

# **WATERSTAGE™**

## 1. MONOBLOC UNIT

SINGLE PHASE TYPE :

WP\*A080LE

WP\*A100LE

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# 1. FEATURES

## MODELS :

WP\*A080LE, WP\*A100LE



## FEATURES

### Compact design

#### Compact model

Comfort and energy saving realized by world's top class compact design

8kW 10kW



WP\*A080LE  
WP\*A100LE



Control box  
UTW-SCB\*A

- Compact & Light weight design



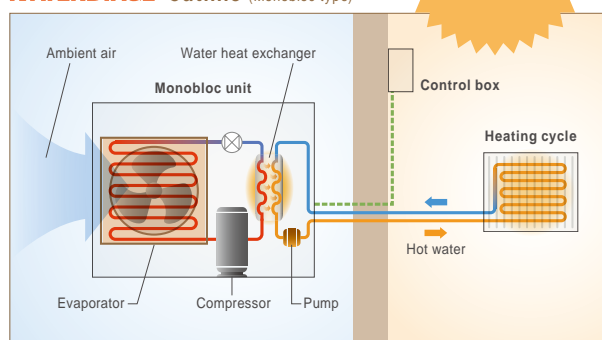
- All-in-one model

Compact designed heat pump.  
Refrigerant pipe work is unnecessary.  
Only hydraulic connecting work is to be done. Circulation pump, safety valve and automatic vent valve are included.  
Easy installation and maintenance is feasible.



**Easy**  
installation &  
maintenance!

WATERSTAGE outline (Monobloc type)



● High performance

High efficiency technology

**DC INVERTER**  
Smooth water temperature control realized by DC inverter control.

**HIGH EFFICIENT PLATE WATER HEAT EXCHANGER**  
Very compact size achieved by a thin high-efficiency heat exchanger

**DC FAN MOTOR**  
High performance, high efficiency small DC fan motor mounted.

**DC TWIN ROTARY COMPRESSOR**  
High efficient DC twin rotary compressor

• High COP

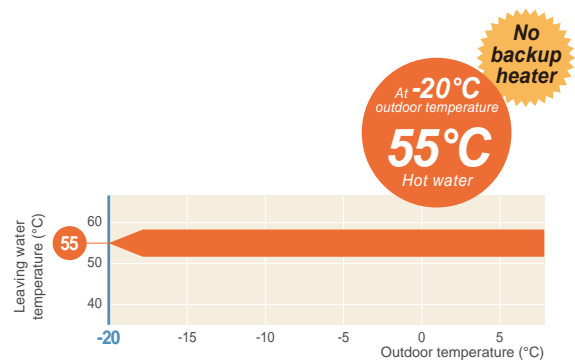
High COP is realized by using a DC twin rotary compressor, inverter technology, and high efficient water heat exchanger.



\*Condition : Outdoor Temp. 7°C Heating Temp. 35°C.

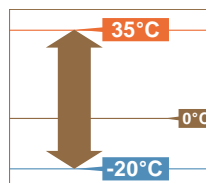
• High leaving water temperature

High leaving water temperature of 55°C keeps to -20°C outdoor temperature without additional heater.



• Wide operation range

Improved operation range down to -20°C outdoor temperature.

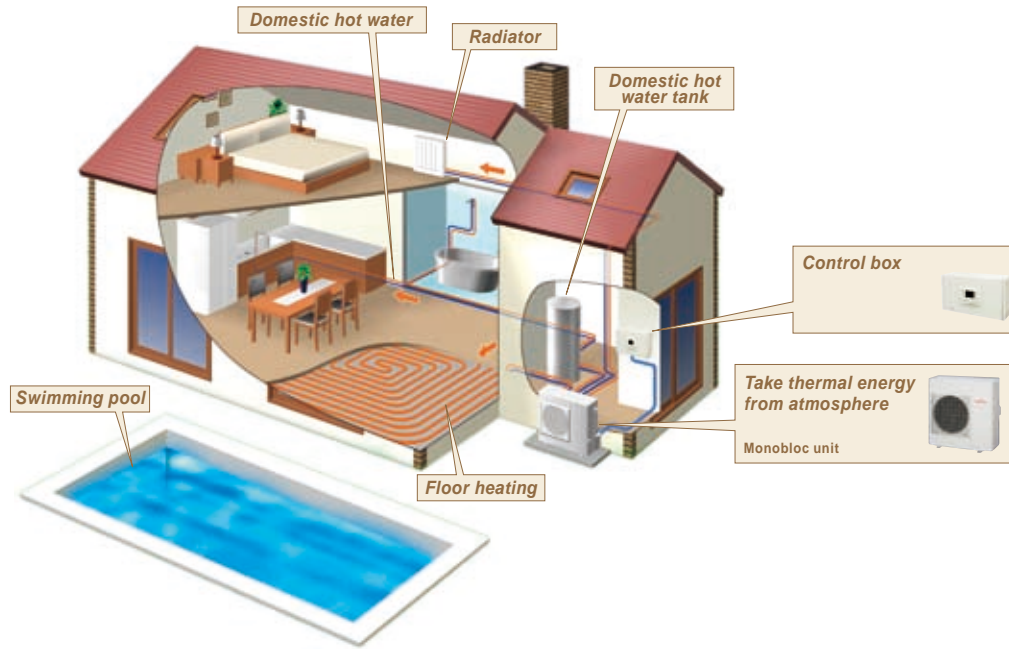


## ● Extensibility

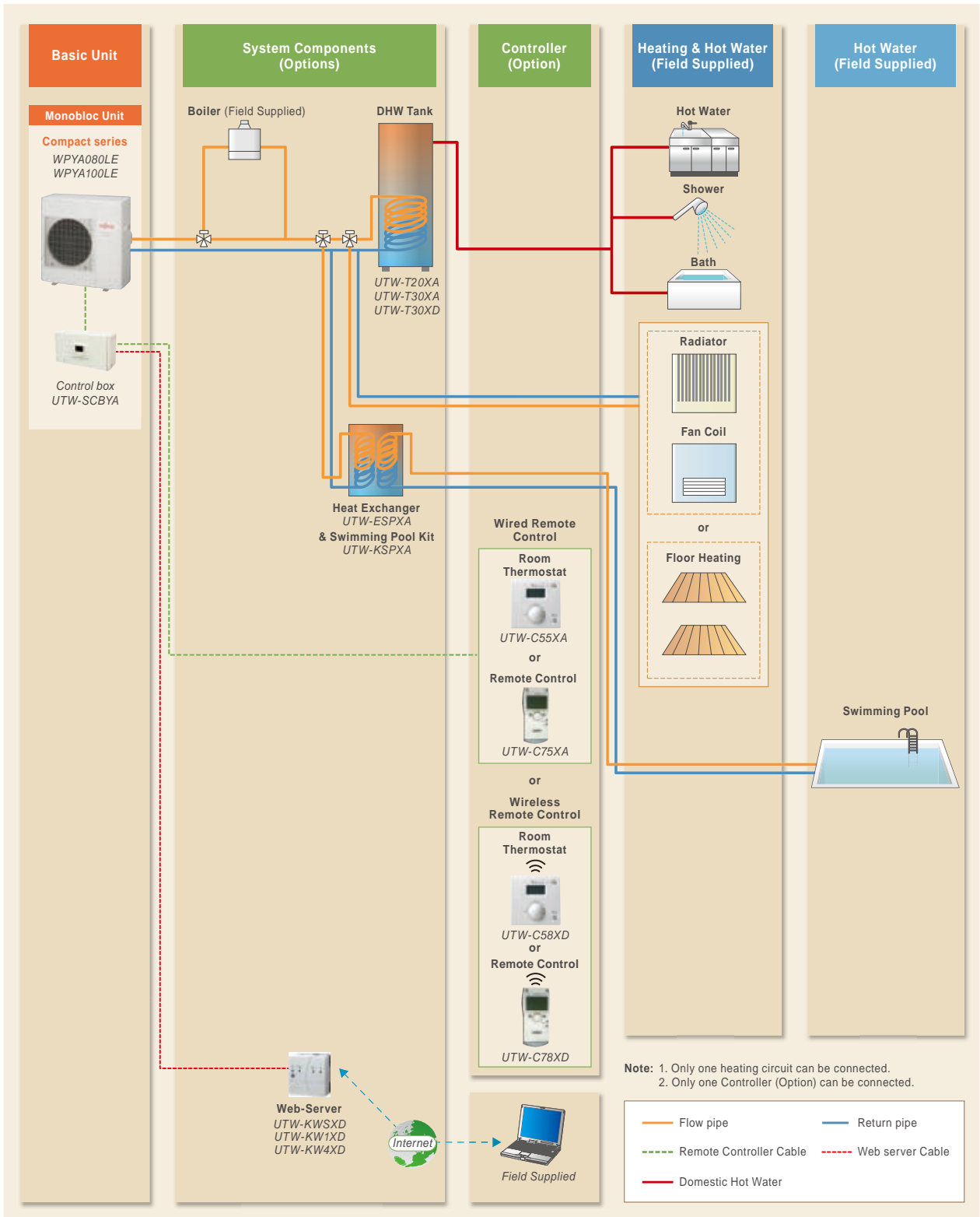
### Wide Comfort

Wide comfort by **WATERSTAGE**

The clean energy produced by **WATERSTAGE** reliably delivers “comfort” to diverse spaces in the home up to the living room, bedrooms, bath and swimming pool.



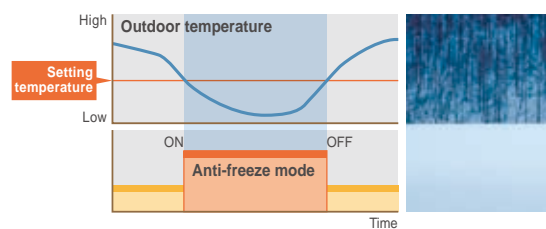
• System Configuration



## ● High reliability

- Anti-freeze function

Water circulation and compressor can be automatically performed at low outdoor temperature. Freezing of circulated water can be prevented.



- Easy installation & maintenance
  - No installation of refrigerant circuit connections.
  - Easy access for maintenance operations

## 2. SPECIFICATIONS

### 2-1. HEATING CAPACITY AND INPUT

Model name (Monobloc unit)			WP*A080LE	WP*A100LE	
+7°C/+35°C floor heating	Heating capacity	Minimum	2.41		
		Nominal	8.00	10.00	
		Maximum	11.32		
	Input power	Nominal	1.78	2.30	
	COP	-	4.50	4.35	
+7°C/+45°C radiators	Heating capacity	Minimum	3.69		
		Nominal	7.80	9.80	
		Maximum	10.33		
	Input power	Nominal	2.23	2.88	
	COP	-	3.50	3.40	
+2°C/+35°C floor heating	Heating capacity	Nominal	kW	7.40	8.10
	Input power		-	2.73	3.00
	COP		-	2.71	2.70



## 2-2. TECHNICAL SPECIFICATIONS

Model name (Monobloc unit)				WP*A080LE	WP*A100LE	
Enclosure	Colour			BEIGE		
	Material			Steel sheet		
Dimensions (H x W x D)	Net	mm	881.5 x 850 x 330			
	Gross		1,040 x 945 x 555			
Weight	Net	kg (lbs.)	74 (163)			
	Gross		80 (176)			
Main components	Pump	Type	Water cooled			
		Nr.of speed	3			
	Input power		W	116 *		
	Water side Heat exchanger	Type			Braze plate	
		Q'ty			1	
		Water volume	l	1.8		
	Water flow rate Nom.	Water flow rate Min.	l/min	10		
		Heating	l/min	22.9	28.7	
				18.3	20.4	
		Insulation material			EPDM form	
Water circuit	Piping connections diameter		inch	1		
	Piping			1		
	Safety valve		bar	3		
	Manometer			NO		
	Drain valve/Fill valve			YES/NO		
	Air purge valve			YES		
Heat exchanger type	Dimensions (H x W x D)		mm	840 x 788.2 x 36.4		
	Fin pitch			1.4		
	Rows & Stages		2 x 40			
	Pipe type		Copper			
	Fin	Type (Material)		Corrugate (Aluminum)		
Surface treatment		Corrosion resistance				
Fan	Airflow rate	Heating	m <sup>3</sup> /h	1,910		
	Type x Q'ty		Propeller x 1			
	Discharge direction		Horizontal			
	Motor Quantity		1			
	Motor output		W	100		
Compressor	Type x Q'ty		DC 2 rotary x 1			
	Motor output		W	1,700		
Operation range	Heating	Min	°CDB	-20		
		Max		35		
	Sanitary water	Min		-20		
		Max		35		
	Water side	Heating	°C	8 to 55		
Sound pressure level	Heating		dB(A)	51		
Refrigerant	Type			R410A		
	Charge		g	1,500		
	Control			Expansion valve (electric type)		
	Nr of circuits			1		
Refrigerant oil	Type			FV50S		
	Charged volume		l	0.90		
Connection pipe	Drain	Q'ty		1		
		Size	mm	18		
	Method			Hole		
Defrost method			Reverse cycle			
Defrost control			Outdoor defrost temperature sensor			
Capacity control method			Inverter control			

\*: The value is at Full speed and full flow

## 2-3. ELECTRICAL SPECIFICATIONS

Model name (Monobloc unit)			WP*A080LE	WP*A100LE
Available voltage range			1N~ 196 to 253V 50Hz	
Power supply	Voltage	V	1N~ 230V	
	Frequency	Hz	50	
*1) Max. operating current	Heating	A	16.1	18.3
*2) Starting current			—	—
*3) Wiring spec.	Circuit breaker current		25	
	Power cable	mm <sup>2</sup>	3.5 to 4.0	
Wiring connections	For power supply	Quantity	3	
	For connection with control box		4	
		Remark	Included earth wiring	

\*1) The maximum current is the total current of indoor unit and outdoor unit.

\*2) The compressor with inverter control has low electrical power consumption at start-up.

\*3) Wiring spec. :

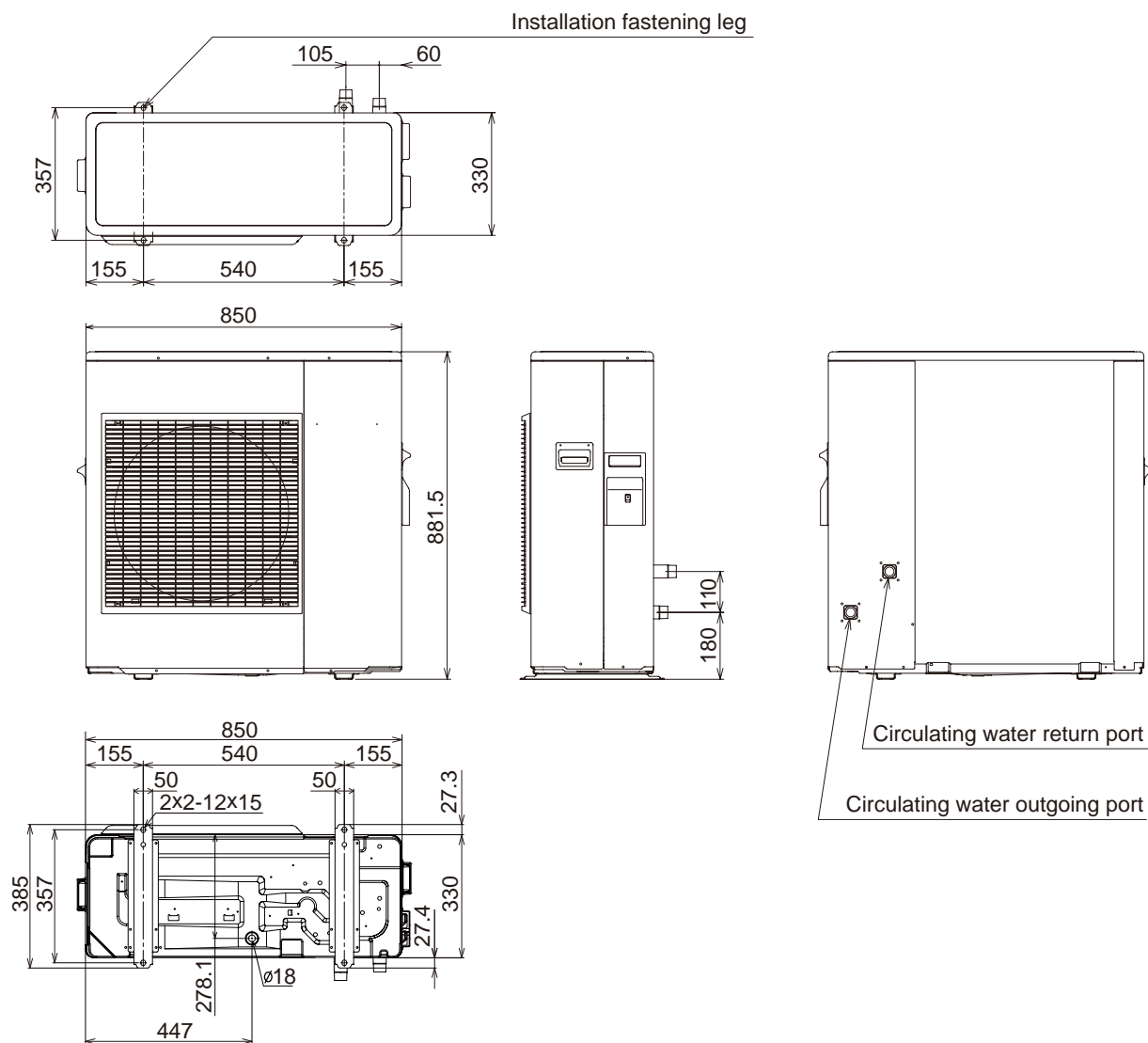
Selected sample

(Selected based on Japan Electrotechnical Standard and Codes Committee E0005)

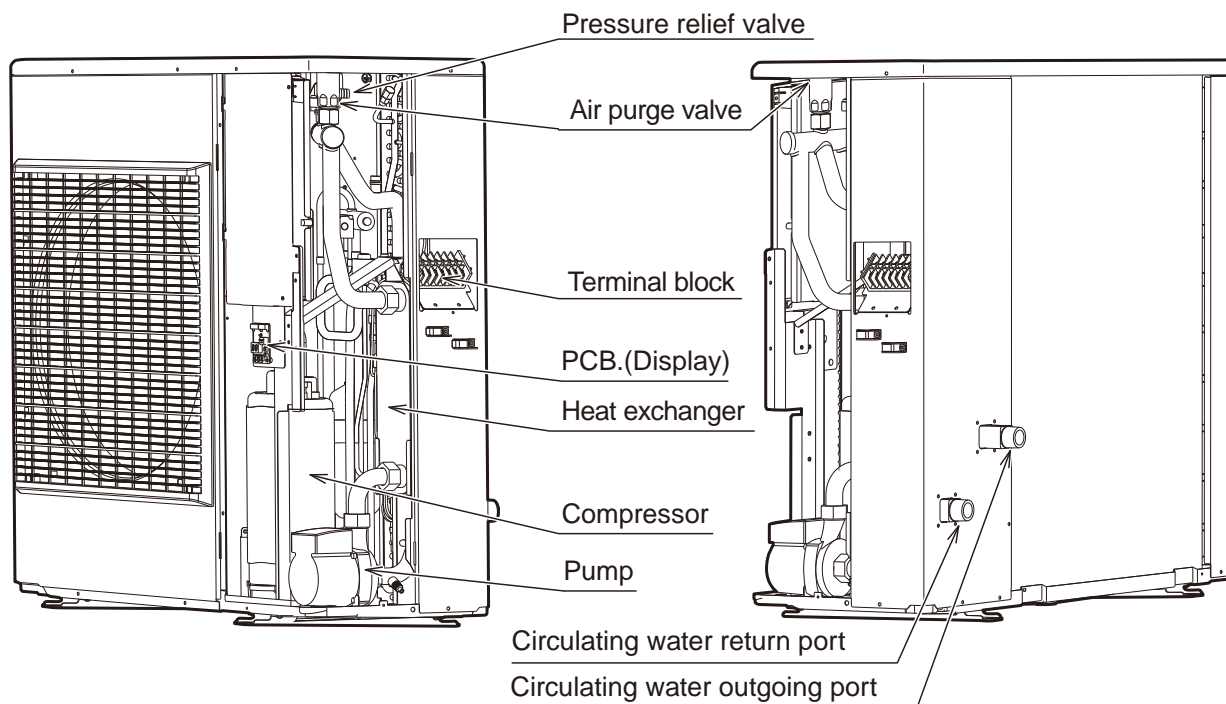
### 3. DIMENSIONS

#### 3-1. DIMENSIONAL DRAWING

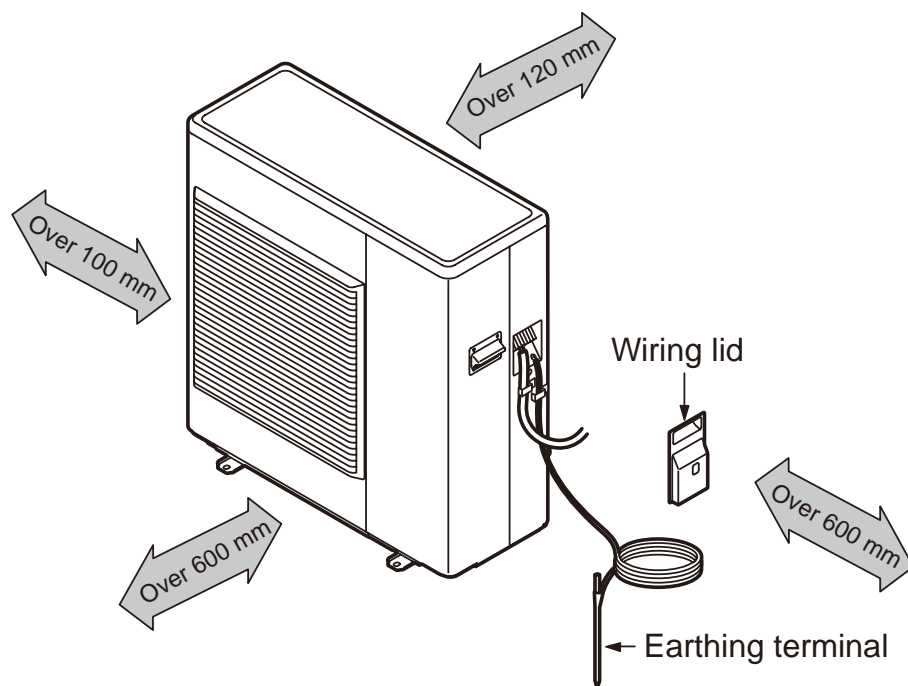
■ MODELS : WP\*A080LE, WP\*A100LE



#### ● Main components



## 3-2. INSTALLATION PLACE



- Anchor the unit to the concrete or the block with bolts ( $\varnothing 10$  mm) and nuts firmly and horizontally.
- In case the vibration may affect the house, use an anti-vibration gum and fix the Unit.

### ● Selecting the installation place

#### ⚠ WARNING

Select installation locations that can properly support the weight of the units. Install the units securely so that they do not topple or fall.

#### ⚠ CAUTION

- Do not install where there is the danger of combustible gas leakage.
- If children may approach the unit, take preventive measures so that they cannot reach the unit.

#### ⚠ WARNING

When installing the outdoor unit where it may be exposed to strong wind, fasten it securely.

Decide the mounting position with the customer as follows:

- (1) Install the unit in a location which can withstand the weight of the unit and vibration, and which can install horizontally.
- (2) Provide the indicated space to ensure good airflow.
- (3) If possible, do not install the unit where it will be exposed to direct sunlight.  
(If necessary, install a blind that does not interfere with the airflow.)
- (4) Do not install the unit near a source of heat, steam, or flammable gas.
- (5) During heating operation, drain water flows from the outdoor unit. Therefore, install the outdoor unit in a place where the drain water flow will not be obstructed.  
(Reverse cycle model only)
- (6) Do not install the unit where strong wind blows or where it is very dusty.
- (7) Do not install the unit where people pass.
- (8) Install the unit in a place where it will be free from being dirty or getting wet by rain as much as possible.

## ● Installation procedure

### ⚠ WARNING

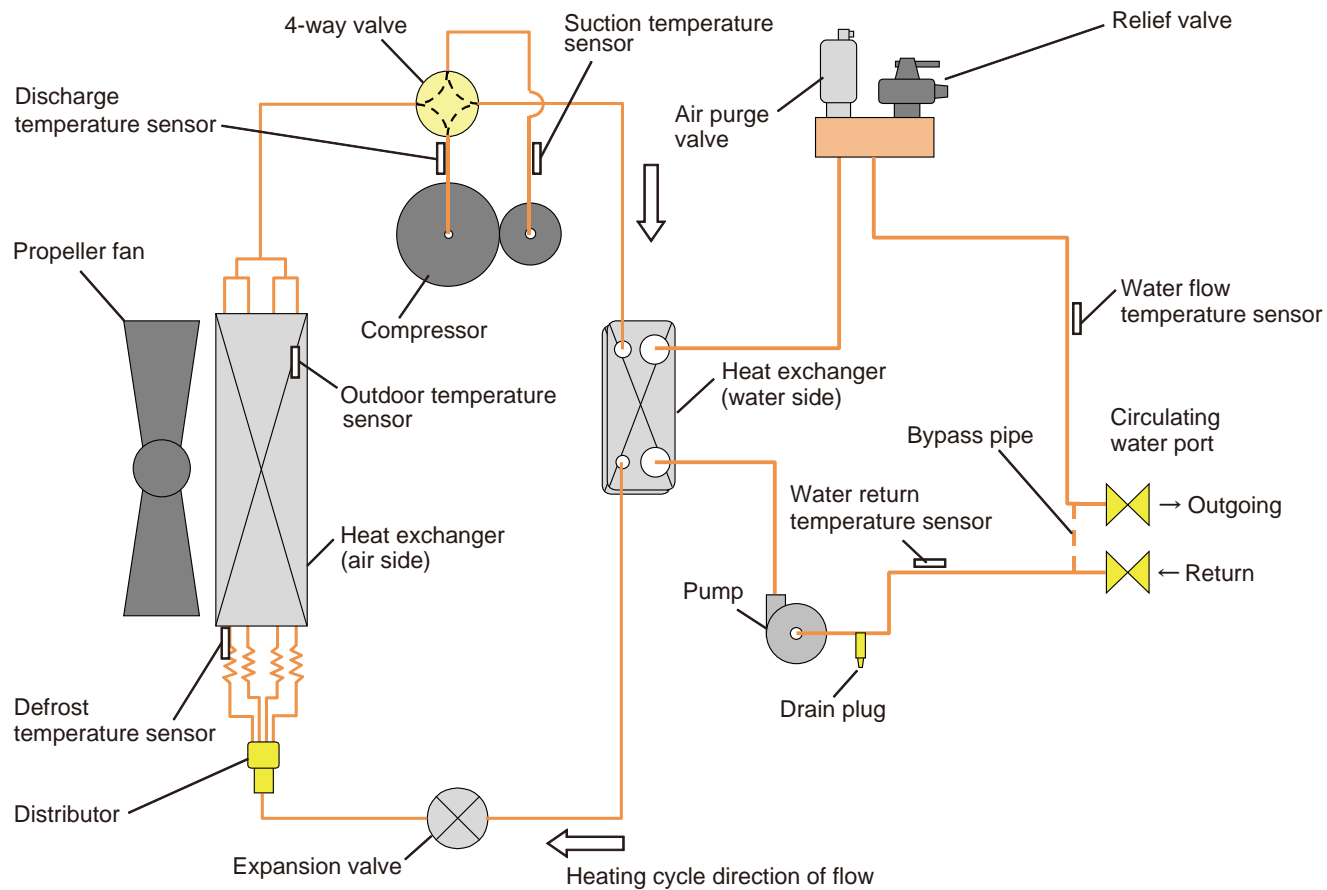
- Install the unit where it will not be tilted by more than 5°.
- When installing the unit where it may be exposed to strong wind, fasten it securely.

### ⚠ CAUTION

- When the outdoor temperature is 0 °C or less, do not use drain pipe and drain cap.  
If the drain pipe and drain cap are used, the drain water in the pipe may freeze in extremely cold weather.
- When the outdoor temperature is 0 °C or less, set up the outdoor unit in a high place, and do not arrange the frame of installed stand under the drain port.  
Because the water dropped from the drain port repeats freezing and accumulating, and may block the drain port.
- In the area with heavy snowfall, if the intake and outlet of unit is blocked with snow, it might become difficult to get warm and it is likely to cause of the breakdown.  
Please construct a canopy and a pedestal or baffle board.  
(local configured).

# 4. PIPING DIAGRAM

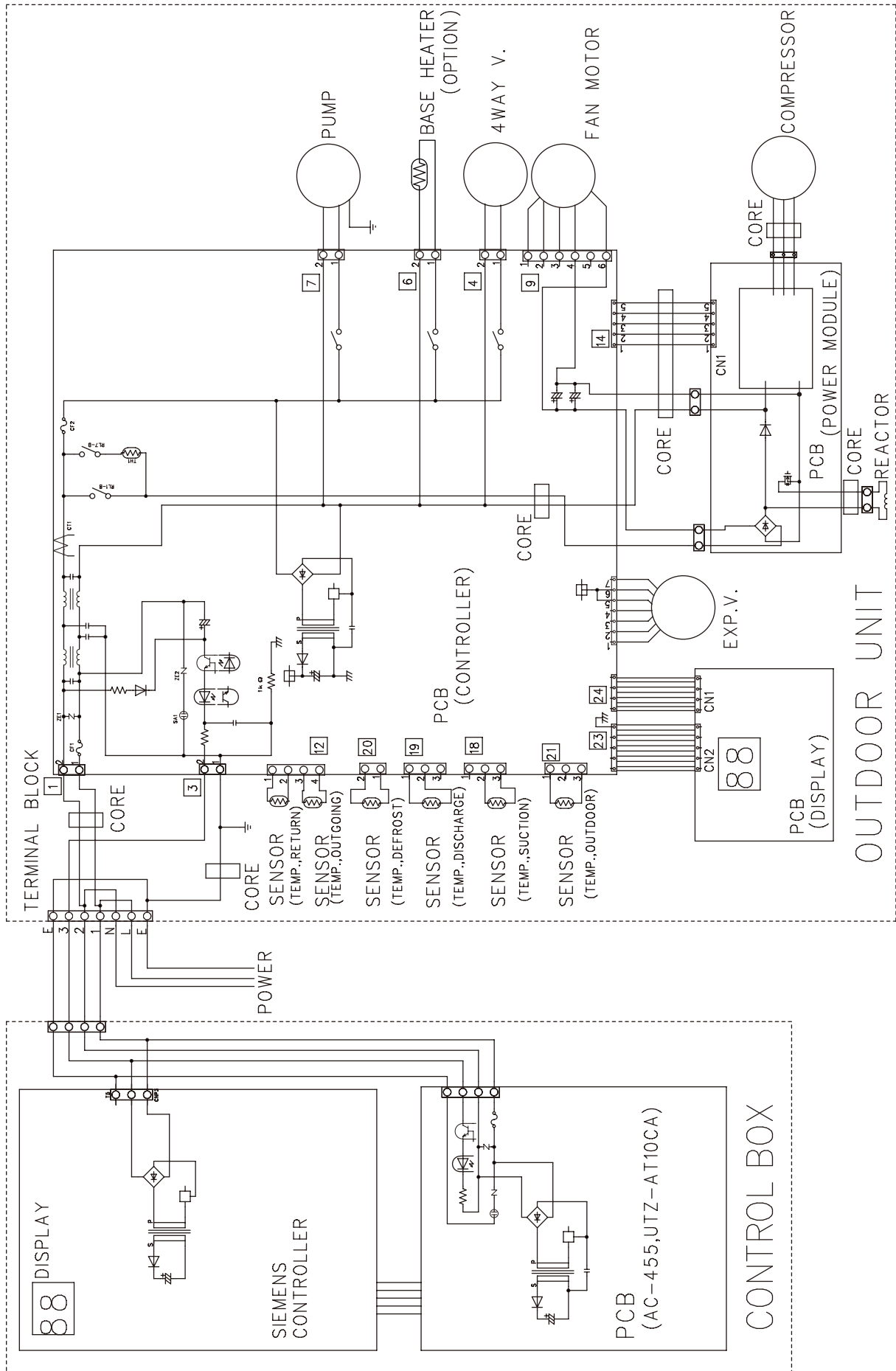
■ MODELS : WP\*A080LE, WP\*A100LE



# 5. WIRING DIAGRAM

## 5-1. WIRING DIAGRAM

■ MODELS : WP\*A080LE, WP\*A100LE









## 6-2. COOLING CAPACITY

### ■ MODEL : WP\*A080LE

FT	6 °C			7 °C			10 °C			13 °C			15 °C			18 °C			22 °C		
	OT	CC	IP	EER	CC	IP	EER	CC	IP	EER	CC	IP	EER	CC	IP	EER	CC	IP	EER	CC	IP
20 °C	4.33	0.96	4.51	4.50	0.95	4.75	5.01	0.89	5.64	5.53	0.83	6.67	5.88	0.84	6.99	6.40	0.86	7.47	7.09	0.88	8.08
21 °C	4.33	1.00	4.33	4.50	0.99	4.55	5.01	0.93	5.39	5.53	0.88	6.28	5.88	0.89	6.61	6.40	0.91	7.03	7.09	0.93	7.62
22 °C	4.33	1.04	4.16	4.50	1.02	4.41	5.01	0.98	5.11	5.53	0.93	5.95	5.88	0.94	6.26	6.40	0.96	6.67	7.09	0.98	7.23
23 °C	4.33	1.08	4.01	4.50	1.06	4.25	5.01	1.03	4.86	5.53	0.99	5.59	5.88	1.00	5.88	6.40	1.01	6.34	7.09	1.03	6.88
24 °C	4.33	1.12	3.87	4.50	1.11	4.05	5.01	1.08	4.64	5.53	1.04	5.32	5.88	1.05	5.60	6.40	1.06	6.04	7.09	1.09	6.50
25 °C	4.33	1.16	3.73	4.50	1.15	3.91	5.01	1.13	4.43	5.53	1.10	5.03	5.88	1.11	5.30	6.40	1.12	5.71	7.09	1.14	6.22
26 °C	4.33	1.21	3.58	4.50	1.20	3.75	5.01	1.19	4.21	5.53	1.17	4.73	5.88	1.18	4.98	6.40	1.18	5.42	7.09	1.21	5.86
27 °C	4.33	1.27	3.41	4.50	1.26	3.57	5.01	1.25	4.01	5.53	1.24	4.46	5.88	1.25	4.70	6.40	1.25	5.12	7.09	1.28	5.54
28 °C	4.33	1.33	3.26	4.50	1.32	3.41	5.01	1.32	3.80	5.53	1.30	4.25	5.88	1.31	4.49	6.40	1.32	4.85	7.09	1.34	5.29
29 °C	4.33	1.39	3.12	4.50	1.38	3.26	5.01	1.38	3.63	5.53	1.37	4.04	5.88	1.38	4.26	6.40	1.39	4.60	7.09	1.41	5.03
30 °C	4.33	1.45	2.99	4.50	1.45	3.10	5.01	1.45	3.46	5.53	1.44	3.84	5.88	1.45	4.06	6.40	1.46	4.38	7.09	1.48	4.79
31 °C	4.33	1.51	2.87	4.50	1.51	2.98	5.01	1.51	3.32	5.53	1.52	3.64	5.88	1.52	3.87	6.40	1.53	4.18	7.09	1.56	4.54
32 °C	4.33	1.58	2.74	4.50	1.58	2.85	5.01	1.58	3.17	5.53	1.59	3.48	5.88	1.60	3.68	6.40	1.61	3.98	7.09	1.63	4.35
33 °C	4.33	1.65	2.62	4.50	1.65	2.73	5.01	1.66	3.02	5.53	1.67	3.31	5.88	1.68	3.50	6.40	1.69	3.79	7.09	1.71	4.15
34 °C	4.33	1.73	2.50	4.50	1.73	2.60	5.01	1.74	2.87	5.53	1.76	3.14	5.88	1.77	3.33	6.40	1.78	3.60	7.09	1.80	3.94
35 °C	4.33	1.88	2.30	4.50	1.86	2.42	5.01	1.83	2.74	5.53	1.81	3.06	5.88	1.81	3.25	6.40	1.82	3.52	7.09	1.85	3.83
36 °C	4.33	2.04	2.12	4.50	2.01	2.24	5.01	1.92	2.61	5.53	1.85	2.99	5.88	1.85	3.18	6.40	1.86	3.44	7.09	1.89	3.75
37 °C	4.33	2.22	1.95	4.50	2.17	2.07	5.01	2.03	2.47	5.53	1.91	2.90	5.88	1.90	3.09	6.40	1.91	3.35	7.09	1.95	3.64
38 °C	4.16	2.29	1.82	4.34	2.24	1.94	4.86	2.10	2.31	5.40	1.98	2.73	5.77	1.98	2.91	6.32	1.99	3.18	7.05	2.03	3.47
39 °C	4.00	2.37	1.69	4.18	2.32	1.80	4.72	2.18	2.17	5.26	2.05	2.57	5.66	2.05	2.76	6.24	2.07	3.01	7.02	2.11	3.33
40 °C	3.83	2.44	1.57	4.02	2.39	1.68	4.57	2.25	2.03	5.13	2.12	2.42	5.54	2.13	2.60	6.16	2.15	2.87	6.98	2.20	3.17
41 °C	3.67	2.52	1.46	3.86	2.47	1.56	4.43	2.33	1.90	5.00	2.19	2.28	5.43	2.21	2.46	6.08	2.23	2.73	6.94	2.28	3.04
42 °C	3.50	2.59	1.35	3.70	2.54	1.45	4.28	2.40	1.78	4.87	2.26	2.15	5.32	2.28	2.33	6.00	2.32	2.59	6.91	2.36	2.93
43 °C	2.36	1.32	1.79	2.47	1.33	1.86	2.81	1.33	2.12	3.19	1.31	2.43	3.39	1.32	2.57	3.73	1.32	2.83	4.19	1.32	3.18

FT : Flow temperature  
 OT : Outdoor temperature  
 CC : Cooling capacity (kW)  
 IP : Input power (kW)  
 EER : Energy efficiency ratio

The values of cooling capacity/power input/EER are based on measurement of EN14511 standard.

FT < 10 °C : The flow rate obtained during the test at the standard rating conditions of OT 35°C and Water temp. flow/return 7°C / 12°C, 774l/h

FT ≥ 10 °C : The flow rate obtained during the test at the standard rating conditions of OT 35°C and Water temp. flow/return 18°C / 23°C, 1100l/h

Usage environment, such as operation of the heating equipment, room temperature, and controller adjustments, may cause disparities between practically determined and measured values.

## ■ MODEL: WP\*A100LE

FT	6 °C			7 °C			10 °C			13 °C			15 °C			18 °C			22 °C		
	OT	CC	IP	EER	CC	IP	EER	CC	IP	EER	CC	IP	EER	CC	IP	EER	CC	IP	EER	CC	IP
20 °C	4.81	1.09	4.43	5.00	1.07	4.68	5.57	1.02	5.48	6.14	0.96	6.38	6.53	0.96	6.79	7.10	0.96	7.39	7.86	1.00	7.86
21 °C	4.81	1.13	4.26	5.00	1.11	4.50	5.57	1.07	5.21	6.14	1.02	6.02	6.53	1.02	6.40	7.10	1.02	6.96	7.86	1.06	7.42
22 °C	4.81	1.17	4.11	5.00	1.15	4.35	5.57	1.12	4.97	6.14	1.07	5.74	6.53	1.08	6.05	7.10	1.08	6.57	7.86	1.12	7.02
23 °C	4.81	1.21	3.98	5.00	1.20	4.17	5.57	1.17	4.76	6.14	1.13	5.43	6.53	1.13	5.78	7.10	1.14	6.23	7.86	1.18	6.66
24 °C	4.81	1.25	3.85	5.00	1.24	4.03	5.57	1.22	4.57	6.14	1.19	5.16	6.53	1.20	5.44	7.10	1.21	5.87	7.86	1.24	6.34
25 °C	4.81	1.30	3.70	5.00	1.29	3.88	5.57	1.28	4.35	6.14	1.25	4.91	6.53	1.26	5.18	7.10	1.27	5.59	7.86	1.31	6.00
26 °C	4.81	1.35	3.56	5.00	1.35	3.72	5.57	1.34	4.16	6.14	1.33	4.63	6.53	1.34	4.89	7.10	1.35	5.26	7.86	1.39	5.65
27 °C	4.81	1.42	3.39	5.00	1.41	3.55	5.57	1.41	3.95	6.14	1.40	4.39	6.53	1.41	4.63	7.10	1.43	4.97	7.86	1.47	5.35
28 °C	4.81	1.48	3.25	5.00	1.48	3.38	5.57	1.49	3.74	6.14	1.48	4.15	6.53	1.49	4.38	7.10	1.51	4.70	7.86	1.55	5.07
29 °C	4.81	1.55	3.10	5.00	1.55	3.23	5.57	1.56	3.57	6.14	1.56	3.94	6.53	1.57	4.16	7.10	1.59	4.47	7.86	1.63	4.82
30 °C	4.81	1.62	2.97	5.00	1.63	3.07	5.57	1.64	3.40	6.14	1.64	3.74	6.53	1.66	3.93	7.10	1.68	4.23	7.86	1.72	4.57
31 °C	4.81	1.70	2.83	5.00	1.70	2.94	5.57	1.72	3.24	6.14	1.73	3.55	6.53	1.74	3.75	7.10	1.77	4.01	7.86	1.81	4.34
32 °C	4.81	1.77	2.72	5.00	1.78	2.81	5.57	1.80	3.09	6.14	1.81	3.39	6.53	1.83	3.57	7.10	1.86	3.82	7.86	1.90	4.14
33 °C	4.81	1.85	2.60	5.00	1.86	2.69	5.57	1.88	2.96	6.14	1.90	3.23	6.53	1.92	3.40	7.10	1.95	3.64	7.86	1.99	3.95
34 °C	4.81	1.94	2.48	5.00	1.95	2.56	5.57	1.98	2.81	6.14	2.01	3.05	6.53	2.03	3.22	7.10	2.06	3.45	7.86	2.10	3.74
35 °C	4.81	2.11	2.28	5.00	2.10	2.38	5.57	2.08	2.68	6.14	2.05	3.00	6.53	2.07	3.15	7.10	2.10	3.38	7.86	2.15	3.66
36 °C	4.81	2.29	2.10	5.00	2.26	2.21	5.57	2.18	2.56	6.14	2.10	2.92	6.53	2.11	3.09	7.10	2.14	3.32	7.86	2.19	3.59
37 °C	4.81	2.49	1.93	5.00	2.45	2.04	5.57	2.30	2.42	6.14	2.15	2.86	6.53	2.16	3.02	7.10	2.18	3.26	7.86	2.25	3.49
38 °C	4.55	2.51	1.81	4.74	2.47	1.92	5.31	2.32	2.29	5.89	2.17	2.71	6.29	2.18	2.89	6.88	2.21	3.11	7.67	2.27	3.38
39 °C	4.29	2.53	1.70	4.48	2.49	1.80	5.05	2.34	2.16	5.63	2.19	2.57	6.05	2.21	2.74	6.66	2.23	2.99	7.48	2.29	3.27
40 °C	4.03	2.55	1.58	4.22	2.51	1.68	4.80	2.36	2.03	5.38	2.22	2.42	5.80	2.23	2.60	6.44	2.26	2.85	7.29	2.32	3.14
41 °C	3.76	2.57	1.46	3.96	2.52	1.57	4.54	2.38	1.91	5.12	2.24	2.29	5.56	2.26	2.46	6.22	2.29	2.72	7.10	2.34	3.03
42 °C	3.50	2.59	1.35	3.70	2.54	1.45	4.28	2.40	1.78	4.87	2.26	2.15	5.32	2.28	2.33	6.00	2.32	2.59	6.91	2.36	2.93
43 °C	2.36	1.32	1.79	2.47	1.33	1.86	2.81	1.33	2.12	3.19	1.31	2.43	3.39	1.32	2.57	3.73	1.32	2.83	4.19	1.32	3.18

FT : Flow temperature  
 OT : Outdoor temperature  
 CC : Cooling capacity (kW)  
 IP : Input power (kW)  
 EER : Energy efficiency ratio

The values of cooling capacity/power input/EER are based on measurement of EN14511 standard.

FT < 10 °C : The flow rate obtained during the test at the standard rating conditions of OT 35°C and Water temp. flow/return 7°C / 12°C, 860l/h

FT ≥ 10 °C : The flow rate obtained during the test at the standard rating conditions of OT 35°C and Water temp. flow/return 18°C / 23°C, 1221l/h

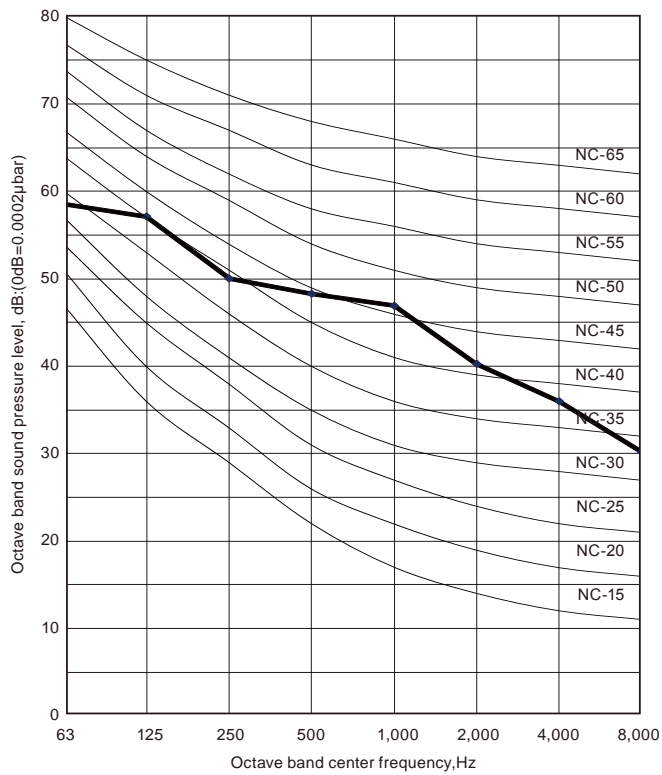
Usage environment, such as operation of the heating equipment, room temperature, and controller adjustments, may cause disparities between practically determined and measured values.

# 7. OPERATION NOISE

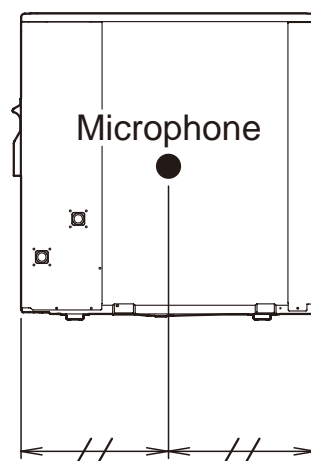
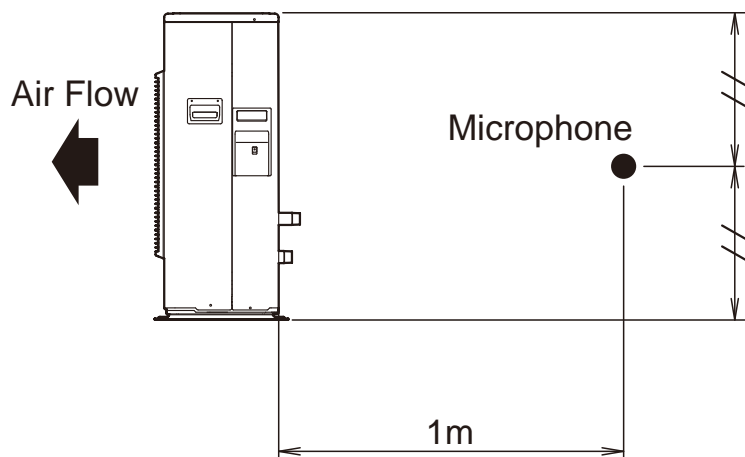
## 7-1. NOISE LEVEL CURVE

■ MODEL: WP\*A080LE, WP\*A100LE

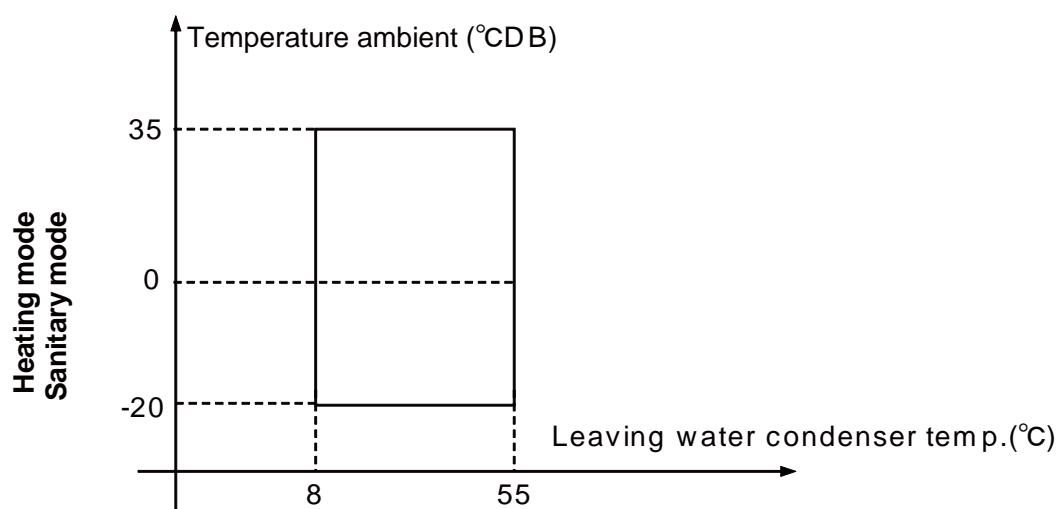
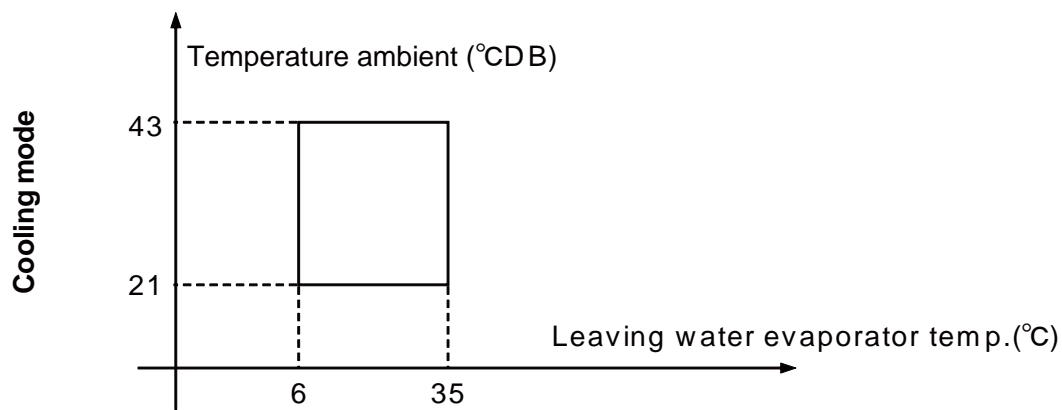
● Heating



## 7-2. SOUND LEVEL CHECK POINT

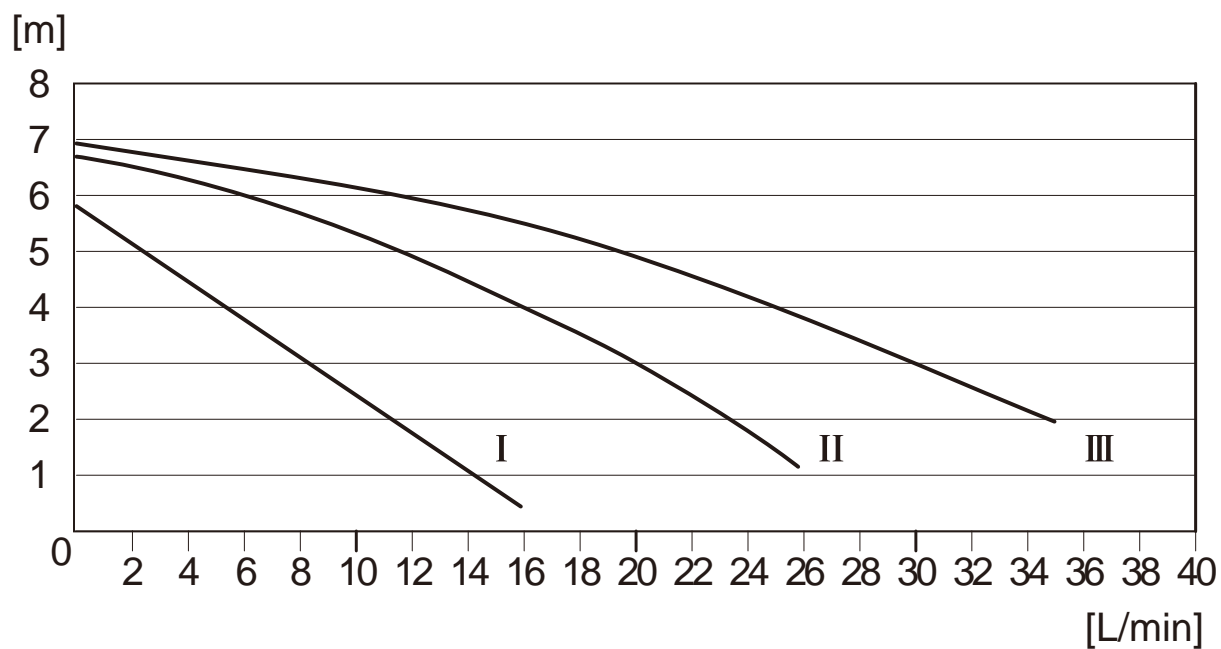


# 8. OPERATION RANGE



# 9. HYDRAULIC PERFORMANCE

## 9-1. STATIC PRESSURE DROP UNIT




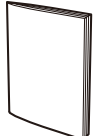
- I : Pump speed-1 (Low)
- II : Pump speed-2 (Middle)
- III : Pump speed-3 (High)

## 10. SAFETY DEVICES

	Protection form	Model	
		WP*A080LE	WP*A100LE
Circuit protection	Current fuse (Main PCB)	5A 250V	
		3.15A 250V	
		25A 250V (No replacement) 15A 250V (No replacement)	
Fan motor protection	Thermal protector	OFF: 150 °C ON: 120 °C	
Compressor protection	Thermal protection program (Discharge temperature)	OFF: 115 °C ON: 90 °C	
High pressure protection	Thermal protection program (Water flow temperature)	OFF: 57 °C ON: 54 °C	



# 11. STANDARD ACCESSORIES

Name and shape	Q'ty	Application
Installation manual 	1	
Specification sheet 	1	