.49	3.02	13.29	3.03	-	-
30℃ DB	12.00	4.94	12.04	4.60	12.09	4.25	12.12	4.02	12.16	3.67	12.94	3.69	-	-
35℃ DB	12.00	5.20	12.00	4.87	12.00	4.55	12.00	4.33	12.00	4.00	12.77	4.03	13.53	4.05
40℃ DB	11.23	5.58	11.44	5.26	11.65	4.95	11.79	4.74	12.00	4.43	12.68	4.40	13.35	4.38
45℃ DB	10.45	5.95	10.87	5.65	11.30	5.35	11.58	5.15	12.00	4.85	12.58	4.78	13.16	4.71

- 2. TC : Total capacity(kW), PI : Power Input(kW)
- 3. Direct interpolation is permissible. Do not extrapolate.
- 4. Measuring procedure follows EN14511.
  - 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. This performance data is based on the following amount of refrigerant. : 9kW 2.6kg, 12/14/16kW 3.5kg

# **6.2 Heating Operation**

# 6.2.1 Combination with Hydro Box type

### ■ AHUW056A3 [HU051 U43] + AHNW16606A3 [HN1616 NK3]

### **♦** Peak Capacity (Not included defrost effect)

Outdoor	LWT	30℃	LWT	35℃	LWT	40℃	LWT	45℃	LWT	50℃	LWT	55℃
Temperature	PC	PI										
-20 ℃ DB	2.72	0.94	3.11	1.67	3.50	2.40	3.89	3.13	-	-	-	-
-15 ℃ DB	3.40	0.92	3.89	1.63	4.38	2.34	4.86	3.06	5.35	3.77	-	-
-7 ℃ DB	3.86	0.89	4.41	1.58	4.96	2.28	5.51	2.97	6.06	3.66	6.61	4.36
-2 ℃ DB	4.04	0.78	4.62	1.38	5.20	1.98	5.77	2.59	6.35	3.19	6.93	3.79
2 ℃ DB	4.19	0.68	4.79	1.22	5.39	1.75	5.98	2.28	6.58	2.81	7.18	3.34
7 ℃ DB	4.38	0.57	5.00	1.01	5.63	1.45	6.25	1.89	6.88	2.34	7.50	2.78
10 ℃ DB	4.49	0.50	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	0.80	6.83	1.05	7.52	1.29	8.20	1.54

### ◆ Total Capacity (Included defrost effect)

-	• •				•							
Outdoor	LWT	30℃	LWT	35℃	LWT	<b>40</b> ℃	LWT	<b>45</b> ℃	LWT	50℃	LWT	<b>55</b> ℃
Temperature	TC	PI	TC	PI	TC	PI	TC	PI	TC	PI	TC	PI
-20 ℃ DB	2.61	0.90	2.99	1.60	3.36	2.30	3.73	3.01	-	-	-	-
-15 ℃ DB	3.27	0.88	3.73	1.56	4.20	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	1.80	5.34	2.35	5.87	2.90	6.41	3.45
2 ℃ DB	3.73	0.59	4.26	1.05	4.79	1.50	5.33	1.96	5.86	2.42	6.39	2.87
7 ℃ DB	4.38	0.57	5.00	1.01	5.63	1.45	6.25	1.89	6.88	2.34	7.50	2.78
10 ℃ DB	4.49	0.50	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	0.80	6.83	1.05	7.52	1.29	8.20	1.54

- 1. DB : Dry bulb temperature(  ${}^{\circlearrowright}$  ), LWT : Leaving water temperature(  ${}^{\circlearrowright}$  )
- 2. TC: Total capacity(kW), PI: Power Input(kW)
- 3. PC : Peak Capacity (Not included defrost effect, kW)
- 4. Direct interpolation is permissible. Do not extrapolate.
- 5. Measuring procedure follows EN14511.
  - 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.

### ■ AHUW076A3 [HU071 U43] + AHNW16606A3 [HN1616 NK3]

### Peak Capacity (Not included defrost effect)

Outdoor	LWT	30℃	LWT	35℃	LWT	40℃	LWT	45℃	LWT	50℃	LWT	55℃
Temperature	PC	PI										
-20 ℃ DB	4.26	1.90	4.34	2.46	4.42	3.02	4.50	3.57	-	-	-	-
-15 ℃ DB	5.33	1.86	5.43	2.40	5.53	2.94	5.62	3.49	5.72	4.03	-	-
-7 ℃ DB	6.06	1.72	6.17	2.22	6.28	2.72	6.39	3.22	6.50	3.72	6.61	4.23
-2 °C DB	6.35	1.51	6.47	1.95	6.58	2.39	6.70	2.83	6.81	3.27	6.93	3.71
2 ℃ DB	6.58	1.34	6.70	1.73	6.82	2.12	6.94	2.51	7.06	2.90	7.18	3.29
7 ℃ DB	6.88	1.13	7.00	1.46	7.13	1.79	7.25	2.12	7.38	2.45	7.50	2.78
10 ℃ DB	7.05	1.00	7.18	1.30	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	8.20	1.64

### ◆ Total Capacity (Included defrost effect)

Outdoor	LWT	30℃	LWT	35℃	LWT	40℃	LWT	45℃	LWT	50℃	LWT	55℃
Temperature	TC	PI										
-20 ℃ DB	4.09	1.83	4.17	2.36	4.24	2.90	4.32	3.43	-	-	-	-
-15 ℃ DB	5.12	1.78	5.21	2.30	5.31	2.83	5.40	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	6.30	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	2.50	6.39	2.83
7 ℃ DB	6.88	1.13	7.00	1.46	7.13	1.79	7.25	2.12	7.38	2.45	7.50	2.78
10 ℃ DB	7.05	1.00	7.18	1.30	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	8.20	1.64

### ■ AHUW096A3 [HU091 U43] + AHNW16606A3 [HN1616 NK3]

#### **♦** Peak Capacity (Not included defrost effect)

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Outdoor	LWT	30℃	LWT	35℃	LWT	<b>40</b> ℃	LWT	45℃	LWT	50℃	LWT	55℃
Temperature	PC	PI	PC	PI	PC	PI	PC	PI	PC	PI	PC	PI
-20 ℃ DB	5.81	2.79	5.58	3.06	5.35	3.33	5.12	3.61	-	-	-	-
-15 ℃ DB	7.27	2.72	6.98	2.99	6.69	3.26	6.40	3.53	6.11	3.79	-	-
-7 ℃ DB	8.26	2.60	7.93	2.85	7.60	3.11	7.27	3.36	6.94	3.62	6.61	3.87
-2 ℃ DB	8.66	2.33	8.31	2.56	7.97	2.79	7.62	3.02	7.27	3.25	6.93	3.48
2 ℃ DB	8.98	2.12	8.62	2.33	8.26	2.54	7.90	2.75	7.54	2.96	7.18	3.17
7 ℃ DB	9.38	1.86	9.00	2.05	8.63	2.23	8.25	2.41	7.88	2.59	7.50	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	8.20	1.92
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### ◆ Total Capacity (Included defrost effect)

•	•				•							
Outdoor	Outdoor LWT 30 °C		LWT 35℃		LWT 40 °C		LWT 45℃		LWT 50 ℃		LWT	55℃
Temperature	TC	PI	TC	PI	TC	PI	TC	PI	TC	PI	TC	PI
-20 ℃ DB	5.52	2.67	5.30	2.94	5.08	3.20	4.86	3.46	-	-	-	-
-15 ℃ DB	6.91	2.61	6.63	2.87	6.35	3.13	6.08	3.38	5.80	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	9.00	2.05	8.63	2.23	8.25	2.41	7.88	2.59	7.50	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	8.20	1.92

- 1. DB : Dry bulb temperature(  ${}^{\circlearrowright}$  ), LWT : Leaving water temperature(  ${}^{\circlearrowright}$  )
- 2. TC : Total capacity(kW), PI : Power Input(kW)
- 3. PC: Peak Capacity (Not included defrost effect, kW)
- 4. Direct interpolation is permissible. Do not extrapolate.
- 5. Measuring procedure follows EN14511.
  - 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.

- AHUW126A3 [HU121 U33] + AHNW16606A3 [HN1616 NK3]
- AHUW128A3 [HU123 U33] + AHNW16809A3 [HN1639 NK3]

### **♦** Peak Capacity (Not included defrost effect)

Outdoor	Outdoor LWT 30 ℃		LWT 35℃		LWT	LWT 40 °C		LWT 45℃		50℃	LWT 55℃	
Temperature	PC	PI	PC	PI	PC	PI	PC	PI	PC	PI	PC	PI
-20 ℃ DB	11.36	2.62	11.36	3.31	11.36	4.99	11.36	5.69	-	-	-	-
-15 ℃ DB	11.62	2.63	11.74	3.36	11.86	4.09	11.98	5.53	11.13	5.85	-	-
-7 ℃ DB	11.62	2.55	11.74	3.26	11.86	3.97	11.98	4.68	11.87	5.49	11.09	5.84
-4 °C DB	11.62	2.52	11.74	3.22	11.86	3.93	11.98	4.63	12.11	5.34	11.35	5.69
-2 ℃ DB	11.62	2.50	11.74	3.20	11.86	3.90	11.98	4.59	12.11	5.29	11.53	5.65
2 ℃ DB	11.62	2.46	11.74	3.18	11.86	3.83	11.98	4.52	12.11	5.20	11.88	5.72
7 ℃ DB	11.88	2.06	12.00	2.64	12.13	3.21	12.25	3.79	12.38	4.36	12.50	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	12.80	3.03	12.93	3.42
18 ℃ DB	12.44	1.19	12.57	1.52	12.70	1.86	12.83	2.19	12.96	2.52	13.10	2.86

#### ◆ Total Capacity (Included defrost effect)

Outdoor	LWT 30 °C		LWT	35℃	LWT	<b>40</b> ℃	LWT	<b>45</b> ℃	LWT	50℃	LWT	<b>55</b> ℃
Temperature	TC	PI	TC	PI	TC	PI	TC	PI	TC	PI	TC	PI
-20 ℃ DB	10.89	2.58	11.00	3.30	11.37	5.12	11.74	5.97	-	-	-	-
-15 ℃ DB	10.89	2.53	11.00	3.24	11.37	4.01	11.74	5.51	10.99	5.82	-	-
-7 ℃ DB	10.89	2.46	11.00	3.14	11.37	3.89	11.74	4.65	11.72	5.46	11.09	5.84
-4 ℃ DB	10.66	2.40	10.77	3.07	11.17	3.80	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	12.00	2.64	12.13	3.21	12.25	3.79	12.38	4.36	12.50	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	12.80	3.03	12.93	3.42
18 ℃ DB	12.44	1.19	12.57	1.52	12.70	1.86	12.83	2.19	12.96	2.52	13.10	2.86

- 1. DB : Dry bulb temperature(°C), LWT : Leaving water temperature(°C)
- 2. TC: Total capacity(kW), PI: Power Input(kW)
- 3. PC: Peak Capacity (Not included defrost effect, kW)
- 4. Direct interpolation is permissible. Do not extrapolate.
- 5. Measuring procedure follows EN14511.
  - 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.

- AHUW146A3 [HU141 U33] + AHNW16606A3 [HN1616 NK3]
- AHUW148A3 [HU143 U33] + AHNW16809A3 [HN1639 NK3]

### **♦** Peak Capacity (Not included defrost effect)

Outdoor	LWT 30 °C		LWT 35℃		LWT	LWT 40 ℃		LWT 45℃		50℃	LWT 55℃	
Temperature	PC	PI	PC	PI	PC	PI	PC	PI	PC	PI	PC	PI
-20 ℃ DB	12.84	3.67	12.50	4.12	12.06	5.30	11.36	5.69	-	-	-	-
-15 ℃ DB	13.08	3.46	12.74	4.02	12.40	4.58	11.86	5.48	11.13	5.85	-	-
-7 ℃ DB	13.46	3.32	13.11	3.86	12.76	4.39	12.41	4.93	11.87	5.49	11.09	5.84
-4 °C DB	13.60	3.27	13.25	3.79	12.90	4.32	12.54	4.85	12.15	5.36	11.35	5.69
-2 ℃ DB	13.70	3.23	13.34	3.75	12.99	4.27	12.63	4.84	12.27	5.36	11.53	5.65
2 ℃ DB	13.89	3.16	13.53	3.67	13.17	4.25	12.81	4.83	12.44	5.35	11.88	5.72
7 ℃ DB	14.38	2.73	14.00	3.18	13.63	3.62	13.25	4.10	12.88	4.54	12.50	4.94
10 ℃ DB	14.66	2.48	14.28	2.88	13.90	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	1.80	15.03	2.08	14.63	2.37	14.23	2.66	13.83	2.95	13.42	3.24

#### ◆ Total Capacity (Included defrost effect)

					<u>,                                      </u>							
Outdoor	LWT 30 °C		LWT	LWT 35°C   LWT 40°C			LWT 45℃		LWT	50℃	LWT	55℃
Temperature	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	12.50	3.73	12.31	4.29	12.12	4.85	11.72	5.46	11.09	5.84
-4 °C DB	12.28	3.02	11.96	3.51	11.95	4.08	11.93	4.70	11.83	5.26	11.35	5.69
-2 ℃ DB	12.01	2.92	11.70	3.39	11.79	4.00	11.85	4.64	11.89	5.25	11.53	5.65
2 ℃ DB	11.12	2.66	10.83	3.09	11.20	3.77	11.53	4.47	11.82	5.15	11.88	5.72
7 ℃ DB	14.38	2.73	14.00	3.18	13.63	3.62	13.25	4.10	12.88	4.54	12.50	4.94
10 ℃ DB	14.66	2.48	14.28	2.88	13.90	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	1.80	15.03	2.08	14.63	2.37	14.23	2.66	13.83	2.95	13.42	3.24

- 1. DB : Dry bulb temperature(°C), LWT : Leaving water temperature(°C)
- 2. TC: Total capacity(kW), PI: Power Input(kW)
- 3. PC: Peak Capacity (Not included defrost effect, kW)
- 4. Direct interpolation is permissible. Do not extrapolate.
- 5. Measuring procedure follows EN14511.
  - 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.

- AHUW166A3 [HU161 U33] + AHNW16606A3 [HN1616 NK3]
- AHUW168A3 [HU163 U33] + AHNW16809A3 [HN1639 NK3]

### **♦** Peak Capacity (Not included defrost effect)

Outdoor	LWT 30 ℃		LWT 35℃		LWT	LWT 40 ℃		LWT 45℃		50℃	LWT 55℃	
Temperature	PC	PI	PC	PI	PC	PI	PC	PI	PC	PI	PC	PI
-20 ℃ DB	13.45	4.53	12.76	4.91	12.06	5.30	11.36	5.69	-	-	-	-
-15 ℃ DB	14.04	4.36	13.31	4.73	12.58	5.10	11.86	5.48	11.13	5.85	-	-
-7 ℃ DB	14.98	4.09	14.20	4.44	13.42	4.79	12.65	5.14	11.87	5.49	11.09	5.84
-4 ℃ DB	15.33	3.99	14.53	4.33	13.74	4.67	12.94	5.01	12.15	5.36	11.35	5.69
-2 ℃ DB	15.56	3.92	14.76	4.25	13.95	4.59	13.14	5.04	12.33	5.39	11.53	5.65
2 ℃ DB	16.03	3.78	15.20	4.12	14.37	4.64	13.54	5.10	12.71	5.46	11.88	5.72
7 ℃ DB	16.88	3.46	16.00	3.76	15.13	4.05	14.25	4.41	13.38	4.72	12.50	4.94
10 ℃ DB	17.38	3.26	16.48	3.54	15.58	3.82	14.68	4.10	13.78	4.38	12.88	4.66
15 ℃ DB	18.23	2.94	17.28	3.19	16.34	3.44	15.39	3.70	14.45	3.95	13.50	4.20
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

#### ◆ Total Capacity (Included defrost effect)

					<u>,                                      </u>							
Outdoor	LWT 30 °C		LWT	LWT 35℃ LWT 40℃			LWT 45 ℃		LWT	50℃	LWT	55℃
Temperature	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	13.50	4.35	12.93	4.72	12.34	5.09	11.72	5.46	11.09	5.84
-4 °C 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	12.60	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	16.00	3.76	15.13	4.05	14.25	4.41	13.38	4.72	12.50	4.94
10 ℃ DB	17.38	3.26	16.48	3.54	15.58	3.82	14.68	4.10	13.78	4.38	12.88	4.66
15 ℃ DB	18.23	2.94	17.28	3.19	16.34	3.44	15.39	3.70	14.45	3.95	13.50	4.20
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

- 1. DB : Dry bulb temperature(°C), LWT : Leaving water temperature(°C)
- 2. TC: Total capacity(kW), PI: Power Input(kW)
- 3. PC: Peak Capacity (Not included defrost effect, kW)
- 4. Direct interpolation is permissible. Do not extrapolate.
- 5. Measuring procedure follows EN14511.
  - 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.

### 6.2.2 Combination with DHW tank Integrated type

### ■ AHUW096A3 [HU091 U43] + AHNW16606B0 [HN1616T NB0]

#### ◆ Peak Capacity (Not included defrost effect)

Outdoor	LWT	30℃	LWT	35℃	LWT	40℃	LWT	45℃	LWT	50℃	LWT	55℃
Temperature	PC	PI	PC	PI	PC	PI	PC	PI	PC	PI	PC	PI
-20 ℃ DB	7.38	3.67	6.93	3.92	6.49	4.48	6.05	5.05	-	-	-	-
-15 ℃ DB	7.78	3.38	7.32	3.61	6.85	4.10	6.38	4.63	5.91	4.93	-	-
-7 ℃ DB	8.44	2.91	7.93	3.11	7.73	3.28	7.53	3.45	7.33	3.62	7.13	3.79
-4 ℃ DB	8.68	2.73	8.16	2.92	7.98	3.08	7.80	3.24	7.62	3.40	7.43	3.56
-2 ℃ DB	8.84	2.62	8.31	2.79	8.14	2.97	7.97	3.15	7.81	3.34	7.64	3.52
2 ℃ DB	9.17	2.38	8.62	2.54	8.48	2.76	8.33	2.99	8.19	3.21	8.04	3.43
7 ℃ DB	9.58	2.09	9.00	2.23	8.89	2.51	8.78	2.78	8.66	3.06	8.55	3.33
10 ℃ DB	9.82	1.91	9.23	2.04	9.09	2.37	8.95	2.70	8.81	3.03	8.67	3.37
15 ℃ DB	10.22	1.61	9.61	1.72	9.43	2.15	9.24	2.57	9.06	3.00	8.88	3.42
18 ℃ DB	10.46	1.43	9.84	1.53	9.63	2.01	9.42	2.50	9.21	2.98	9.00	3.46

#### ◆ Total Capacity (Included defrost effect)

Outdoor	LWT	30℃	LWT	35℃	LWT	40℃	LWT	45℃	LWT	50℃	LWT	55℃
Temperature	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	7.44	3.19	7.33	3.38	7.24	3.58	7.13	3.79
-4 ℃ DB	7.95	2.56	7.47	2.74	7.47	2.95	7.47	3.15	7.45	3.36	7.43	3.56
-2 ℃ DB	7.89	2.41	7.42	2.58	7.48	2.82	7.54	3.05	7.60	3.28	7.64	3.52
2 ℃ DB	7.77	2.13	7.30	2.27	7.50	2.59	7.69	2.86	7.87	3.14	8.04	3.43
7 ℃ DB	9.58	2.09	9.00	2.23	8.89	2.51	8.78	2.78	8.66	3.06	8.55	3.33
10 ℃ DB	9.82	1.91	9.23	2.04	9.09	2.37	8.95	2.70	8.81	3.03	8.67	3.37
15 ℃ DB	10.22	1.61	9.61	1.72	9.43	2.15	9.24	2.57	9.06	3.00	8.88	3.42
18 ℃ DB	10.46	1.43	9.84	1.53	9.63	2.01	9.42	2.50	9.21	2.98	9.00	3.46

- 1. DB : Dry bulb temperature(  ${}^{\circlearrowright}$  ), LWT : Leaving water temperature(  ${}^{\circlearrowright}$  )
- 2. TC : Total capacity(kW), PI : Power Input(kW)
- 3. PC : Peak Capacity (Not included defrost effect, kW)
- 4. Direct interpolation is permissible. Do not extrapolate.
- 5. Measuring procedure follows EN14511.
  - 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.
- 6. This performance data is based on the following amount of refrigerant. : 9kW 2.6kg, 12/14/16kW 3.5kg

- AHUW126A3 [HU121 U33] + AHNW16606B0 [HN1616T NB0]
- AHUW128A3 [HU123 U33] + AHNW16606B0 [HN1616T NB0]

#### **♦** Peak Capacity (Not included defrost effect)

Outdoor	LWT	30℃	LWT	35℃	LWT	40℃	LWT	45℃	LWT	50℃	LWT	55℃
Temperature	PC	PI										
-20 ℃ DB	10.66	2.68	10.77	3.31	11.12	5.26	10.61	5.54	-	-	-	-
-15 ℃ DB	10.72	2.65	10.82	3.26	11.13	3.95	11.07	5.33	10.66	5.69	-	-
-7 ℃ DB	10.83	2.59	10.93	3.20	10.86	3.79	10.78	4.37	10.71	4.96	10.63	5.54
-4 °C DB	10.51	2.49	11.04	3.19	11.01	3.67	10.98	4.15	10.95	4.63	10.92	5.11
-2 °C DB	10.58	2.48	11.11	3.19	11.11	3.65	11.11	4.11	11.12	4.57	11.12	5.03
2 ℃ DB	11.03	2.55	11.15	3.14	11.24	3.57	11.33	4.01	11.42	4.44	11.51	4.88
7 ℃ DB	11.88	2.25	12.00	2.78	12.00	3.26	12.00	3.73	12.00	4.21	12.00	4.68
10 ℃ DB	12.38	2.07	12.51	2.56	12.55	3.01	12.59	3.46	12.63	3.90	12.67	4.35
15 ℃ DB	13.23	1.78	13.37	2.19	13.47	2.59	13.58	3.00	13.68	3.40	13.79	3.81
18 ℃ DB	13.73	1.60	13.88	1.97	14.03	2.35	14.17	2.73	14.32	3.10	14.46	3.48

#### ◆ Total Capacity (Included defrost effect)

	<u>, , , , , , , , , , , , , , , , , , , </u>				<u>'</u>							
Outdoor	LWT	30℃	LWT	35℃	LWT	40℃	LWT	45℃	LWT	50℃	LWT	55℃
Temperature	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	5.40	10.53	5.66	-	-
-7 ℃ DB	10.34	2.54	10.44	3.14	10.51	3.75	10.78	4.44	10.57	4.94	10.63	5.54
-4 ℃ DB	10.12	2.49	10.23	3.07	10.47	3.59	10.77	4.15	10.84	4.62	10.92	5.11
-2 ℃ DB	10.01	2.45	10.11	3.03	10.42	3.53	10.73	4.05	10.96	4.55	11.12	5.03
2 ℃ DB	9.71	2.38	9.81	3.12	10.23	3.40	10.65	3.88	11.08	4.37	11.51	4.88
7 ℃ DB	11.88	2.25	12.00	2.78	12.00	3.26	12.00	3.73	12.00	4.21	12.00	4.68
10 ℃ DB	12.38	2.07	12.51	2.56	12.55	3.01	12.59	3.46	12.63	3.90	12.67	4.35
15 ℃ DB	13.23	1.78	13.37	2.19	13.47	2.59	13.58	3.00	13.68	3.40	13.79	3.81
18 ℃ DB	13.73	1.60	13.88	1.97	14.03	2.35	14.17	2.73	14.32	3.10	14.46	3.48

- 1. DB : Dry bulb temperature( $^{\circ}$ ), LWT : Leaving water temperature( $^{\circ}$ )
- 2. TC: Total capacity(kW), PI: Power Input(kW)
- 3. PC: Peak Capacity (Not included defrost effect, kW)
- 4. Direct interpolation is permissible. Do not extrapolate.
- 5. Measuring procedure follows EN14511.
  - 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.
- 6. This performance data is based on the following amount of refrigerant. : 9kW 2.6kg, 12/14/16kW 3.5kg

- AHUW146A3 [HU141 U33] + AHNW16606B0 [HN1616T NB0]
- AHUW148A3 [HU143 U33] + AHNW16606B0 [HN1616T NB0]

#### **♦** Peak Capacity (Not included defrost effect)

Outdoor	LWT	30℃	LWT	35℃	LWT	40℃	LWT	45℃	LWT	50℃	LWT	55℃
Temperature	PC	PI										
-20 ℃ DB	12.30	3.69	11.98	4.12	11.55	5.46	10.88	5.68	-	-	-	-
-15 ℃ DB	12.53	3.59	12.20	4.02	11.87	4.45	11.35	5.47	10.66	5.69	-	-
-7 ℃ DB	12.89	3.45	12.56	3.86	12.25	4.37	11.93	4.88	11.62	5.38	11.30	5.89
-4 °C DB	13.03	3.39	12.69	3.79	12.45	4.21	12.21	4.64	11.97	5.06	11.73	5.49
-2 ℃ DB	13.12	3.35	12.78	3.75	12.59	4.17	12.40	4.58	12.21	5.00	12.01	5.41
2 ℃ DB	13.31	3.28	12.96	3.67	12.87	4.07	12.77	4.47	12.68	4.87	12.59	5.26
7 ℃ DB	14.38	3.07	14.00	3.43	13.83	3.84	13.65	4.26	13.48	4.67	13.30	5.08
10 ℃ DB	15.02	2.94	14.63	3.29	14.38	3.67	14.14	4.06	13.89	4.44	13.64	4.82
15 ℃ DB	16.09	2.73	15.67	3.05	15.30	3.39	14.94	3.72	14.57	4.06	14.21	4.40
18 ℃ DB	16.73	2.60	16.29	2.91	15.86	3.22	15.42	3.53	14.99	3.83	14.55	4.14

#### ◆ Total Capacity (Included defrost effect)

	• •				•							
Outdoor	LWT	30℃	LWT	35℃	LWT	<b>40</b> ℃	LWT	<b>45</b> ℃	LWT	50℃	LWT	55℃
Temperature	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	11.81	4.25	11.66	4.84	11.47	5.36	11.30	5.89
-4 ℃ DB	11.76	3.14	11.45	3.51	11.54	4.02	11.61	4.49	11.65	4.97	11.73	5.49
-2 ℃ DB	11.51	3.03	11.21	3.39	11.42	3.90	11.64	4.39	11.83	4.90	12.01	5.41
2 ℃ DB	10.65	2.76	10.37	3.30	10.94	3.61	11.50	4.13	12.04	4.69	12.59	5.26
7 ℃ DB	14.38	3.07	14.00	3.43	13.83	3.84	13.65	4.26	13.48	4.67	13.30	5.08
10 ℃ DB	15.02	2.94	14.63	3.29	14.38	3.67	14.14	4.06	13.89	4.44	13.64	4.82
15 ℃ DB	16.09	2.73	15.67	3.05	15.30	3.39	14.94	3.72	14.57	4.06	14.21	4.40
18 ℃ DB	16.73	2.60	16.29	2.91	15.86	3.22	15.42	3.53	14.99	3.83	14.55	4.14

- 1. DB : Dry bulb temperature(°C), LWT : Leaving water temperature(°C)
- 2. TC: Total capacity(kW), PI: Power Input(kW)
- 3. PC: Peak Capacity (Not included defrost effect, kW)
- 4. Direct interpolation is permissible. Do not extrapolate.
- 5. Measuring procedure follows EN14511.
  - 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.
- 6. This performance data is based on the following amount of refrigerant. : 9kW 2.6kg, 12/14/16kW 3.5kg

- AHUW166A3 [HU161 U33] + AHNW16606B0 [HN1616T NB0]
- AHUW168A3 [HU163 U33] + AHNW16606B0 [HN1616T NB0]

#### **♦** Peak Capacity (Not included defrost effect)

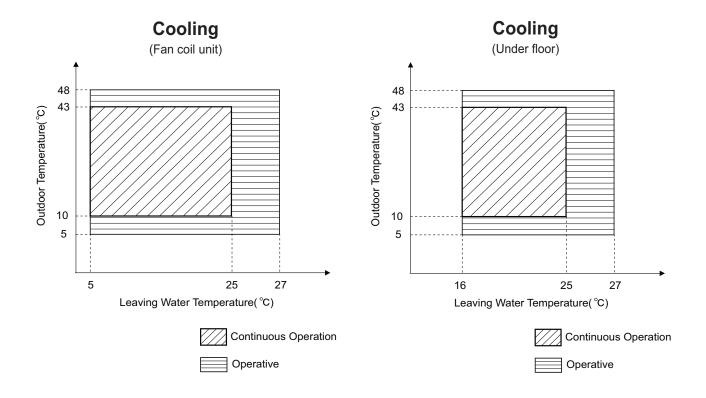
Outdoor	LWT	30℃	LWT	35℃	LWT	40℃	LWT	45℃	LWT	50℃	LWT	55℃
Temperature	PC	PI										
-20 ℃ DB	12.88	5.01	12.22	5.23	11.55	5.46	10.88	5.68	-	-	-	-
-15 ℃ DB	13.45	4.82	12.75	5.04	12.05	5.25	11.35	5.47	10.66	5.69	-	-
-7 ℃ DB	14.34	4.52	13.60	4.73	13.03	5.05	12.47	5.37	11.90	5.68	11.33	6.00
-4 °C DB	14.68	4.41	13.92	4.61	13.48	4.87	13.04	5.14	12.60	5.40	12.16	5.66
-2 °C DB	14.90	4.34	14.13	4.53	13.78	4.80	13.42	5.06	13.07	5.33	12.71	5.60
2 ℃ DB	15.35	4.19	14.56	4.38	14.37	4.65	14.19	4.93	14.00	5.20	13.82	5.47
7 ℃ DB	16.88	4.00	16.00	4.18	15.80	4.47	15.60	4.75	15.40	5.04	15.20	5.32
10 ℃ DB	17.79	3.88	16.87	4.06	16.51	4.34	16.14	4.62	15.78	4.90	15.42	5.18
15 ℃ DB	19.31	3.69	18.31	3.86	17.68	4.13	17.05	4.40	16.41	4.68	15.78	4.95
18 ℃ DB	20.22	3.58	19.17	3.74	18.38	4.01	17.59	4.28	16.79	4.54	16.00	4.81

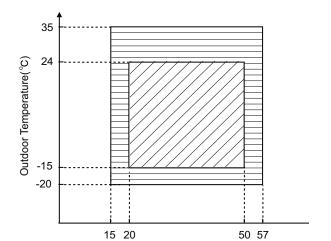
#### ◆ Total Capacity (Included defrost effect)

Outdoor	LWT	30℃	LWT	35℃	LWT	<b>40</b> ℃	LWT	<b>45</b> ℃	LWT	<b>50</b> ℃	LWT	<b>55</b> ℃
Temperature	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	12.55	4.98	12.16	5.31	11.75	5.66	11.33	6.00
-4 ℃ DB	13.15	4.11	12.47	4.29	12.42	4.62	12.36	4.96	12.26	5.30	12.16	5.66
-2 ℃ DB	12.81	3.89	12.14	4.07	12.32	4.42	12.47	4.81	12.61	5.20	12.71	5.60
2 ℃ DB	12.07	3.48	11.45	3.64	12.08	4.08	12.67	4.53	13.26	4.99	13.82	5.47
7 ℃ DB	16.88	4.00	16.00	4.18	15.80	4.47	15.60	4.75	15.40	5.04	15.20	5.32
10 ℃ DB	17.79	3.88	16.87	4.06	16.51	4.34	16.14	4.62	15.78	4.90	15.42	5.18
15 ℃ DB	19.31	3.69	18.31	3.86	17.68	4.13	17.05	4.40	16.41	4.68	15.78	4.95
18 ℃ DB	20.22	3.58	19.17	3.74	18.38	4.01	17.59	4.28	16.79	4.54	16.00	4.81

- 1. DB : Dry bulb temperature(°C), LWT : Leaving water temperature(°C)
- 2. TC: Total capacity(kW), PI: Power Input(kW)
- 3. PC: Peak Capacity (Not included defrost effect, kW)
- 4. Direct interpolation is permissible. Do not extrapolate.
- 5. Measuring procedure follows EN14511.
  - 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.
- 6. This performance data is based on the following amount of refrigerant. : 9kW 2.6kg, 12/14/16kW 3.5kg

# 7. Operation Range





Leaving Water Temperature(°C)

Operative

Continuous Operation

Heating

### 8. Electric characteristics

#### ■ Wiring of Main Power Supply and Equipment Capacity

- 1. Use a separate power supply for the Outdoor Unit and Indoor Unit.
- 2. Bear in mind ambient conditions (ambient temperature, direct sunlight, rain liquid, etc.) when proceeding with the wiring and connections
- 3. The wire size is the minimum value for metal conduit wiring. The power cord size should be 1 rank thicker taking into account the line voltage drops. Make sure the power-supply voltage does not drop more than 10%.
- 4. Specific wiring requirements should adhere to the wiring regulations of the region.
- 5. Power supply cords of parts of appliances for outdoor use should not be lighter than polychloroprene sheathed flexible cord (design 60245 IEC57).
- 6. Don't install an individual switch or electrical outlet to disconnect each of indoor unit separately from the power supply.

## Λ

#### WARNING

- Follow ordinance of local regulation for technical standard related to electrical equipment, wiring regulations and guidance of each electric power company.
- Make sure to use specified wires for connections so that no external force is imparted to terminal connections. If connections are not fixed firmly, it may cause heating or fire.
- Make sure to use the appropriate type of overcurrent protection switch. Note that generated overcurrent may include some amount of direct current.
- All Installation site must require attachment of an earth leakage breaker. If no earth leakage breaker is installed, it may cause an electric shock.



#### CAUTION

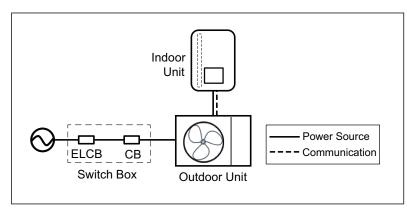
 Do not use anything other than breaker and fuse with correct capacity. Using fuse and wire or copper wire with too large capacity may cause a malfunction of unit or fire.

### 8. Electric characteristics

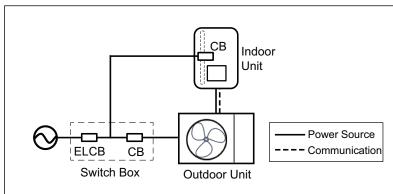
### ■ Outdoor Unit and Hydro Box Unit

	Model		Power Supply for Heat Pump	Power Supply for Heater							
		Phase		Back-up	o Heater	DHW Tar	nk Heater	Circuit Breaker (A)			
Indoor Unit	Outdoor Unit	Volts Hz	Circuit Breaker (A)	Capacity (kW)	Power Supply	Capacity (kW)	Power Supply	Back-up Heater	Back-up Heater + DHW Tank Heater		
	AHUW056A3										
	AHUW076A3		30	3+3	1Ø 230V			35	50		
AHNW16606A3	AHUW096A3	1~ 220-240V									
AUINM 10000A3	AHUW126A3	50Hz									
	AHUW146A3		40			3	1Ø 230V	35	50		
	AHUW166A3										
	AHUW128A3	3N~									
AHNW16809A3	AHUW148A3	380-415V	/ 20	3+3+3	3Ø 400V			20	35		
	AHUW168A3	50Hz									

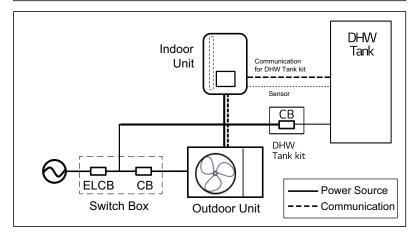
[Power Supply for Heat Pump]



[Power Supply for Backup heater]



[Power Supply for DHW Boost Heater]



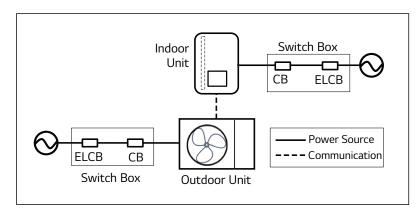
- 1. Voltage supplied to the unit terminals should be within the minimum and maximum range.
- 2. Maximum allowable voltage unbalance between phase is 2%.
- 3. All installation site must require attachment of an earth leakage breaker. [circuit breaker type is ELCB(Earth Leakage Circuit Breaker)].

# 8. Electric characteristics

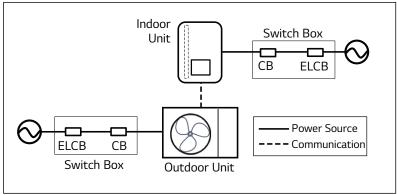
### ■ DHW Tank integrated Unit

	Model		Power Supply for Backup heater						
Indoor Unit	Combination of Backup heater (kW)	Phase Volts Hz	Capacity (kW)	Power	Circuit Breaker (A)				
	2.0	1~ 220-240V 50Hz	2.0	1~ 230V 50Hz	16.0				
AHNW16606B0	2.0+2.0	1~ 220-240V 50Hz	4.0	1~ 230V 50Hz	20.0				
	2.0+2.0+2.0	3N~ 380-415V 50Hz	6.0	3N~ 400V 50Hz	16.0				

#### [Power Supply for Heat Pump]



#### [Power Supply for Backup heater]



- 1. Voltage supplied to the unit terminals should be within the minimum and maximum range.
- 2. Maximum allowable voltage unbalance between phase is 2%.
- 3. All installation site must require attachment of an earth leakage breaker. [circuit breaker type is ELCB(Earth Leakage Circuit Breaker)].

### 9. Sound Levels

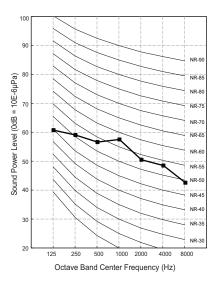
#### Note

- 1. Data is valid at diffuse field condition.
- 2. Reference acoustic intensity 0dB = 10E-6µW/m<sup>2</sup>
- 3. Sound power level is measured on the rated condition in the reverberation rooms. Refer to the Model Specifications for nominal conditions(Power source and Ambient temperature, etc)
- 4. Sound levels can be increased in accordance with installation and operating conditions.
- 5. Sound level will vary depending on a range of factors such as the construction (acoustic absorption coefficient) of particular installed place in which the equipment in installed.
- 6. Sound power level is measured on the rated condition in the reverberation rooms by ISO 3741 standard. Therefore, these values can be increased owing to ambient conditions during operation.

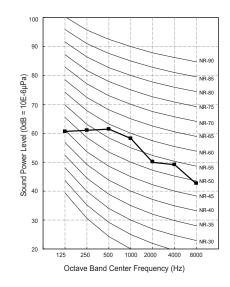
#### **■** Sound Power Level

Model	Sound Power Level (dB(A))
Woder	Heating (Rated)
AHUW056A3 [HU051 U43]	65
AHUW076A3 [HU071 U43]	65
AHUW096A3 [HU091 U43]	65
AHUW126A3 [HU121 U33]	66
AHUW146A3 [HU141 U33]	66
AHUW166A3 [HU161 U33]	66
AHUW128A3 [HU123 U33]	66
AHUW148A3 [HU143 U33]	66
AHUW168A3 [HU163 U33]	66
AHUW168A2 [HU163 U32]	69

AHUW056A3 [HU051 U43] AHUW076A3 [HU071 U43] AHUW096A3 [HU091 U43]



AHUW126A3 [HU121 U33], AHUW146A3 [HU141 U33] AHUW166A3 [HU161 U33], AHUW128A3 [HU123 U33] AHUW148A3 [HU143 U33], AHUW168A3 [HU163 U33]





# **Design and installation**

- 1. Alternative Refrigerant R410A
- 2. Select the Best Location
- 3.Installation Space
- 4. Dip Switch Setting

# 1. Alternative Refrigerant R410A

The refrigerant R410A has the property of higher operating pressure in comparison with R22.
 Therefore, all materials have the characteristics of higher resisting pressure than R22 ones and this characteristic should be also considered during the installation.R410A is an azeotrope of R32 and R125 mixed at 50:50, so the ozone depletion potential (ODP) of R410A is 0.

# A

### **CAUTION**

- The wall thickness of the piping should comply with the relevant local and national regulations for the designed pressure 3.8MPa
- Since R410A is a mixed refrigerant, the required additional refrigerant must be charged in its liquid state.
   If the refrigerant is charged in its gaseous state, its composition changes and the system will not work properly.
- · Do not place the refrigerant container under the direct rays of the sun to prevent it from exploding.
- For high-pressure refrigerant, any unapproved pipe must not be used.
- · Do not heat pipes more than necessary to prevent them from softening.
- Be careful not to install wrongly to minimize economic loss because it is expensive in comparison with R22.

### 2. Select the Best Location

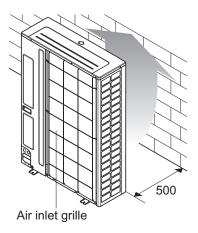
Select space for installing unit, which will meet the following conditions:

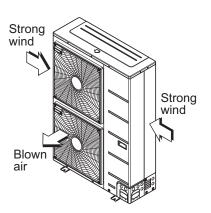
- · No direct thermal radiation from other heat sources
- · No possibility of annoying neighbors by noise from unit
- · No exposition to strong wind
- · With strength which bears weight of unit
- · With space for air passage and service work shown next
- Because of the possibility of fire, do not install unit to the space where generation, inflow, stagnation, and leakage of combustible gas is expected.
- Avoid unit installation in a place where acidic solution and spray (sulfur) are often used.
- Do not use unit under any special environment where oil, steam and sulfuric gas exist.
- It is recommended to fence round the unit in order to prevent any person or animal from accessing the unit.
- If installation site is area of heavy snowfall, then the following directions should be observed.
  - Make the foundation as high as possible.
  - Fit a snow protection hood.
- Select installation location considering following conditions to avoid bad condition when additionally performing defrost operation.
  - 1. Install the unit at a place well ventilated and having a lot of sunshine in case of installing the product at a place with a high humidity in winter (near beach, coast, lake, etc).
  - 2. Performance of heating will be reduced and pre-heat time of the unit may be lengthened in case of installing the unit in winter at following location:
    - 1) Shade position with a narrow space
    - 2) Location with much humidity around.
    - 3) Location where liquid gathers since the floor is not even.
- When installing the unit in a place that is constantly exposed to a strong wind like a coast or on a high story of a building, secure a normal fan operation by using a duct or a wind shield.
  - 1. Install the unit so that its discharge port faces to the wall of the building. Keep a distance 300 mm or more between the unit and the wall surface.
  - 2. Supposing the wind direction during the operation season of the unit, install the unit so that the discharge port is set at right angle to the wind direction.

# 3. Installation Space

### 3.1 General considerations

- Install the unit so that its discharge port faces to the wall of the building. Keep a distance 500 mm or more between the unit and the wall surface.
- Supposing the wind direction during the operation season of the air conditioner, install the unit so that the discharge port is set at right angle to the wind direction.









#### **Air Solution**

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