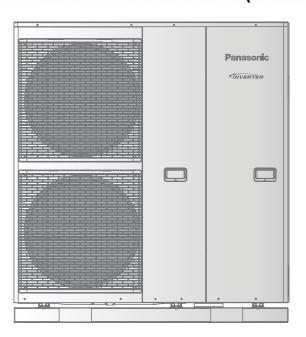
# Service Manual (Mono bloc) Air-to-Water Heatpump System

Mono bloc Unit WH-MXC09G3E5

> Destination Europe Turkey



WARNING

This service information is designed for experienced repair technicians only and is not designed for use by the general public. It does not contain warnings or cautions to advise non-technical individuals of potential dangers in attempting to service a product. Products powered by electricity should be serviced or repaired only by experienced professional technicians. Any attempt to service or repair the product or products dealt with in this service information by anyone else could result in serious injury or death.

## A PRECAUTION OF LOW TEMPERATURE

In order to avoid frostbite, be assured of no refrigerant leakage during the installation or repairing of refrigerant circuit.



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# **1. Safety Precautions**

- Read the following "SAFETY PRECAUTIONS" carefully before installation of (Mono bloc) Air-to-Water Heat pump system (hereafter referred to as "Mono bloc unit").
- Electrical works and water installation works must be done by licensed electrician and licensed water system installer respectively. Be sure to use the correct rating and main circuit for the model to be installed.
- The caution items stated here must be followed because these important contents are related to safety. The meaning of each indication used is as below. Incorrect installation due to ignorance or negligence of the instructions will cause harm or damage, and the seriousness is classified by the following indications.

This indication shows the possibility of causing death or serious injury.
This indication shows the possibility of causing injury or damage to properties only.

#### • The items to be followed are classified by the symbols:

$\bigcirc$	Symbol with white background denotes item that is PROHIBITED from doing.
00	Symbol with dark background denotes item that must be carried out.

- Carry out test run to confirm that no abnormality occurs after the installation. Then, explain to user the operation, care and maintenance as stated in instructions. Please remind the customer to keep the operating instructions for future reference.
- If there is any doubt about the installation procedure or operation, always contact the authorized dealer for advice and information.

1.	Do not install Mono bloc unit near handrail of veranda. When installing Mono bloc unit at veranda of high rise building, child may climb up to Mono bloc unit and cross over the handrail and causing accident.	$\bigcirc$
2.	Do not use unspecified cord, modified cord, join cord or extension cord for power supply cord. Do not share the single outlet with other electrical appliances.	$\bigcirc$
	Poor contact, poor insulation or over current will cause electrical shock or fire.	
3.	Do not tie up the power supply cord into a bundle by band. Abnormal temperature rise on power supply cord may happen.	$\bigcirc$
4.	Do not insert your fingers or other objects into the unit, high speed rotating fan may cause injury.	$\bigcirc$
5.	Do not sit or step on the unit, you may fall down accidentally.	$\bigcirc$
6.	Keep plastic bag (packaging material) away from small children, it may cause suffocation.	$\oslash$
7.	Do not use pipe wrench to install refrigerant pipe. It might deform the piping and cause the unit to malfunction.	$\bigcirc$
8.	Do not purchase unauthorized electrical parts for installation, service, maintenance and etc They might cause electrical shock or fire.	$\bigcirc$
9.	This unit is a multi supply appliances. All circuits must be disconnected before accessing to the unit terminals.	$\bigcirc$
10.	Do not modify the wiring of Mono bloc unit for installation of other components (i.e. heater, etc.). Overloaded wiring or wire connection points may cause electrical shock or fire.	$\bigcirc$
11.	Do not add or replace refrigerant other than specified type. It may cause product damage, burst and injury etc.	$\bigcirc$
12.	For electrical work, follow the local national wiring standard, regulation and this installation instruction. An independent circuit and single outlet must be used. If electrical circuit capacity is not enough or defect found in electrical work, it will cause electrical shock or fire.	0
13.	For water circuit installation work, follow to relevant European and national regulations (including EN61770) and local plumbing and building regulation codes.	0
14.	Must engage an authorized dealer or specialist for installation. If installation is defective, it will cause water leakage, electrical shock or fire.	0
15.	Install according to this installation instructions strictly. If installation is defective, it will cause water leakage, electrical shock or fire.	0
16.	Only use the supplied or specified installation parts. Else, it may causes Mono bloc unit vibrate, fall, water leakage, electrical shock or fire.	0
17.	Install at a flat, strong and firm location which is able to withstand the Mono bloc unit's weight. If the location is slanting, or strength is not enough the set will fall and cause injury.	0

18.	This equipment is strongly recommended to be installed with Residual Current Device (RCD) on-site according to the respective national wiring rules or country-specific safety measures in terms of residual current.	0
19.	The unit is only for use in a closed water system. Utilization in an open water system may lead to excessive corrosion of the water piping and risk of incubating bacteria colonies, particularly Legionella, in water.	0
20.	If there is any doubt about the installation procedure or operation, always contact the authorized dealer for advice and information.	0
21.	Select a location where in case of water leakage, the leakage will not cause damage to other properties.	0
22.	When installing electrical equipment at wooden building of metal lath or wire lath, in accordance with electrical facility standard, no electrical contact between equipment and building is allowed. Insulator must be installed in between.	0
23.	This installation may be subjected to building regulation approval applicable to respective country that may require to notify the local authority before installation.	0
24.	Any work carried out on the Mono bloc unit after removing the front panel which is secured by screws, must be carried out under the supervision of authorized dealer and licensed installation contractor.	0
25.	This unit must be properly earthed, the electrical earth must not be connected to a gas pipe, water pipe, the earth of a lightening rod or a telephone. Otherwise there is a danger of electrical shock in the event of an insulation breakdown or electrical earth fault in the Mono bloc unit.	Ø

1.	Do not install the Mono bloc unit in areas where there is a risk of flammable gas leakage. There is a risk of fire if flammable gas accumulates near or around the Mono bloc unit.	$\bigcirc$
2.	Do not release refrigerant during piping work for installation, re-installation and during repairing a refrigeration parts. Take care of the liquid refrigerant, it may cause frostbite.	$\bigcirc$
3.	Make sure the power supply cord does not contact with hot part (i.e. water piping). High temperature may cause insulator of power supply cord damage hence electrical shock or fire.	$\otimes$
4.	Do not touch the sharp aluminium fin, sharp parts may cause injury.	$\bigcirc$
5.	Do not apply excessive force to water pipes that may damage the pipes. If water leakage occurs, it will cause flooding and damage to other properties.	$\bigcirc$
6.	Carry out drainage piping as mentioned in installation instructions. If drainage is not perfect, water leakage may happen and may cause damage to properties of the user.	0
7.	The piping installation work must be flushed before the Mono bloc unit is connected to remove contaminants. Contaminants may damage the Mono bloc unit components.	0
8.	Select an installation location where it is accessible for maintenance.	0
9.	<ul> <li>Power supply connection to Mono bloc unit.</li> <li>Power supply point should be in easily accessible place for power disconnection in case of emergency.</li> <li>Must follow local national wiring standard, regulation and this installation instruction.</li> <li>Strongly recommended to make permanent connection to a circuit breaker. It must be a double pole switch with a minimum 3.0 mm gap. <ul> <li>Power supply 1: Use approved 30A circuit breaker.</li> <li>Power supply 2: Use approved 30A circuit breaker.</li> </ul> </li> </ul>	0
10.	Ensure the correct polarity is maintained throughout all wiring. Otherwise, it will cause electrical shock or fire.	0
11.	After installation, the installer is obliged to verify correct operation of the Mono bloc unit. Check the connection point for water leakage during test run. If leakage occurs, it will cause damage to other properties.	0
12.	Installation work. Four or more people are required to carry out the installation work. The weight of Mono bloc unit might cause injury if carried by less than four people.	0

# 2. Specifications

# 2.1 WH-MXC09G3E5

	Item	Unit	Refrigera	nt System	
Performance Test Condition	on		EN1	4511	
Cooling Condition (Ambie	nt/Water)		A35W7	-	
Cooling Capacity		kW	7.00	-	
		BTU/h	23900	-	
		kcal/h	6020	-	
EER		W/W	3.17	-	
		kcal/hW	2.72	-	
Heating Condition (Ambie	nt/Water)		A7W35 A2W35		
Heating Capacity		kW	9.00	9.00	
		BTU/h	30700	30700	
		kcal/h	7740	7740	
СОР		W/W	4.84	3.59	
		kcal/hW	4.16	3.08	
Air Flow		m³/min (ft³/min)	Cooling: 89.5 (3160) Heating: 76.8 (2710)		
Refrigeration Control Devi	ice		Expansion Valve		
Refrigeration Oil		cm <sup>3</sup>	FV50S (1200)		
Refrigerant (R410A)		kg (oz)	2.30 (81.2)		
Compressor	Туре		Hermetic M	otor (Rotary)	
	Motor Type		Brushless (4-poles)		
	Rated Output	kW	3.00		
Fan	Туре		Prope	ller Fan	
	Material		PP		
	Motor Type		DC (8-poles)		
	Input Power	W		-	
	Output Power	W	60		
	Fan Speed	rpm	Cooling: 540 (Top Fan) 580 (Bottom I Heating: 490 (Top Fan) 530 (Bottom I		
Heat Exchanger	Fin material		Aluminium	(Pre Coat)	
	Fin Type		Corrug	ated Fin	
	Row × Stage × FPI		2 × 5	1 × 18	
	Size (W × H × L)	mm	903.7 × 12	95.4 × 38.1	

	ltem	Unit	Mono b	loc Unit
Dimension Height		mm (inch)	1410 (	55-1/2)
	Width	mm (inch)	1283 (	50-1/2)
Depth		mm (inch)	320 (12-19/32)	
Net Weight		kg (lbs)	148 (326)	
Noise Level		dB-A	Cooling: 49 Heating: 49	Cooling: - Heating: -
			Cooling: 67 Heating: 66	Cooling: - Heating: -
Power Source (Phase, V	Power Source (Phase, Voltage, Cycle)		Single	
		V	230	
		Hz	50	

	ltem	Unit	Mono b	loc Unit	
Input Power		kW	Cooling: 2.21 Heating: 1.86	Cooling: - Heating: 2.51	
Maximum Input Power For Mor	no bloc Unit	kW	5.	41	
Power Supply 1: Phase (ø) / M	ax. Current (A) / Max. Input Power (W)		Single / 2	5.0 / 5.41k	
Power Supply 2: Phase (ø) / M	ax. Current (A) / Max. Input Power (W)		Single / 1	3.0 / 3.00k	
Power Supply 3: Phase (ø) / Max. Current (A) / Max. Input Power (W) - / - / -				- / -	
Starting Current		А	10.2		
Running Current		А	Cooling: 10.2 Heating: 8.6	Cooling: - Heating: 11.6	
Maximum Current For Mono b	loc Unit	А	25.0		
Power Factor		%	Cooling: 94 Cooling: - Heating: 94 Heating: 94		
Power factor means total figure	e of compressor and outdoor fan motor.				
Power Cord	Number of core		-		
Length		m (ft)	-		
Thermostat			Electroni	c Control	
Protection Device			Electroni	c Control	

	Item	Unit	Water System	
Performance Test Condition			EN14511	
Operation Range	Outdoor Ambient	°C	Cooling: 16 ~ 43 Heating: -20 ~ 35	
	Water Outlet	°C	Heating: 25 ~ 55	
Internal Pressure Differential		kPa	Cooling: 14.3 Heating: 22.8	
Water Pipe Diameter	Inlet	mm (inch)	30 (1-3/16)	
	Outlet	mm (inch)	30 (1-3/16)	
Water Drain Hose Inner Dian	neter	mm (inch)	EN14511           °C         Cooling: 16 ~ 43 Heating: -20 ~ 35           °C         Cooling: 5 ~ 20 Heating: 25 ~ 55           kPa         Cooling: 14.3 Heating: 22.8           mm (inch)         30 (1-3/16)           mm (inch)         30 (1-3/16)	
Pump	Motor Type		DC Motor	
	No. of Speed		7 (software selection)	
	Input Power	W	50	
Hot Water Coil	Туре		Brazed Plate	
	No. of Plates		36	
	Size (H × W × L)	mm	65 × 120 × 376	
	Water Flow Rate	l/min (m <sup>3</sup> /h)		
Pressure Relief Valve Water	Circuit	kPa	Open: 300, Close: 265 and below	
Flow Switch			Magnetic Lead Switch	
Protection Device		A	Residual Current Circuit Breaker (30)	
Expansion Vessel	Volume	1	10	
	MWP	bar	3	
Capacity of Integrated Electi	ric Heater	kW	3.00	

#### Note:

Cooling capacities are based on outdoor air temperature of 35°C Dry Bulb with controlled water inlet temperature of 12°C and water outlet temperature of 7°C. 1.

Heating capacities are based on outdoor air temperature of 7°C Dry Bulb (44.6°F Dry Bulb), 6°C Wet Bulb (42.8°F Wet Bulb) with controlled water inlet temperature of 30°C and water outlet temperature of 35°C. Specifications are subjected to change without prior notice for further improvement. 2.

3.

# 3. Features

### Inverter Technology

- o Energy saving
- High Efficiency
- Compact Design
- Environment Protection

   Non-ozone depletion substances refrigerant (R410A)
- Easy to use remote control
- Weekly Timer setting

#### Quality Improvement

- o Random auto restart after power failure for safety restart operation
- o Gas leakage protection
- Prevent compressor reverse cycle
- o Inner protector to protect compressor

#### Serviceability Improvement

- o Breakdown Self Diagnosis function
- System Status Check Buttons for servicing purpose
- System Service Mode Button for servicing purpose
- Front maintenance design for Mono bloc unit

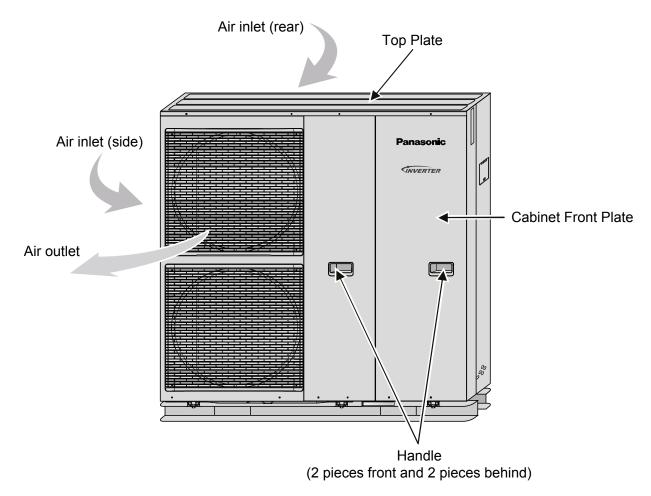
#### • Operation Condition

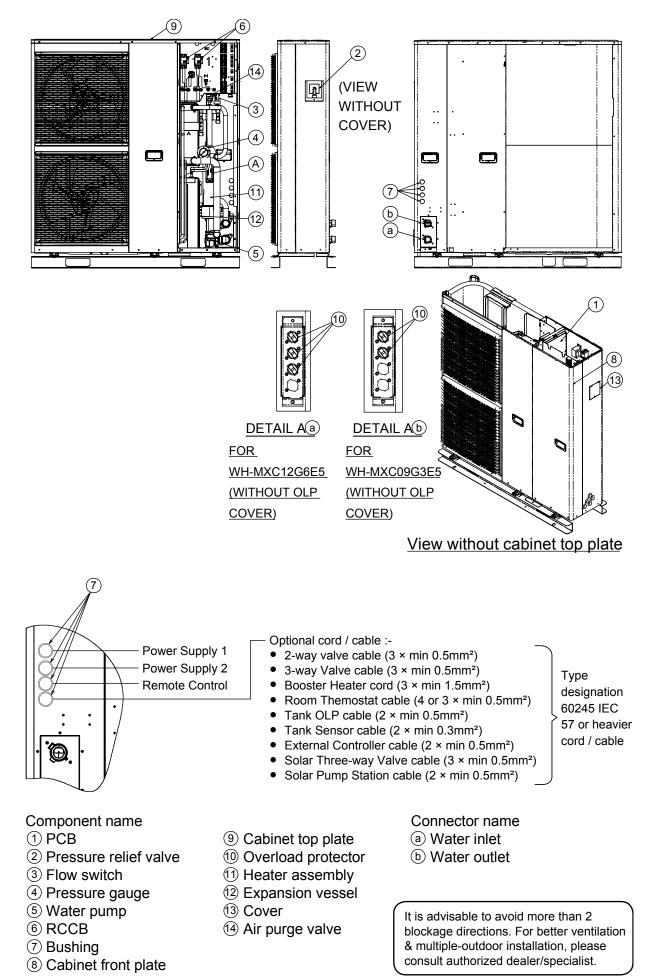
		Water outlet temperature (°C)	Ambient temperature (°C)	
COOLING	Maximum	20	43	
COOLING	Minimum	5	16	
HEATING	Maximum	55	35	
HEATING	Minimum	25	-20	

NOTICE: When the outdoor temperature is out of the above temperature range, the heating capacity will drop significantly and Mono bloc unit might stop for protection control.

# 4. Location of Controls and Components

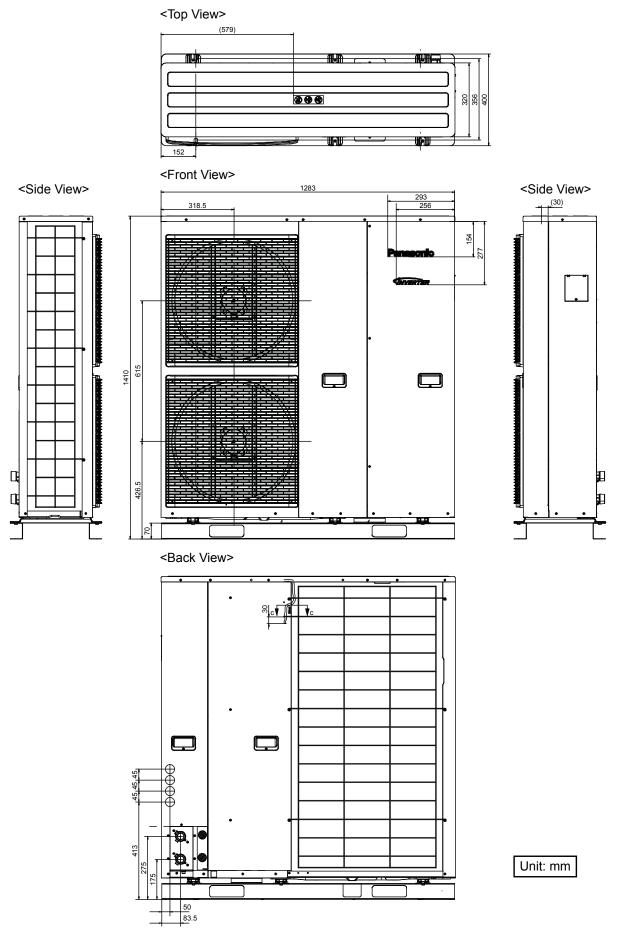
## 4.1 Mono Bloc Unit



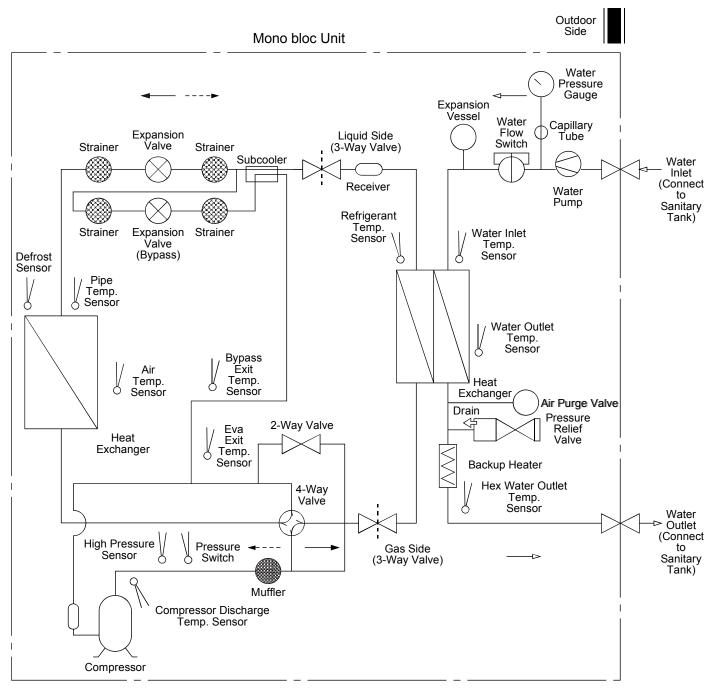


# 5. Dimensions

## 5.1 Mono Bloc Unit



## 6. Refrigeration And Water Cycle Diagram



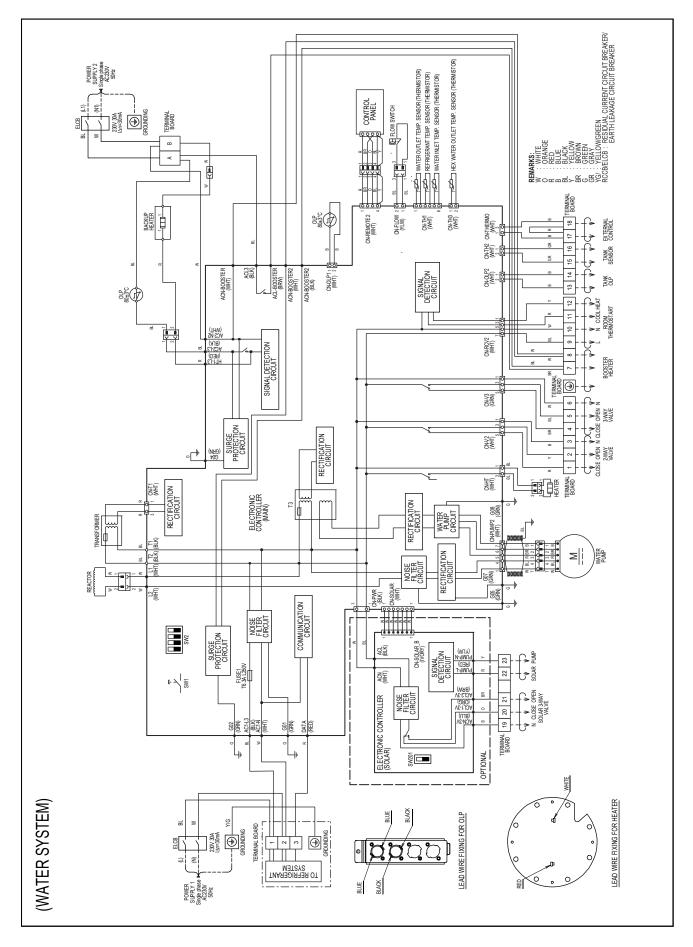
Refrigerant Cycle (Heating)

→ Water Cycle

---- Refrigerant Cycle (Cooling)

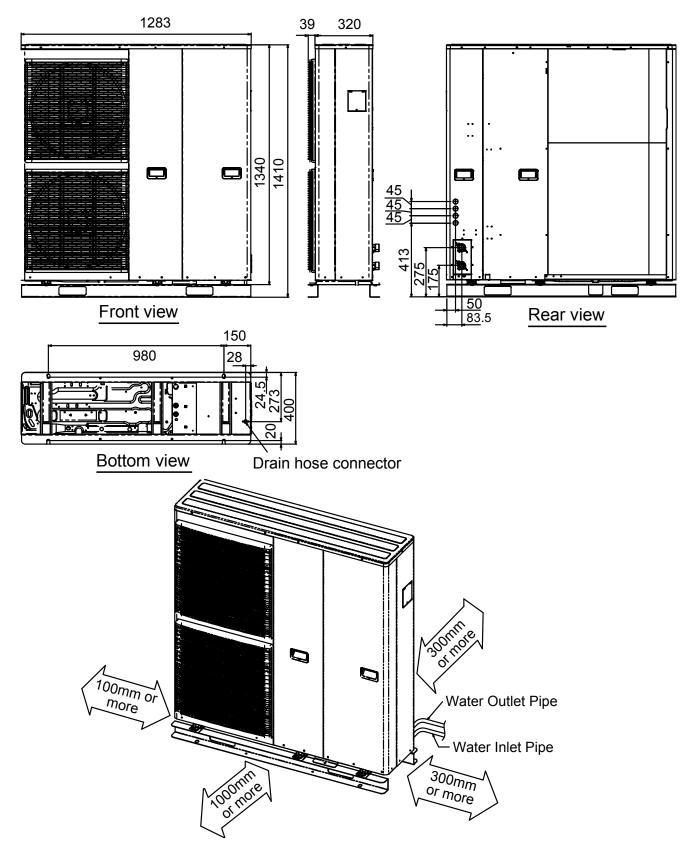
# 8. Wiring Connection Diagram

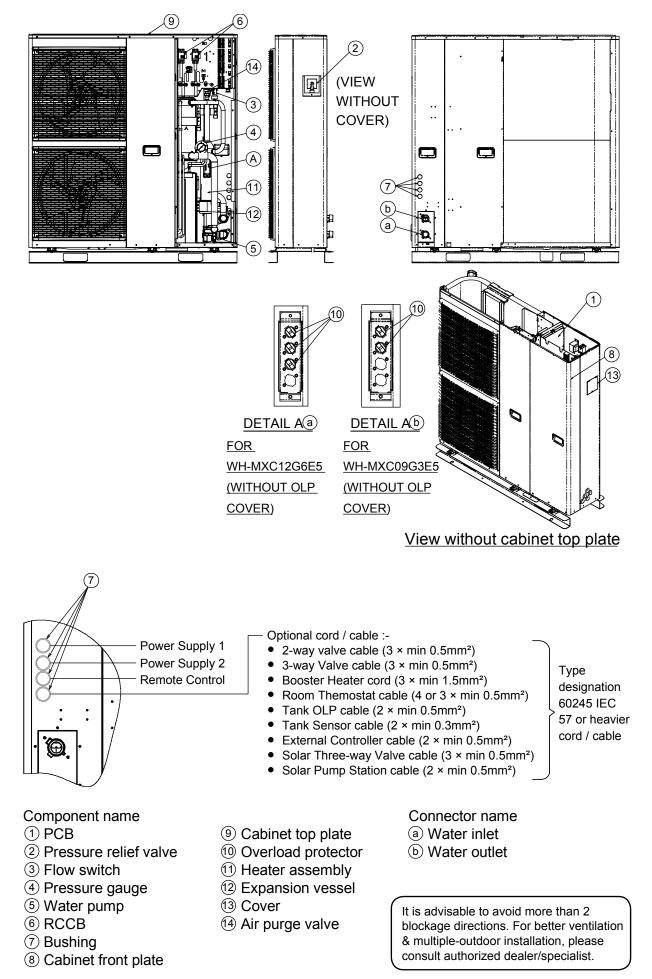
## 8.1 WH-MXC09G3E5



## 11. Installation Instruction Mono Bloc Unit

**Dimension Diagram** 





## How To Adjust Water Flow Rate

Before adjust the water flow rate, make sure that the total water volume in the installation is 50 litres minimum for heating side. The default setting is SPEED 3 (Only for WH-MXC09G3E5) and SPEED 4 for WH-MXC12G6E5. Please ensure the minimum flow rate is not less than 13 l/min and not more than 50 l/min

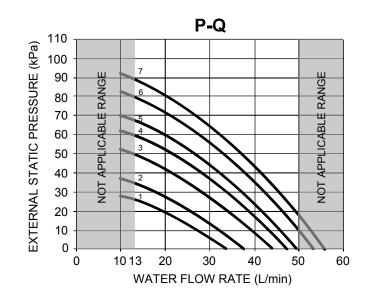
4 for WH-MXC12G6E5. Please ensure the minimum flow rate is not less than 13 l/min and not more than 50 l/min. The available external static pressure (kPa) in function of the water flow rate (l/min) is shown in the P-Q graph. Depend on the hydraulic system pressure loss and type, the water flow rate can be adjusted by remote control.

- 1 When the Air-to-Water Heatpump is in stop operation, press SERVICE button for 5 seconds.
- 2 Press ▲/▼ button to select menu S02 (PUMP SPEED ADJUST MODE) and press SET button to confirm the menu.
- 3 Press SELECT button then press ▲/▼ button to change pump speed and press SET button to confirm the pump speed.
- 4 Press OFF/ON button to exit PUMP SPEED ADJUST MODE.

During PUMP SPEED ADJUST MODE, we can select AIR PURGE function by pressing FORCE button.

In AIR PURGE function, the pump will operate ON and OFF for 10 minutes to purge the air in the hydraulic system. Press again the FORCE button to exit AIR PURGE function. PUMP SPEED ADJUST

MODE will stop operation.



# 18. Technical Data

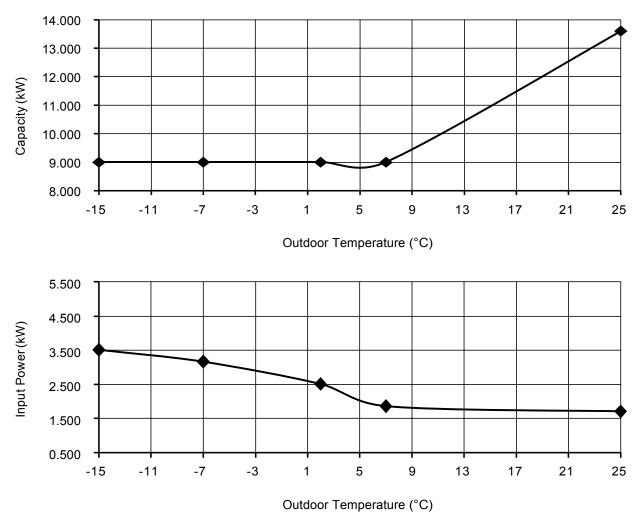
## 18.1 Operation Characteristics

#### 18.1.1 WH-MXC09G3E5

#### Heating Characteristics at Different Outdoor Air Temperature

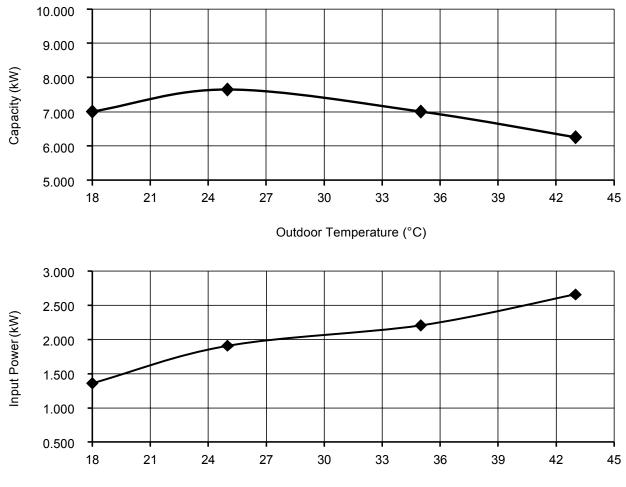
#### Condition

- Indoor water inlet temperature: 30°C
- o Indoor water outlet temperature: 35°C



#### Cooling Characteristics at Different Outdoor Air Temperature

- Condition
  - Indoor water inlet temperature: 12°C
  - Indoor water outlet temperature: 7°C

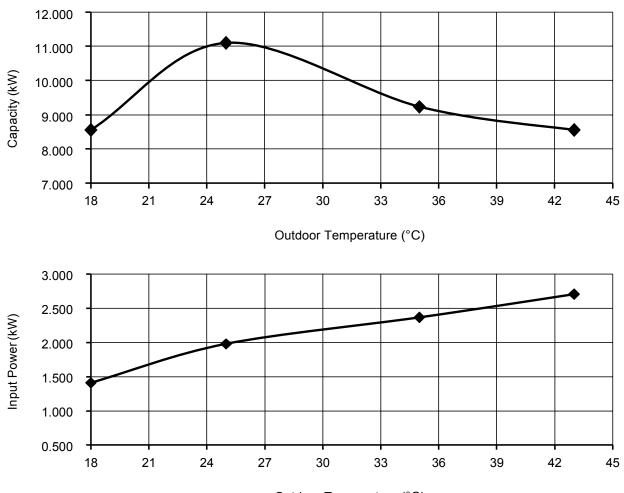


Outdoor Temperature (°C)

#### Cooling Characteristics at Different Outdoor Air Temperature



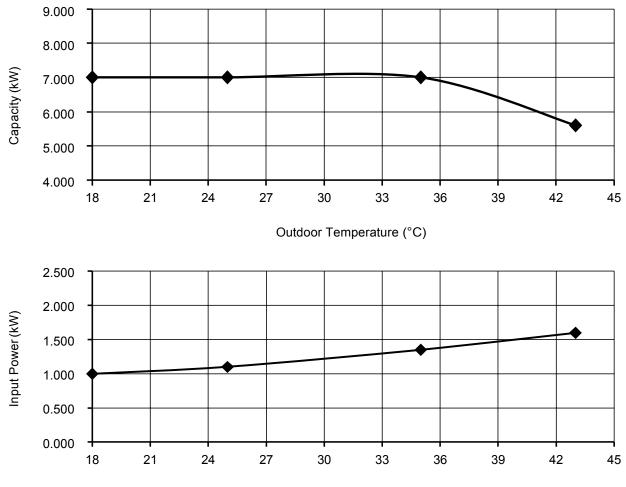
- Indoor water inlet temperature: 19°C
- Indoor water outlet temperature: 14°C



Outdoor Temperature (°C)

#### Cooling Characteristics at Different Outdoor Air Temperature

- Condition
  - Indoor water inlet temperature: 23°C
  - Indoor water outlet temperature: 18°C



Outdoor Temperature (°C)

# 18.2 Heating Capacity Table

## 18.2.1 WH-MXC09G3E5

Water Out (°C)	3	0	3	5	4	0	4	5	5	0	5	5
Outdoor Air (°C)	Capacity (W)	Input Power (W)										
-15	9000	3240	9000	3510	9000	3910	9000	4300	9000	4730	9000	5160
-7	9000	2710	9000	3160	9000	3620	9000	4070	9000	4270	9000	4460
2	9000	2360	9000	2510	9000	2780	9000	3050	9000	3560	9000	4070
7	9000	1640	9000	1860	9000	2160	9000	2460	9000	2760	9000	3060
25	13600	1500	13600	1710	13200	1930	12800	2140	12000	2410	11200	2670

## 18.3 Cooling Capacity Table

#### 18.3.1 WH-MXC09G3E5

Water In (°C)		1	2	1	9	23		
Water 0	Water Out (°C)		7	14		18		
t.	°C	Capacity (W)	Input Power (W)	Capacity (W)	Input Power (W)	Capacity (W)	Input Power (W)	
oien	18	7.00	1.36	8.55	1.41	7.00	1.00	
OD Ambient	25	7.65	1.91	11.10	1.98	7.00	1.10	
OD	35	7.00	2.21	9.23	2.37	7.00	1.35	
	43	6.25	2.66	8.55	2.71	5.60	1.60	