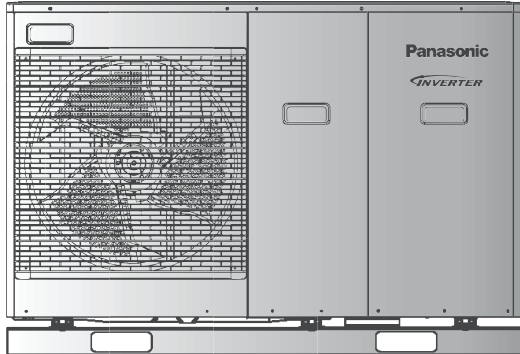


Service Manual

(Mono bloc) Air-to-Water Heatpump System



Mono bloc Unit

WH-MDC09G3E5

**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.

PRECAUTION OF LOW TEMPERATURE

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

2.2 WH-MDC09G3E5

Item		Unit	Refrigerant System	
Performance Test Condition			EN 14511	
Condition (Ambient/Water)			A35W7	-
Cooling Capacity		kW	7.00	-
		BTU/h	23900	-
		kcal/h	6020	-
EER		W/W	2.44	-
		kcal/hW	2.10	-
Condition (Ambient/Water)			A7W35	A2W35
Heating Capacity		kW	9.00	7.45
		BTU/h	30700	25400
		kcal/h	7740	6410
COP		W/W	4.15	3.14
		kcal/hW	3.57	2.70
Air Flow		m ³ /min (ft ³ /min)	Cooling : 57.1 (2016) Heating : 51.6 (1822)	
Refrigeration Control Device			Expansion Valve	
Refrigeration Oil		cm ³	FV50S (900)	
Refrigerant (R410A)		kg (oz)	1.45 (51.2)	
Compressor	Type		Hermetic Motor (Rotary)	
	Motor Type		Brushless (4-poles)	
	Rated Output	kW	1.70	
Fan	Type		Propeller Fan	
	Material		PP	
	Motor Type		DC (8-poles)	
	Input Power	W	—	
	Output Power	W	60	
	Fan Speed	rpm	Cooling: 700 Heating: 640	
Heat Exchanger	Fin material		Aluminium (Pre Coat)	
	Fin Type		Corrugated Fin	
	Row × Stage × FPI		2 × 30 × 17	
	Size (W × H × L)	mm	38.1 × 762 × 903.8:873.8	

Item		Unit	Mono Bloc Unit	
Dimension	Height	mm (inch)	865 (34-1/16)	
	Width	mm (inch)	1283 (50-17/32)	
	Depth	mm (inch)	320 (12-5/8)	
Net Weight		kg (lbs)	112 (247)	
Noise Level		dB-A	Cooling: 49 Heating: 49	Cooling: - Heating: -
		Power Level dB	Cooling: 67 Heating: 67	Cooling: - Heating: -
Power Source (Phase, Voltage, Cycle)		ø	Single	
		V	230	
		Hz	50	
Input Power		kW	Cooling: 2.87 Heating: 2.17	Cooling: - Heating: 2.37
Maximum Input Power For Mono Bloc Unit		kW	5.01	
Power Supply 1: Phase (ø) / Max. Current (A) / Max. Input Power (W)			Single / 22.9 / 5.01k	
Power Supply 2: Phase (ø) / Max. Current (A) / Max. Input Power (W)			Single / 13.0 / 3.00k	
Power Supply 3: Phase (ø) / Max. Current (A) / Max. Input Power (W)			- / - / -	

Item		Unit	Mono Bloc Unit	
Starting Current		A	13.0	
Running Current		A	Cooling: 13.0 Heating: 9.9	Cooling: - Heating: 10.8
Maximum Current For Mono Bloc Unit		A	22.9	
Power Factor		%	Cooling: 96 Heating: 95	Cooling: - Heating: 95
Power factor means total figure of compressor and outdoor fan motor.				
Power Cord	Number of core		-	
	Length	m (ft)	-	
Thermostat			Electronic Control	
Protection Device			Electronic Control	

Item		Unit	Water System	
Performance Test Condition			EN 14511	
Operation Range	Outdoor Ambient	°C	Cooling: 16 ~ 43 Heating: -20 ~ 35	
	Water Outlet	°C	Cooling: 5 ~ 20 Heating: 25 ~ 55	
Internal Pressure Differential		kPa	Cooling: 36.5 Heating: 57.5	
Water Pipe Diameter	Inlet	mm (inch)	30 (1-3/16)	
	Outlet	mm (inch)	30 (1-3/16)	
Water Drain Hose Inner Diameter		mm (inch)	15.00 (19/32)	
Pump	Motor Type		DC Motor	
	No. of Speed		7 (software selection)	
	Input Power	W	84	
Hot Water Coil	Type		Brazen Plate	
	No. of Plates		48	
	Size (H × W × L)	mm	82 × 93 × 325	
	Water Flow Rate	l/min (m ³ /h)	Cooling: 20.0 (1.2) Heating: 25.8 (1.6)	
Pressure Relief Valve Water Circuit		kPa	Open: 300, Close: 265 and below	
Flow Switch			Magnetic Lead Switch	
Protection Device		A	Residual Current Circuit Breaker (40)	
Expansion Vessel	Volume	l	6	
	MWP	bar	3	
Capacity of Integrated Electric 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.
- 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.
- Specification are subjected to change without prior notice for further improvement.

3. Features

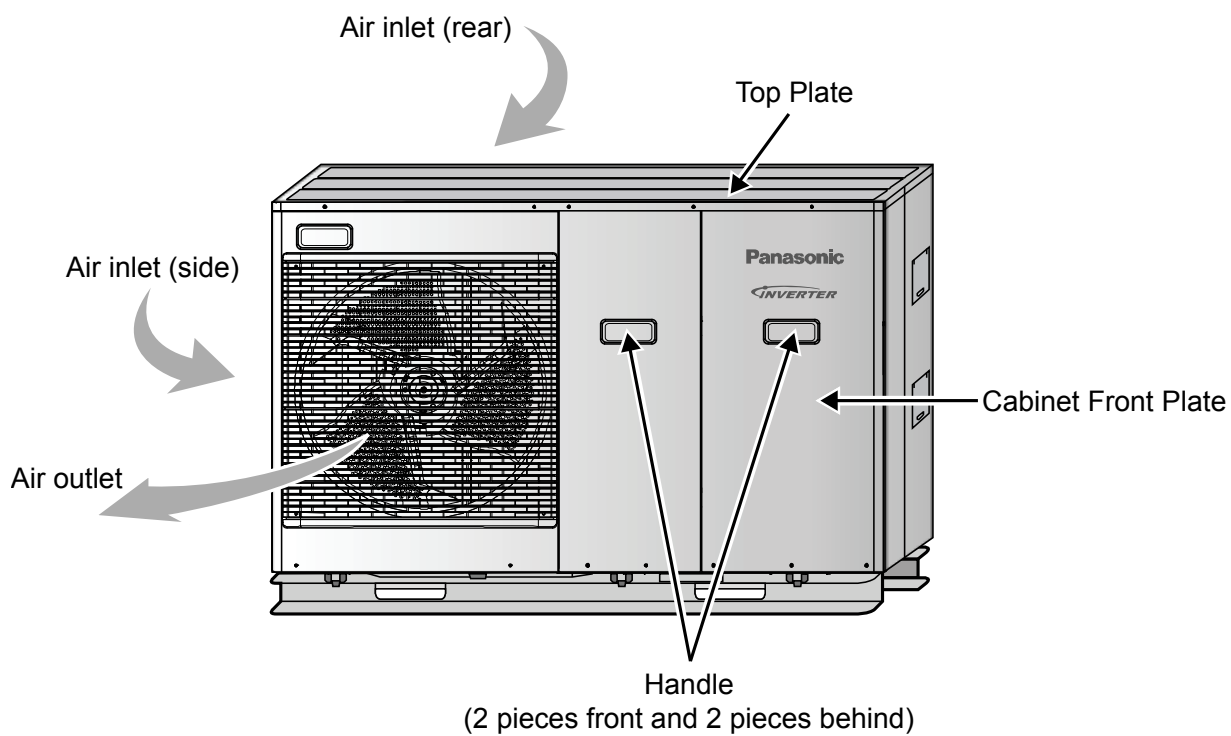
- **Inverter Technology**
 - Energy saving
- **High Efficiency**
- **Compact Design**
- **Environment Protection**
 - Non-ozone depletion substances refrigerant (R410A)
- **Easy to use remote control**
- **Weekly Timer setting**
- **Quality Improvement**
 - Random auto restart after power failure for safety restart operation
 - Gas leakage protection
 - Prevent compressor reverse cycle
 - Inner protector to protect compressor
- **Serviceability Improvement**
 - 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
	Minimum	5	16
HEATING	Maximum	55	35
	Minimum	25	-20

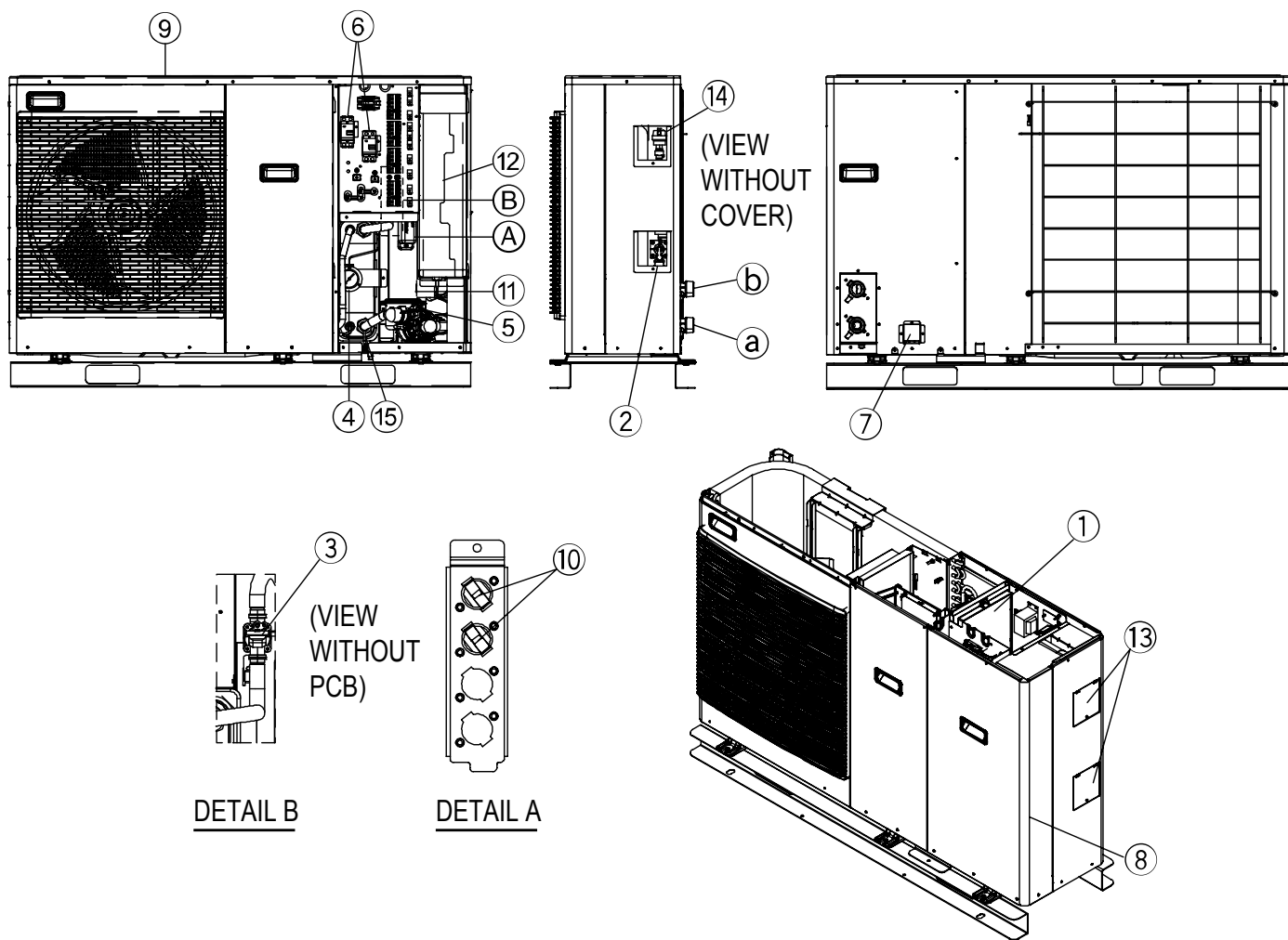
NOTICE : When the outdoor temperature is out of the above temperature range, the heating capacity will drop significantly and Mono bloc unit might stop for protection control.

4. Location of Controls and Components

4.1 Mono Bloc Unit



4.1.1 Main Components



View without cabinet top plate

Component name

- | | |
|-------------------------|----------------------|
| ① PCB | ⑨ Cabinet top plate |
| ② Pressure relief valve | ⑩ Overload protector |
| ③ Flow switch | ⑪ Heater assembly |
| ④ Pressure gauge | ⑫ Expansion vessel |
| ⑤ Water pump | ⑬ Cover |
| ⑥ RCCB | ⑭ Air purge valve |
| ⑦ Cable cover | ⑮ Plug |
| ⑧ Cabinet front plate | |

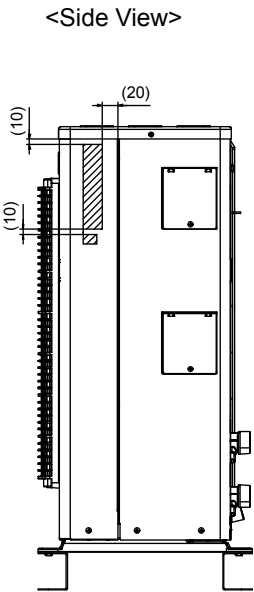
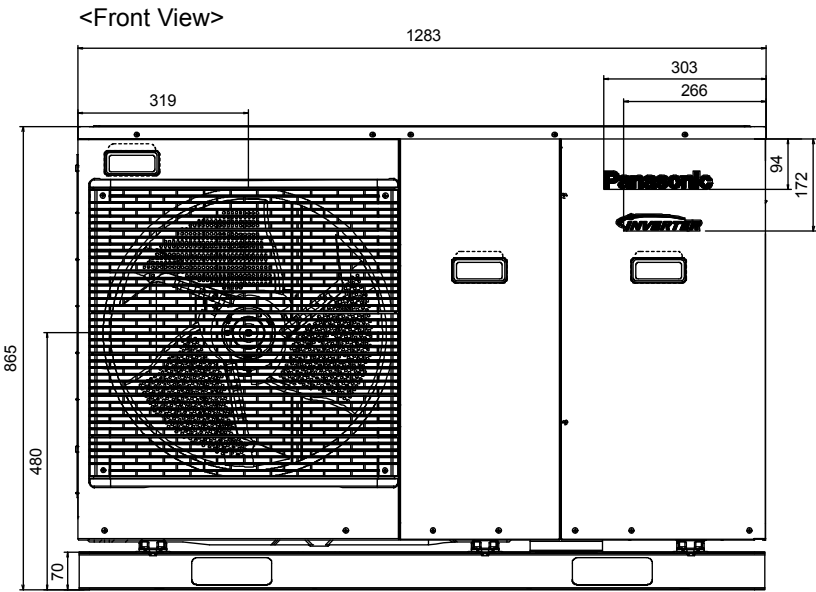
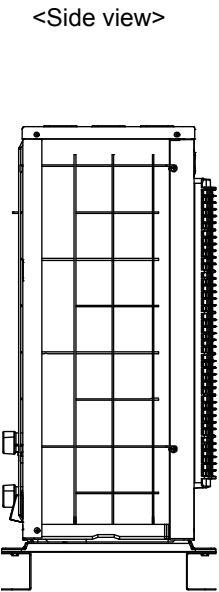
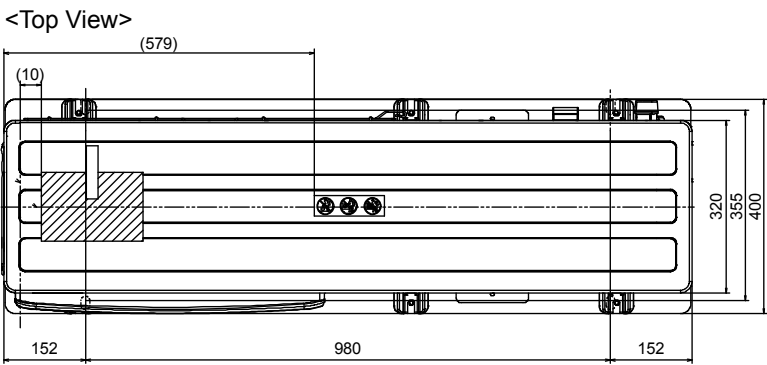
Connector name

- | |
|----------------|
| ① Water inlet |
| ② Water outlet |

It is advisable to avoid more than 2 blockage directions. For better ventilation & multiple-outdoor installation, please consult authorised dealer/specialist

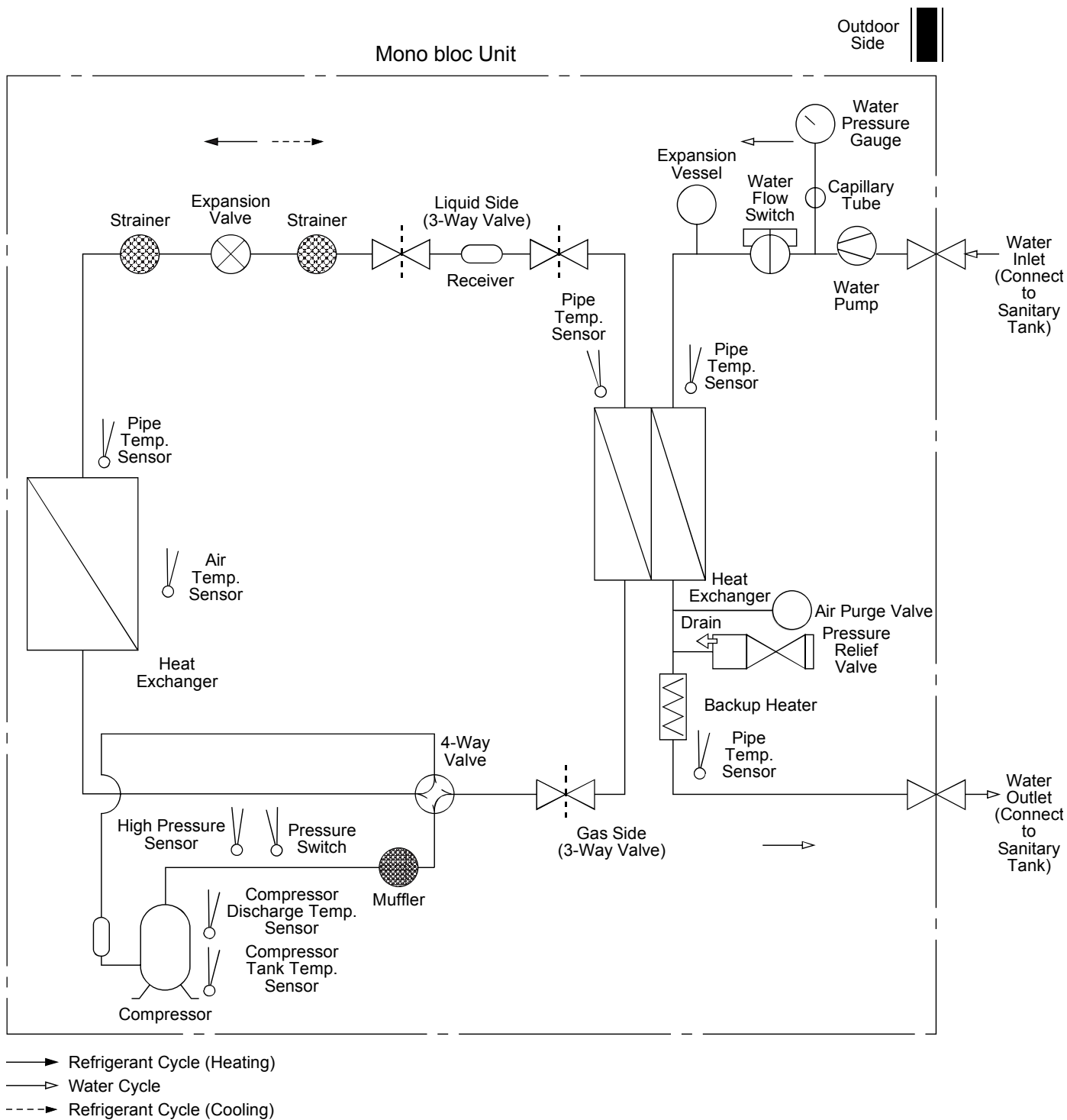
5. Dimensions

5.1 Mono Bloc Unit

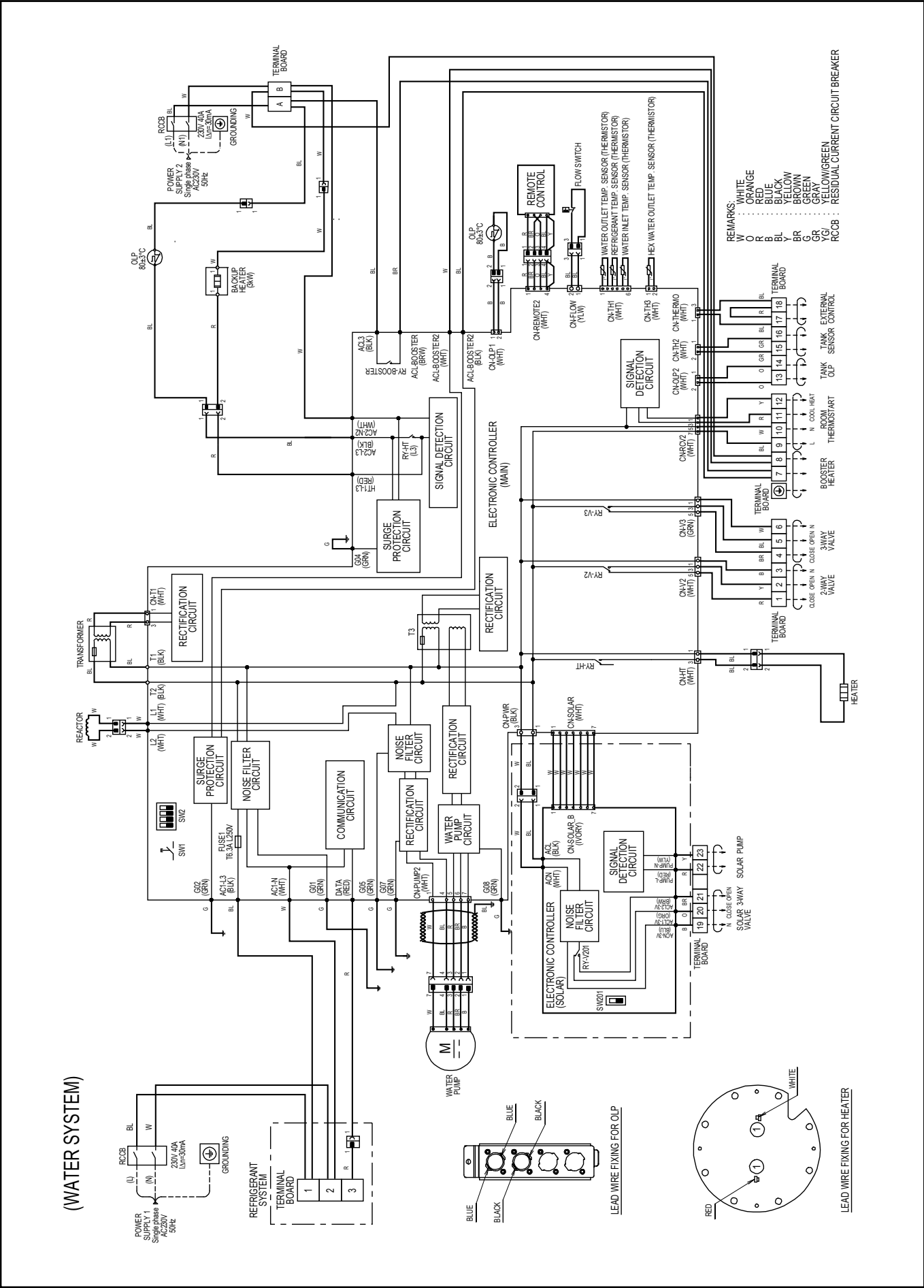


Unit: mm

6. Refrigeration and Water Cycle Diagram



8. Wiring Connection Diagram



[illegible]

How To Adjust Water Flow Rate

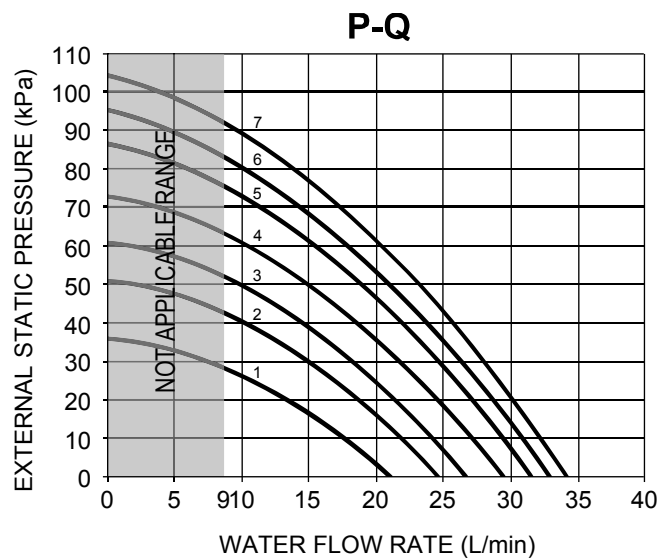
Before adjust the water flow rate, make sure that the total water volume in the installation is 30 litres minimum for heating side. The default setting is SPEED 3 (Only for WH-MDC06G3E5) and SPEED 6 for WH-MDC09G3E5. Please ensure the minimum flow rate is not less than 9 l/min and not more than 35 l/min.

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.

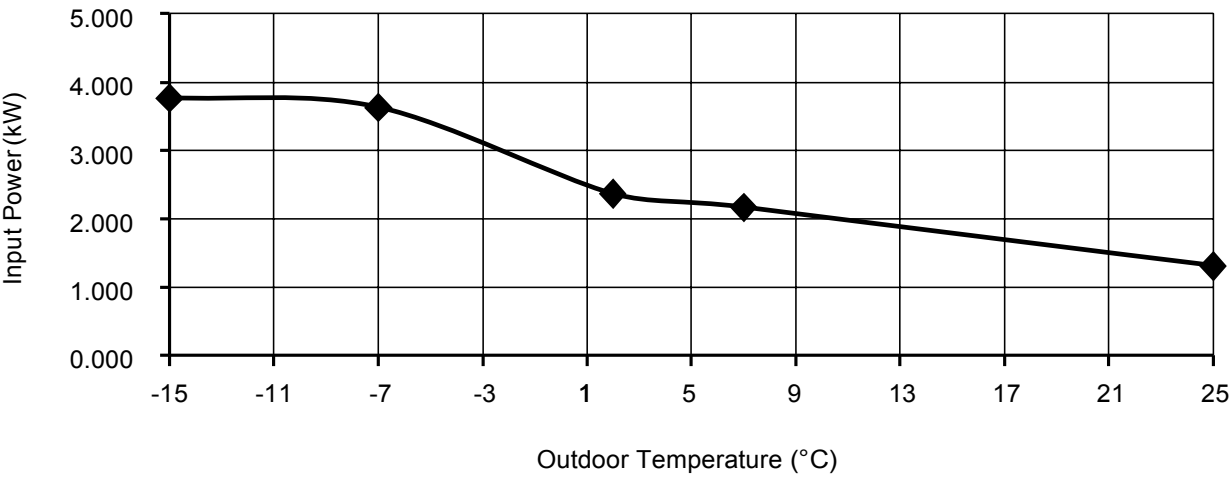
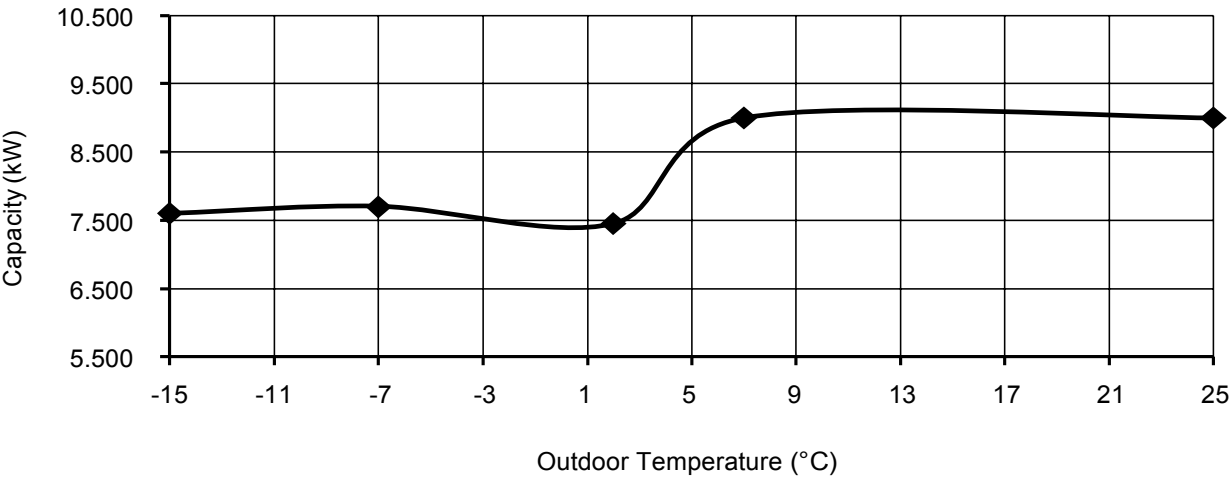
In AIR PURGE function, the pump will operate ON and OFF for 10 minutes to purge the air in the hydraulic system. Press again the FORCE button to exit AIR PURGE function. PUMP SPEED ADJUST MODE will stop operation.



18.1.2 WH-MDC09G3E5

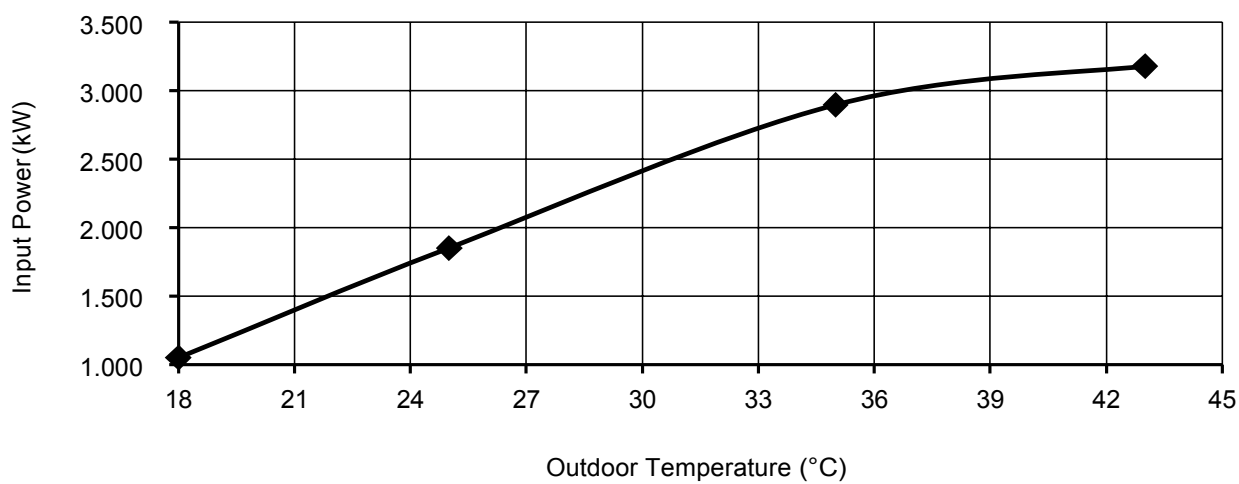
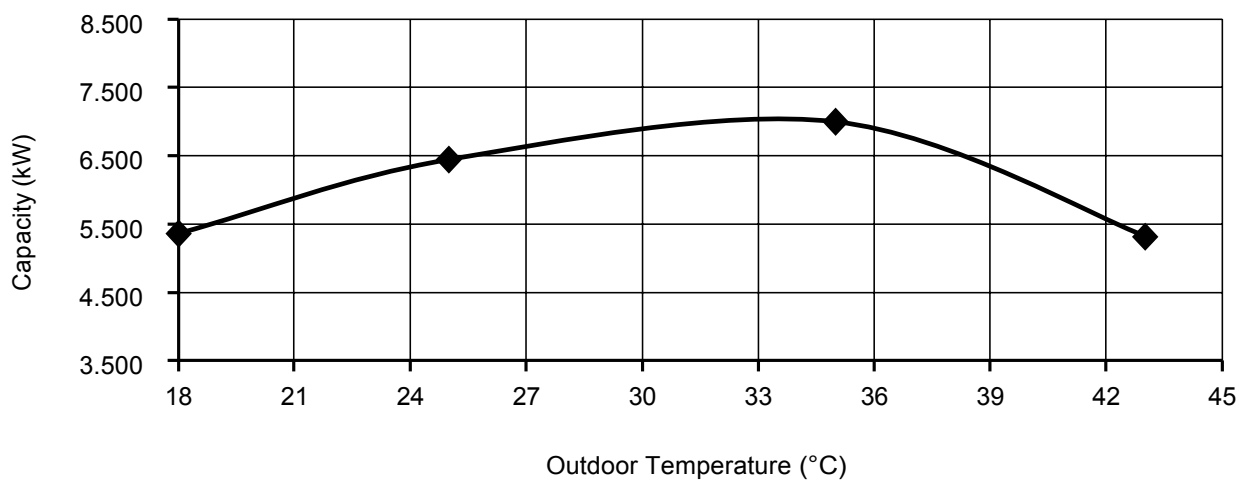
Heating Characteristics at Different Outdoor Air Temperature

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



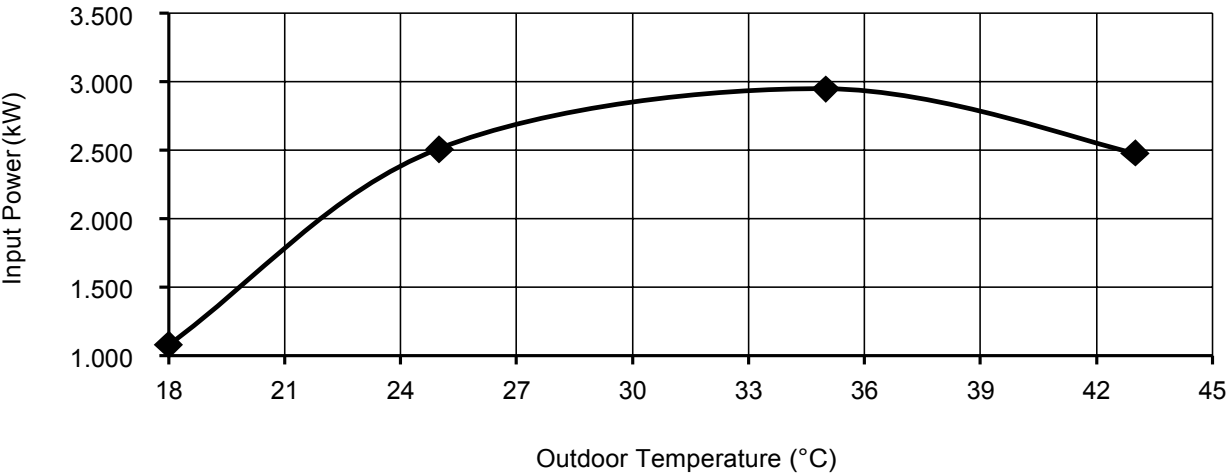
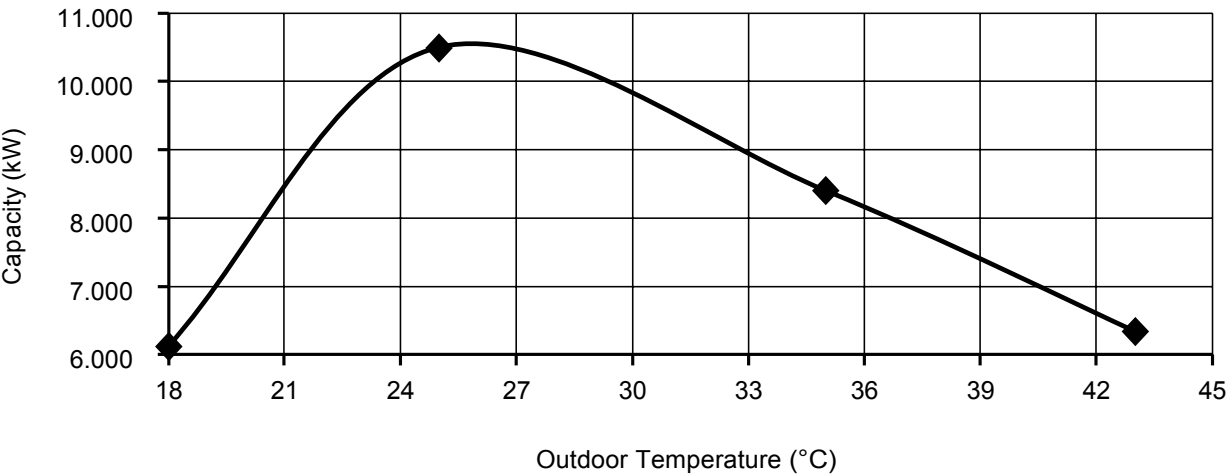
Cooling Characteristics at Different Outdoor Air Temperature

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



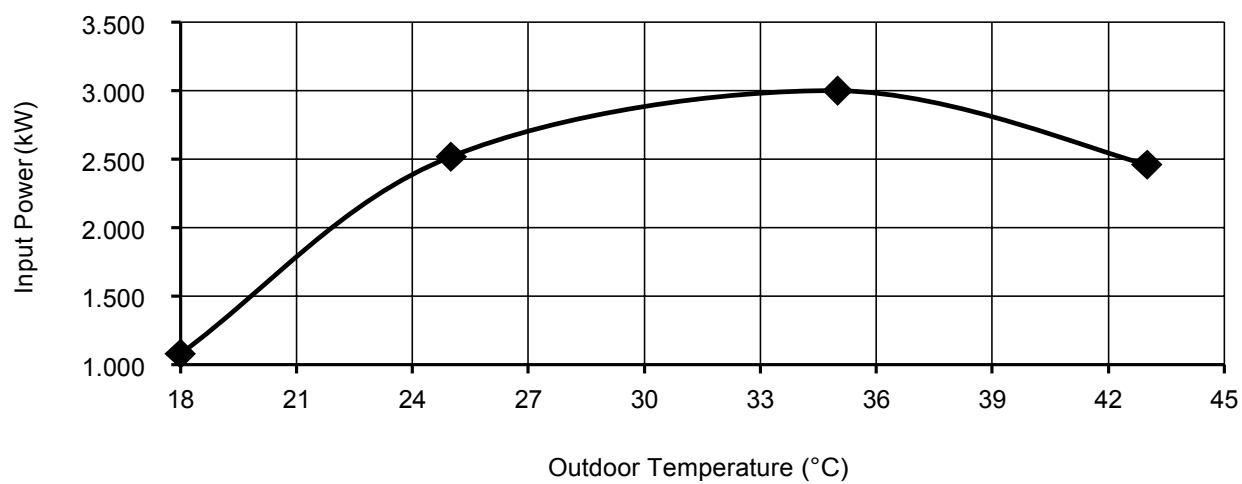
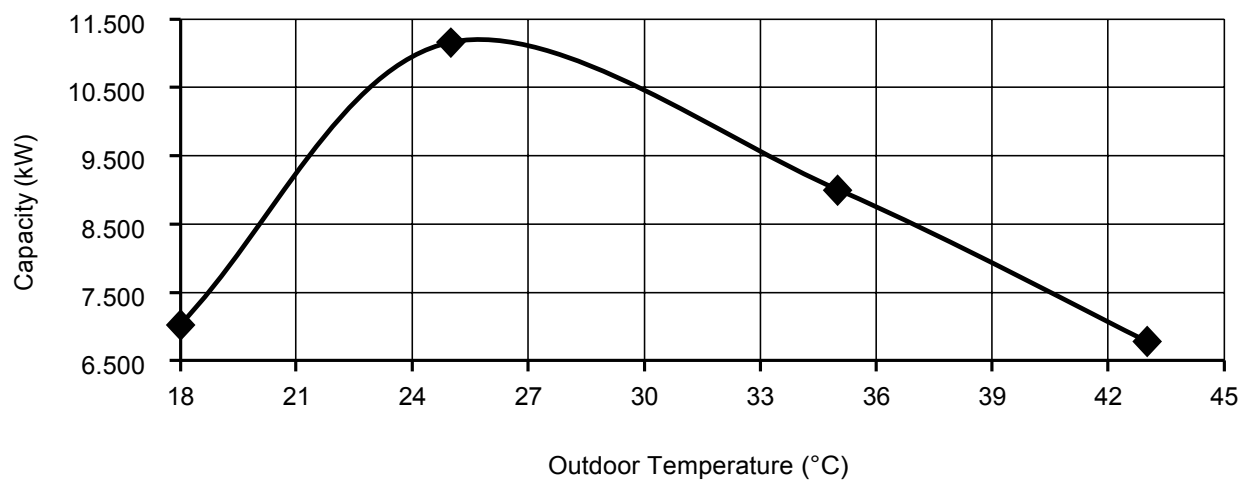
Cooling Characteristics at Different Outdoor Air Temperature

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



Cooling Characteristics at Different Outdoor Air Temperature

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



18.2 Heating Capacity Table

18.2.2 WH-MDC09G3E5

Water Out (°C)	30		35		40		45		50		55	
Outdoor Air (°C)	Capacity (W)	Input Power (W)	Capacity (W)	Input Power (W)	Capacity (W)	Input Power (W)	Capacity (W)	Input Power (W)	Capacity (W)	Input Power (W)	Capacity (W)	Input Power (W)
-15	7900	3615	7600	3770	7300	3925	7000	4080	6450	4055	5900	4030
-7	7800	3380	7700	3630	7600	3880	7500	4130	7550	4590	7600	5050
2	7000	2005	7450	2370	7000	2595	7000	2890	7000	3370	7000	3850
7	9000	1865	9000	2165	9000	2475	9000	2780	8950	3310	8900	3840
25	9000	990	9000	1310	9000	1630	9000	1950	9000	2200	9000	2450

* is rating based on ΔT = 8

18.3 Cooling Capacity Table

18.3.2 WH-MDC09G3E5

Water In (°C)		12		19		23	
Water Out (°C)		7		14		18	
OD Ambient	°C	Capacity (W)	Input Power (W)	Capacity (W)	Input Power (W)	Capacity (W)	Input Power (W)
	18	5360	1050	6120	1080	7020	1080
	25	6440	1850	10500	2510	11160	2520
	35	7000	2900	8400	2950	9000	3000
	43	5320	3180	6340	2480	6780	2460