

1 SELECT THE BEST LOCATION

- Install the Mono Bloc unit in outdoor locations only.
- Avoid installations in areas where the ambient temperature may drop below -20°C.
- The Mono Bloc unit must be installed on a flat, solid surface.
- A place removed from any heat source or steam which may affect the operation of the Mono Bloc unit.
- A place where air circulation is good.
- A place where drainage can be easily done.
- A place where Mono Bloc unit operation noise will not cause discomfort to the user.
- A place which is accessible for maintenance.
- Ensure to keep minimum distance of spaces as illustrated, from wall, ceiling, or other obstacles.
- A place where flammable gas leaking might not occur.
- A place where the Mono Bloc unit piping and wiring lengths come within reasonable ranges.
- If an awning is built over the unit to prevent direct sunlight or rain, be careful that heat radiation from the condenser is not obstructed.
- Do not place any obstacles which may cause a short circuit of the discharged air.
- Avoid installing the Mono Bloc unit at a location where outside soil may be exposed directly to wind.
- If Mono Bloc unit is installed near sea, region with high content of sulphur or oily location (e.g. machinery oil, etc.), it is important to install the Mono Bloc unit with a drain hose.
- When installing the product in a place where it will be affected by typhoon or strong wind such as wind blowing between buildings, including the rooftop of a building and a place where there is no building in surroundings, fix the product with an overturn prevention wire, etc. (Overturn prevention fitting model number: K-KY2P1C)

2 MONO BLOC UNIT INSTALLATION

- Mono bloc unit will become heavy when filled with water. Please install the unit on a strong concrete floor and consider the weight of the unit and water.
 - Fix Mono bloc unit on the concrete floor with M12 anchor bolt at 4 locations.
 - Pulst strength of these anchor bolts must be above 1500N.
- Concrete floor**
- Grip anchor bolt**
- Embedded anchor bolt**
- Disposal of MONO BLOC UNIT DRAIN WATER**
- When a Drain elbow (1) is used, please ensure to follow below:
 - The unit should be placed on a stand which is taller than 50mm.
 - Cover the 8 hoses (Ø20mm) with Rubber cap (7) (refer to illustration below).
 - Use a tray (field supply) when necessary to dispose the Mono bloc unit drain water.
- Disposal of MONO BLOC UNIT DRAIN WATER**
- If the unit is used in an area where drain below 0°C for 2 or 3 consecutive days, it is recommended not to use the Drain elbow (1) and Rubber cap (7); for the drain water freezes and the fan will not rotate.

3 PIPING INSTALLATION

- This section is for authorized and licensed electrician / water system installer only. Work behind the Cabinet Front Plate (6) secured by screws must only be carried out under supervision of qualified contractor, installation engineer or service person.
- Typical Piping Installation**
- Please engage a licensed water circuit installer to install this water circuit.
- The water circuit must comply with relevant European and national regulations (including EN61770), and local building regulation codes.
 - Ensure the components installed in the water circuit could withstand water pressure during operation.
 - Do not apply excessive force to piping that may damage the pipes.
 - Use Rp 1 1/2" nut for both water inlet and water outlet connection and clean all piping with tap water before connecting to the Mono bloc unit.
 - Cover the pipe end to prevent dirt and rust from entering it through a wall. If an existing hole is used to install this Mono bloc unit, ensure the pipes are clean before water pipe installation is carried out.
 - Choose proper size which can withstand the pressures and temperatures of the system.
 - Make sure to use two spanners to tighten the connection. Tighten the nuts with torque wrench: 11.7 N.m.
 - If non-brass metallic piping is used for installation, make sure to insulate the piping to prevent galvanic corrosion.
 - Do not use pipes that are crushed or deformed. If these inferior pipes are used, it may cause unit malfunction.
 - Make sure to insulate the water circuit piping (insulator thickness: 20mm or more) to prevent condensation during cooling operation and reduction of heating capacity, as well as avoid freezing of the outdoor water circuit piping during winter season.
 - After installation, check the water leakage condition in connection area using test run.
 - In case of a power supply valve / pump operating failure, drain the system (as suggested in the figure below).
- When water is inside the system, freezing up is very likely to happen which could damage the system.
- Drainage piping installation**
- Use a drain hose with inner diameter of 15 mm.
 - The hose must be installed in a continuously downward direction and left open to the frost-free atmosphere.
 - If drain hose is long, use a metal support fixture along the way to eliminate the wavy pattern of drain tube.
 - Water will drop from its end, therefore the outlet of the hose must be installed in an area where the outlet cannot become blocked.
 - Do not install in an area where drainage or drain pipe that may generate ammonia gas, sulfuric gas, etc.
 - Use a hose clamp to tighten the hose at drain hose connector to prevent it from leaking.

5 INSTALLATION OF REMOTE CONTROLLER

- Installation Location**
- Install at the height of 1 to 1.5 m from the floor. Location where average room temperature can be detected.
 - Install vertically against the wall.
 - Avoid the following locations for installation:
 - By the window, etc. exposed to direct sunlight or direct air.
 - In the shadow or backside of objects drawn from the room airflow.
 - Location where condensation occurs (The Remote Controller is not moisture proof or drip proof).
 - Location near heat source.
 - Unlevel surface.
 - Keep distance of 1 m or more from the TV, radio and PC. (Cause of fuzzy image or noise).
- Remote Controller (3) Wiring**
- Remote Controller cable shall be (2 x min 0.3 mm²), of double insulation PVC-sheathed or rubber sheathed cable. Total cable length shall be 50 m or less.
 - Be careful not to connect cables to other terminals (e.g. power source wiring terminal). Malfunction may occur.
 - Do not bundle together with the power source wiring or strain in the same metal tube. Operation error may occur.

6 INSTALLATION OF NETWORK ADAPTOR AND BASE PAN HEATER

- Network Adaptor (5) and (6) Installation (Optional)**
- Open the Cabinet Front Plate (6) and Cabinet Top Plate (6), then connect the Network Adaptor Cable (5) to the CH-NT connector on the printed circuit board.
 - Insert a flat head screwdriver into the slot on the top of the adaptor and remove the cover. Connect the other end of the CH-NT cable connector to the connector inside the adaptor.
 - On the wall near the Mono bloc unit, attach the adaptor by screwing screws through the holes in the back cover.
 - Pull the CH-NT cable through the hole in the bottom of the adaptor and re-attach the front cover to the back cover.
- Base Pan Heater (5) (Optional)**
- It is strongly recommended to install a Base Pan Heater (5) (optional) if the Mono bloc unit is installed in cold climate area. Refer the Base Pan Heater (5) (optional) installation instruction for details of installation.

4 CONNECT THE CABLE TO MONO BLOC UNIT

- WARNING**
- This section is for authorized and licensed electrician only. Work behind the Cabinet Front Plate (6) secured by screws must only be carried out under supervision of qualified contractor, installation engineer or service person.
- Remove the Cabinet Front Plate (6)**
- Remove the 5 mounting screws as shown in the illustration.
 - Slide the Cabinet Front Plate (6) downwards to release the panels. Then, pull it forward to remove it.
- Remove the Cabinet Top Plate (6)**
- Remove the 12 mounting screws as shown in the illustration.
 - Lift the Cabinet Top Plate (6) upward to remove it.
- Fusing of Power Supply Cord**
- (REFER TO WIRING DIAGRAM AT UNIT FOR DETAILS)
- An insulating device must be connected to the power supply cable.
 - Insulating device (disconnector) should have minimum 3.0 mm contact gap.
 - Connect the approved polypropylene sheathed power supply 1 cord and power supply 2 cord and type designation 60245 IEC 57 or heavier cord to the terminal board, and to the other end of the cord to insulating device. (See below table for cable size requirement.)
- | Model | Power Supply Cord | Cable Size | 1 Location, Device | Recommended IECID |
|-----------------------------|-------------------|-----------------------------|----------------------|-------------------|
| WH-MD003JES | 3 | 3 x min 1.5 mm ² | 1.5kVA, 30kVA, 50kVA | SP, Type A |
| WH-MD003JES | 3 | 3 x min 1.5 mm ² | 1.5kVA, 30kVA, 50kVA | SP, Type A |
| WH-MD003JES and WH-MD009JES | 3 | 3 x min 2.5 mm ² | 25kVA, 30kVA, 50kVA | SP, Type A |
| WH-MD003JES and WH-MD009JES | 3 | 3 x min 2.5 mm ² | 25kVA, 30kVA, 50kVA | SP, Type A |
- To avoid the cable and cord being damaged by sharp objects, the cable and cord must be passed through the designated holes before being connected to the terminal block.
3. Secure the cable onto the control board with the holder (clamps).
- CONNECTING REQUIREMENT**
- For WH-MD003JES
- The equipment's Power Supply 1 complies with IECEN 61000-3-2.
 - The equipment's Power Supply 1 complies with IECEN 61000-3-3 and can be connected to current supply network.
 - The equipment's Power Supply 2 complies with IECEN 61000-3-2.
 - The equipment's Power Supply 2 complies with IECEN 61000-3-11 and shall be connected to a suitable supply network, with the following minimum permissible system impedance Z_s = 0.450 ohm (Ω) at the interface. Please liaise with supply authority to ensure that the Power Supply 2 is connected only to a supply of that impedance or less.
- For WH-MD003JES and WH-MD009JES
- This equipment's Power Supply 1 complies with IECEN 61000-3-12.
 - The equipment's Power Supply 1 complies with IECEN 61000-3-11 and shall be connected to a suitable supply network, having service current capacity > 100A and with supply authority that the service current capacity at the interface point is sufficient for the installation of the equipment.
 - The equipment's Power Supply 2 complies with IECEN 61000-3-11 and shall be connected to a suitable supply network, with the following minimum permissible system impedance Z_s = 0.450 ohm (Ω) at the interface. Please liaise with supply authority to ensure that the Power Supply 2 is connected only to a supply of that impedance or less.
- WIRE STRIPPING AND CONNECTING REQUIREMENT**
- Terminal board
- Conductor wire
- Conductor nut
- Terminal screw
- Tightening torque (N·cm)
- | | |
|----|-------------------|
| M4 | 157-196 (1.6-2.0) |
| M5 | 196-245 (2.0-2.5) |
1. Earth wire must be larger than other cables for safety reasons.
- Connecting with external device (optional)**
- All connections shall follow to the local national wiring standard.
 - It is strongly recommended to use manufacturer-recommended parts and accessories for installation.
 - For connection to main PCB (1):
 - Two-way valve shall be spring and electronic type. Refer to "Field Supply Accessories" table for details. Valve cable shall be (3 x min 1.5 mm²), of type designation 60245 IEC 57 or heavier, or similarly double insulation sheathed cable.
 - One-way valve shall be CE marking compliance component.
 - Maximum load for the valve is 8 kW.
 - Three-way valve shall be spring and electronic type. Valve cable shall be (3 x min 1.5 mm²), of type designation 60245 IEC 57 or heavier, or similarly double insulation sheathed cable.
 - Maximum load for the valve is 8 kW.
 - It shall be directed to heating mode when it is OFF.
 - Room thermostat cable shall be (2 x 1.5 mm²), of type designation 60245 IEC 57 or heavier, or similarly double insulation sheathed cable.
 - Maximum output power of booster heater shall be 3.0 kW. Booster heater cable shall be (3 x min 1.5 mm²), of type designation 60245 IEC 57 or heavier.
 - Extra pump cable shall be (2 x min 1.5 mm²), of type designation 60245 IEC 57 or heavier.
 - Slider control cable (remote signal cable) shall be (2 x min 0.3 mm²), of type designation 60245 IEC 57 or heavier.
 - External control shall be connected to 1-pole switch with min 3.0 mm contact gap. Its cable must be (3 x min 0.5 mm²), double insulation layer of PVC-sheathed or rubber-sheathed cable.
 - Note: Switch shall be CE marking compliance component.
 - Minimum operating current shall be less than 3A.
 - Bank sensor shall be resistance type, please refer to graph below for the characteristic and details of sensor. Its cable shall be (2 x min 0.3 mm²), double insulation layer (with insulation strength of min 30V) of PVC-sheathed or rubber-sheathed cable.
-
- Bank sensor characteristic

8 RECONFIRMATION

- WARNING**
- Be sure to switch off all power supply before performing each of the below checkings. Before obtaining access to terminals, all power circuits must be disconnected.
- CHECK WATER PRESSURE** (10.1 MPa ± 1)
- Water pressure should not lower than 0.05 MPa (with respects the Water Pressure Gauge (5)). If necessary add tap water into the water circuit.
- CHECK PRESSURE RELIEF VALVE (1)**
- Check for correct operation of Pressure Relief Valve (1) by turning on the lever to become horizontal.
 - If you do not have a checking sound (due to water drainage), contact your local authorized dealer.
 - Push down the lever after finish checking.
 - In case the water keeps drained out from the unit, switch off the system, and then contact your local authorized dealer.

7 CHARGING THE WATER

- Make sure all the piping installations are properly done before carry out below steps.
 - Take out the Cover (9) by removing the 2 mounting screws to access to the Pressure Relief Valve (1) and Air Purge Valve (2).
- WARNING**
- This section is for authorized and licensed electrician only. Work behind the Cabinet Front Plate (6) secured by screws must only be carried out under supervision of qualified contractor, installation engineer or service person.
- Turn the plug on the Air Purge Valve (2) outlet anticlockwise by one complete turn from fully closed position.
 - Set the Pressure Relief Valve (1) level "DOWN".
 - Start filling water (with pressure more than 0.1 MPa (1 bar)) to the Mono bloc unit water inlet. Stop filling water if the free water flow through Pressure Relief Valve (1) drain hose.
 - Turn ON the power supply and make sure Water Pump (3) is running.
 - Check and make sure no water leaking at the bulb connecting points.
 - Reinstall the Cover (9) by tightening the 2 mounting screws.

- Room sensor zone 1 cable shall be (2 x min 0.3 mm²), double insulation layer of PVC-sheathed or rubber-sheathed.
- Outdoor air sensor cable shall be (2 x min 0.3 mm²), double insulation layer of PVC-sheathed or rubber-sheathed.
11. Turn ON the power supply and make sure Water Pump (3) is running.
12. Heat/Cool switch cable shall be (2 x min 0.3 mm²), double insulation layer of PVC-sheathed or rubber-sheathed cable.
13. External compressor switch cable shall be (2 x min 0.3 mm²), double insulation layer of PVC-sheathed or rubber-sheathed cable.

- CONNECTING REQUIREMENT**
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 - The equipment's Power Supply 1 complies with IECEN 61000-3-3 and can be connected to current supply network.
 - The equipment's Power Supply 2 complies with IECEN 61000-3-2.
 - The equipment's Power Supply 2 complies with IECEN 61000-3-11 and shall be connected to a suitable supply network, with the following minimum permissible system impedance Z_s = 0.450 ohm (Ω) at the interface. Please liaise with supply authority to ensure that the Power Supply 2 is connected only to a supply of that impedance or less.
- For WH-MD003JES and WH-MD009JES
- This equipment's Power Supply 1 complies with IECEN 61000-3-12.
 - The equipment's Power Supply 1 complies with IECEN 61000-3-11 and shall be connected to a suitable supply network, having service current capacity > 100A and with supply authority that the service current capacity at the interface point is sufficient for the installation of the equipment.
 - The equipment's Power Supply 2 complies with IECEN 61000-3-11 and shall be connected to a suitable supply network, with the following minimum permissible system impedance Z_s = 0.450 ohm (Ω) at the interface. Please liaise with supply authority to ensure that the Power Supply 2 is connected only to a supply of that impedance or less.
- How to guide optional cables and power supply cords to Bushing (8)**
- How to guide optional cables to Bushing (8)**
- How to guide optional cables and power supply cords to control board**
- How to guide optional cables (view without internal wiring)**
- Terminal screw on PCB**
- | Model | Maximum lightning torque (N·cm) (µp/cm) |
|-------|---|
| M3 | 50 (5.1) |
| M4 | 120 (12.24) |

9 TEST RUN

- Before test run, make sure below items have been checked:
 - Pipelwork are properly done.
 - Electric cable connecting work are properly done.
 - Mono bloc unit is filled up with water and trapped air is released.
 - Antifreeze agent must be added into water circuit to prevent freezing of water when outdoor ambient temperatures is low. Recommended antifreeze: Propylene glycol: 40% (equivalent to -20°C).
 - Set ON the Mono bloc unit and RCBC (2). Then, for remote control operation please refer to Mono Bloc Air-to-Water Heatpump's operation instruction.
 - For normal operation, Water Pressure Gauge (5) reading should be in between 0.05 MPa and 0.3 MPa.
 - After test run, please clean the Magnetic Water Filter Set (8). Reinstall it after finish cleaning.
- CHECK WATER FLOW OF WATER CIRCUIT**
- Confirm the maximum water flow during main pump operation not less than 15 l/min.
- "Water flow check through service stop (Pump Max Speed)"
- (Heating operation at low water temperature with lower water flow may trigger "H175" during defrost process.)
- RESET OVERLOAD PROTECTOR (5)**
- Overload Protector (5) serves the safety purpose to prevent the water over heating. When the Overload Protector (5) trips at high water temperature, take below steps to reset it.
- Take out the cover.
 - Use a test tool to push the centre button gently in order to reset the Overload Protector (5).
 - Fix the cover to the original fitting condition.

10 MAINTENANCE

- In order to ensure optimal performance of the unit, seasonal inspections on the unit, functional check of RCBC, field wiring and piping have to be carried out at regular intervals. This maintenance should be carried out by authorized dealer.
- Maintenance for Magnetic Water Filter Set (8)**
- Remove the Cover (9) by loosening the mounting screws to access to the Magnetic Water Filter Set (8).
 - Turn OFF power supply.
 - Set the two valves for the Magnetic Water Filter Set (8) to "CLOSE".
 - Take off the clip, then gently pull out the mesh. Beware of small amount water drain out from it.
 - Clean the mesh with warm water to remove the stain. Use soft brush if necessary.
 - Reinstall the mesh to the Magnetic Water Filter Set (8) and set back the clip on it.
 - Set the two valves for the Magnetic Water Filter Set (8) to "OPEN".
 - Turn ON power supply.
 - After clearing, reinstall the Cover (9) by tightening the mounting screws properly.
- WARNING**
- Do not add or replace other than R32 type. It may cause a product damage, burst, injury and etc. Use compatible R32 tools for refrigerant piping work and refrigerant charging during installation or servicing.

- CHECK ITEMS**
- | | |
|--|--|
| <input type="checkbox"/> Is the connecting cable fixed to terminal board firmly? | <input type="checkbox"/> Is the power supply voltage within the rated voltage range? |
| <input type="checkbox"/> Is the connecting cable clamped firmly? | <input type="checkbox"/> Is there any abnormal sound? |
| <input type="checkbox"/> Is the earth wire connection properly done? | <input type="checkbox"/> Is the heating operation normal? |
| <input type="checkbox"/> Is the water pressure properly done? | <input type="checkbox"/> Is the thermostat operation normal? |
| <input type="checkbox"/> Is the water pressure higher than 0.05 MPa? | <input type="checkbox"/> Is the remote control LCC operation normal? |
| <input type="checkbox"/> Is the Pressure Relief Valve (1) operation normal? | <input type="checkbox"/> Is the Mono bloc unit water leak free on test run? |
| <input type="checkbox"/> Is the RCBC operation normal? | |