## Panasonic<sup>®</sup>

#### Installation Manual

### AIR-TO-WATER HEATPUMP MONO BLOC

WH-MDC05J3E5, WH-MDC07J3E5, WH-MDC09J3E5



This AIR-TO-WATER HEATPUMP MONO BLOC contains and operates with refrigerant R32

THIS PRODUCT MUST ONLY BE INSTALLED OR SERVICED BY QUALIFIED PERSONNEL.

Refer to National, State, Territory and local legislation, regulations, codes, installation & operation manuals, before the installation, maintenance and/or service of this product.

	Required tools for Installation V		
ī	Phillips screw driver	8 Megameter	
2	Level gauge	9 Multimeter	
3	Electric drill	10 Torque wrench	
4	Spanner	117.6 N·m (11.6 kgf·m)	
5	Knife	11 Vacuum pump	
6	Gas leak detector	12 Gauge manifold	
7	Measuring tape		

WARNING
This symbol shows that this equipment uses a natureacure refrigerant. If the refrigerant is leaked, together with an exten ignition source, there is a possibility of ignition. CAUTION This symbol shows that the Installation Manual should be rea CAUTION This symbol shows that there is information included in the Operation Manual and/or installation Manual

# SAFETY PRECAUTIONS

- Read the following "SAFETY PRECAUTIONS" carefully before installation of (Mono bloc) Air-to-Water Heatpump 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 beginning from the followed because these important contents are related to safety. The meaning of each indication used is as below. Incomed installation due to ignorance or negligence of the instructions will cause harm or damage, and the seriousness is classified by the following indications.

⚠ WARNING	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:						

ne rems to be rollowed are classified by the symbols:				
0	Symbol with white background denotes item that is PROHIBITED.			
0 0	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 emind 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
- This appliance is not intended for accessibility by the general public.
   Please leave this installation manual to the user after installation.

Do not use means to accelerate the defrosting process or to clean,	other than those rec

- ecommended by the manufacturer Any unfit method or using incompatible Do not use means to accererate the uniformly process commaterial may cause product damage, burst and serious injury. Do not install Mono bloc unit near handsall of verands. When installing Mono bloc unit at verands of high rise building, child may climb up to Mono bloc unit a costs over the handsall and causing accident.
- Do not use unspecified cord, modified cord, joint cord or extension cord for power supply cord. Do not share the single outlet with other electrical appliances. Poc contact, poor insulation or over current will cause electrical shock or fire.
- O Do not tie up the power supply cord into a bundle by band. Abnormal temperature rise on power supply cord may happen.
- O Do not insert your fingers or other objects into the unit, high speed rotating fan may cause injury.
- O Do not sit or step on the unit, you may fall down accidentally.
- Keep plastic bag (packaging material) away from small children, it may cling to nose and mouth and prevent breathing
- O Do not purchase unauthorized electrical parts for installation, service, maintenance and etc. They might cause electrical shock or fire.
- This Mono bloc unit is a multi supply appliance. All circuits must be disconnected before accessing the unit terminals.
- Do not modify the wiring of Mano bloc unit for installation of other components (i.e. heater, etc). Overloaded wiring or wire connection points may cause electric shock or fire
- Do not add or replace refrigerant other than specified type. It may cause product damage, burst and injury etc.
- For electrical work, follow the national regulation, legislation and this installation instructions. An independent circuit and single outlet must be used. If electrical capacity is not enough or defect found in the electrical work, it will cause electrical shock or fire.
- r water circuit installation work, follow to relevant European and national regulations (including EN61770) and local plumbing and building regulation codes.
- 0 ingage authorized dealer or specialist for installation. If installation done by the user is incorrect, it will cause water leakage, electrical shock or fire.
- Install according to this installation instructions strictly. If installation is defective, it will cause water leakage, electrical shock or fire.
- Only use the supplied or specified installation parts. Else, it may causes Mono bloc unit vibrate, fall, water leakage, electrical shock or fire. stall at a flat, strong and firm location which is able to withstand the Mono bloc unit's weight. If the location is stanting, or strength is not enough the set will
- •
- Wire routing must be properly arranged so that control board cover is fixed properly. If control board cover is not fixed perfectly, it will cause fire or electrical shock
- This equipment is strongly recommended to be installed with Residual Current Device (RCD) on-site according to the respective national wiring rules or couppeditio safety measures in terms of residual current. •
- 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 in cteria colonies, particularly Legionella, in water.
- If there is any doubt about the installation procedure or operation, always contact the authorized dealer for advice and inform
- Select a location where in case of water leakage, the leakage will not cause damage to other properties.
- When installing electrical equipment at wooden building of metal lath or wire lath, in accordance with electrical facility standard, no electrical contact equipment and building is allowed. Insulator must be installed in between.
- This installation may be subjected to building regulation approval applicable to respective country that may require to notify the local authority before installation.
- Any work carried out on the Mono bloc unit after removing any panel which is secured by screws, must be carried out under the super and licensed installation contents.
- Be aware that refrigerants may not contain an odour.
- This equipment must be properly earthed. Earth line must not be connected to gas pipe, water pipe, earth of lightning rod and telephone. Otherwise, it may collectrical shock in case of equipment breakdown or insulation breakdown.

### A CALITION

Do not install the Mono bloc unit at place where leakage of flammable gas may occur. In case gas leaks and accumulates at surrounding of the Mono it may cause fire.

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.

Make sure the insulation of power supply cord does not contact hot part (i.e. refrigerant piping, water piping) to prevent from insulation failure (melt).

Do not touch the sharp aluminium fin, sharp parts may cause injury.

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 Carry out drainage piping as mentioned in installation instructions. If drainage is not perfect, water leakage may happen and may cause damage to propriets the user.

The piping installation work must be flushed before the Mono bloc unit is connected to remove contaminants. Contaminants may damage the Mono bloc unit is connected to remove contaminants.

Select an installation location which is easy for maintenance. Incorrect installation, service or repair of this Mono bloc unit may increase the risk of rupture and the may result in loss damage or injury and/or property.

nsure the correct polarity is maintained throughout all wiring. Otherwise, it will cause electrical shock or fire

Power supply point should be in easily accessible place for power disconnection in case of emergency.

Must follow local national wiring standard, regulation and this installation instruction.

Strongly recommended to make permanent connection to a circuit breaker. It must be a double pole switch with a minimum 3.0 mm gap.

 Power supply 1: Use approved 30A circuit breaker
 Power supply 2: Use approved 30A circuit breaker insure the correct polarity is maintained throughout all wiring. Otherwise, it will cause electrical shock or fire. After installation, the installer is obliged to verify correct operation of the Mono bloc unit. Check the connection point for water leskage during test run. If leskag occurs, it will cause damage to other properties.

Keep any required ventilation openings clear of obstru

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.

#### PRECAUTION FOR USING R32 REFRIGERANT

The basic installation work procedures are the same as conventional refrigerant (R410A, R22) models.
 However, pay careful attention to the following points:

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ince the working pressure is higher than that of refrigerant R22 models, some of the piping and installation and service tools are special, specially, when replacing a refigerant R22 model with a new refrigerant R32 model, always replace the conventional piping with the R32 and R410A piping on the outdoor unit sidor of R32 and R410A be same pipe can be used.

i haz and minor, are assime paper on users.

e mixing of different refrigerants within a system is prohibited. Models that use refrigerant R32 and R410A have a different charging port thread diameter to prevent erroneous charging with refrigerant R22 and

0 herefore, check beforehand. [The charging port thread diameter for R32 and R410A is 12.7 mm (1/2 inch).]

0 Ensure that foreign matter (oil, water, etc.) does not enter the piping.

0 negation, maintenance, repairing and refrigerant recovery should be carried out by trained and certified personnel in the use of flammable refrigerants and as a speciation, interiestation, environmental production and accordance of the description of the security of the 0

The user/owner or their authorized representative shall regularly check the alarms, mechanical ventilation and detectors, at least once a year, where as requ

A logbook shall be maintained. The results of these checks shall be recorded in the logbook.

In case of ventilations in occupied spaces shall be checked to confirm no obstruction.

Before a new refingerating system is put into service, the person responsible for placing the system in operation should ensure that trained and certified operating personnel are instructed on the basis of the manual about the construction, supervision, operation and maintenance of the refrigerating system, as well as the safety measures to be observed, and the properties and handling of the refrigerant used. a

Institute advois the Constitutions, Supervisors, Updated for a for interministrated as below in the regiment of partnership of medicine personnel and institution of the medicine and supervisors of the processing of the processin

Protect the refrigerating system from accidental rupture due to moving furniture or reconstruction activities.

To ensure no leaking, refrigerant joints shall be tightness tested. The test method shall have a sensitivity of 5 grams per year of refrigerant or better under a pressure of at least 0,25 times the maximum allows pressure in 104MPa, max 4.15MPa). No leak shall be detected.

### ⚠ CAUTION

Mediatori cyclicity description of the properties of the prop

#### 2-1. Service personnel

All Service personnelly of the present which is involved with working on or breaking into a refrigerant circuit should hold a current valid certificate from an industry-accredited assessment authority, which authorizes their competence to handle refigerants safely in accordance with an industry recognized assessment specification.

Foreviering shall only be performed are recommended by the equipment manufacturer. Maintenance and repair requiring the assistance of other skilled personnel shall be carried out under the supervision peeson competent in the use of farmable integrents.

Foreviering shall be performed only an excommended by the manufacturer.

The system is inspected, regularly supervised and maintained by a trained and certified service personnel who is employed by the person user or party responsible.

Foreviering shall be present to be all.

#### 2-2. Work

Oct. Work.) — Piror to beginning work on systems containing flammable refrigerants, safety checks are necessary to ensure that the risk of lightion is minimised.

For spain to the refrigerating system, the precautions in R2-2 is R2-8 must be followed before conducting work on the system.

Which safe the understain orders a contribute procedure so as in minimised to all or apprehending soar require bring present while the work is being performed.

All maintenance staff and others working in the local area shall be reducted and supervised on the nature of work being centred out.

And contribute on the contribute stages. Always are away from source, all less 27 and for all shall off solding contribute on the staff of the space area of all less 27 meter in staff.

Whose appropriate protective explanment, including organization protection, as conditions warrant.

#### 2-3. Checking for presence of refrigerant

Conclusion (s) is detented in this ground.

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#### 2-4. Presence of fire extinguisher

If any hot work is to be conducted on the refrigerating equipment or any associated parts, appropriate fire extinguishing equipment shall be available at hand
 Have a dry powder or CO<sub>2</sub> fire extinguisher adjacent to the charging area.

### 2-5. No ignition sources

No person carrying out work in relation to a refrigerating system which involves exposing any pipe work that contains or has contained flammable refrigerant shall use any sources of ignition in such a manner that it may lead to the risk of live or explosion. HoSNs must not be smoking when carrying out such work.

All possible ignification sources, including objected semishing, should be kept sufficiently the way from the site of installation, repairing, removing and disposal, during which filammable refrigerant can possibly be

Prior to work taking place, the area around the equipment is to be surveyed to make sure that there are no flammable hazards or ignition risks "No Smoking" signs shall be displayed.

• Ensure that the area is in the open or that it is adequately ventilated before breaking into the system or conducting any hot work

A degree of ventilation shall continue during the period that the work is carried out.

The ventilation should safely disperse any released refrigerant and preferably expel it externally into the atmosphere

# 2-7. Checks to the refrigerating equipment

When edicidal components are ballog charged, they shall be fit for the purpose and to the correct specification.

A stall time the manufacturer's ministerious and service updictions stall be followed.

If in duct consult the manufacturer's inchrination department for assistance.

The collection of the manufacturer's technical department for sensitiance.

The verification machinery and codets are operating adequately and are not obstructed.

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## 2-8. Checks to electrical devices

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Pager and maintenance to destricted components shall include initial safety checks and component inspection procedures.

Initial safety checks shall include but not lent to:

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Initial there is no the electrical components and writing are exposed while charging, recovering or purping the system.

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If the fault cannot be corrected immediately but it is necessary to continue operation, an adequate temporary solution shall be used.

### The owner of the equipment must be informed or reported so all parties are advised thereinafter.

Repairs to sealed components

During repairs to sealed components, all electrical supplies shall be disconnected from the equipment being worked upon prior to any removal of sealed covers, etc.

• If it is absolutely necessary to have an electrical supply to equipment during servicing, then a permanently operating form of leak detection shall be located at the most critical point to warn of a potentially hazardous situation

Particular attention shall be paid to the following to ensure that by working on electrical components, the casing is not altered in such a way that the level of protection is a flected. This shall include damage to cables, excessive number of connections, terminals not made to original specification, damage to seals, incorrect fitting of glands, etc. Ensure that apparatus is mounted securely. Ensure that seals or sealing materials have not degraded such that they no longer serve the purpose of preventing the ingress of flammable atmospheres

NOTE: The use of silicon sealant may inhibit the effectiveness of some types of leak detection equipment. Intrinsically safe components do not have to be isolated prior to working on them.

ent industive or capacitance loads to the circuit without ensuring that this will not exceed the permissible voltage and current permitted for the equipm Intrinsically sade components are the only types that can be worked on while live in the presence of a flammable atmosphe.

The test apparatus shall be at the correct rating.

Replace components only with parts specified by the manufacturer. Unspecified parts by manufacturer may result ignition of refrigerant in the atmosphere from a leak

5. Cabling
 • Check that cabling will not be subject to wear, corrosion, excessive pressure, vibration, sharp edges or any other adverse environmental effects.
 • The check shall also take into account the effects of aging or continual vibration from sources such as compressors or fans.

Detection of flammable refrigerants
Under no circumstances shall potential sources of ignition be used in the searching or detection of refrigerant leaks A halds know for any other detection using a related filmol) shall not be used.
 The following just describe methods are deemd acceptable for all refigurest systems.
 Not following just describe methods are deemd acceptable for all refigurest systems.
 Not following just describe detected when using detection equipment either is executively of 5 grame per year of refrigerant or better under a pressure of at least 0.25 times the maximum allowable pressure (>1.04MPa, max.45MPa). For exemple, a universal antifold.

A Clouding) of delibration, as with consider the member of refigurants, but the sensitivity may not be adequate, or may need re-calibration.

Detection exponent shall be calibrated in refigurant the sensitivity may not be adequate, or may need re-calibration.

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Leak detection fluids are also suitable for use with most refrigerants, for example, bubble method and fluorescent method agents. The use of detergents containing chlorine shall be avoided as the chlorine may next with the refrigerant and control the copper pipe-word.
 I also is suspected, all haded flames able to removed destriptionship.

If a leakage of refrigerant is found which requires brazing, all of the refrigerant shall be recovered from the system, or isolated (by means of shut off valves) in a part of the system remote from the leak.
 The precautions in #8 must be followed to remove the refrigerant.

Hemoval and evacuation

When breaking into the refrigerant circuit to make repairs – or for any other purpose – conventional procedures shall be used.

However, it is important that best practice is followed since flammability is a consideration. The following procedure shall be adhered to:

• remove refrigerant -> • purge the circuit with inert gas -> • evacuate -> • purge with inert gas -> • open the circuit by cutting or brazing

The refrigerant charge shall be recovered into the correct recovery (refreeds.)
The system shall be purged with OFN to render the appliances sale, (remark: OFN = oxygen free nitrogen, type of linest gas)
This process may need to be regelant deveral limes.
Compressed air or oxygen shall not be used for this task.
Compressed air or oxygen shall not be used for this task.
This process may need to be regelant deveral limes.
Unique shall be solved by training the security in the system with OFN and continuing to fill until the working pressure is achieved, then venting to atmosphere, and finally pulling down to a vacuum.
This process shall be repeated until no refrigerant is with the system.
When the final OF charge is usuch, the system with OFN and continuing to fill until the working pressure is achieved, then venting to atmosphere, and finally pulling down to a vacuum.
This process shall be repeated until no refrigerant is with the system.

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The process shall be supposed until no refrigerant is with a post of the system of

Charging procedures
 In addition to conventional charging procedures, the following requirements shall be followed.

Ensure that contamination of different refrigerants does not occur when using charging equipmen Hoses or lines shall be as short as possible to minimize the amount of refrigerant contained in them

Cylinders shall be kept in an appropriate position according to the instructions.

Ensure that the refrigerating system is earthed prior to charging the system with refrigerant.

Label the system when charging is complete (if not already). Extreme care shall be taken not to over fill the refrigerating system

all personal protective equipment is available and being used correctly:
 the recovery process is supervised at all times by a competent person;

- Extreme care shall be laken not to over fill the refrigerating system.

- Prior to nothings by expleme that bis pressure tested with OFN (refer to #7).

- The system shall be lake tested on completion of charging but prior to commissioning.

- A (blowup lake the shall be carried out prior to belanging be attempted.

- Exclosure shall be manufact out for belanging be attempted.

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- Exclosure shall be manufact out for belanging belanging to the shall be attempted by the shal

 Before carrying out this procedure, it is essential that the technician is completely familiar with the equipment and all its details. It is recommended good practice that all refrigerants are recovered safely.

Prior to the task being carried out, an oil and refrigerant sample shall be taken in case analysis is required prior to re-use of recovered refrigerant. It is essential that electrical power is available before the task is commenced.
 a) Become familiar with the equipment and its operation.

f) Make sure that cylinder is situated on the scales before recovery takes place ) Isolate system electrically. Start the recovery machine and operate in accordance with instruction Before attempting the procedure ensure that:

g) Start the recovery machine and operate in accordance with instructions.
h) D not over life jordinate, N0 more fain 60 % volume jeducid charge).
i) D not exceed the maximum working pressure of the opinider, even temporarily.
j) When the opinides have been filled cornectly and the process completed, make sure that the opinides and the equipment are removed from site promptly and all isolation valves on the equi are dosed off. mechanical handling equipment is available, if required, for handling refrigerant cylinders:

 recovery equipment and cylinders conform to the appropriate standards Recovered refrigerant shall not be charged into another refrigerating system unless it has been

To exceed y equipment and cynnores common to me Riphys-ware announce.

| 4) Recovered refrigerant shall not be charged of Purp down reflected refrese types. If you have a manifed so that refrigerant can be removed from various parts of the system, which was a manifed so that refrigerant can be removed from various parts of the system, which was a hazardous condition when charging or discharging the refrigerant.

Exectoration charges may accumulate and create a hazardous condition when charging or discharging or discharging refrese the refrigerant.

To everif the or explicit, dissipate shall electricity during branching and reinding constances and equipment before charging discharging.

ment shall be labelled stating that it has been de-commissioned and emptied of refrigeran Ensure that there are labels on the equipment stating the equipment contains flammable refrigerant

When removing refrigerant from a system, either for servicing or decommissioning, it is recommended good practice that all refrigerants are removed safely.

When transferring refrigerant into cylinders, ensure that only appropriate refrigerant recovery cylinders are employed.
 Ensure that the correct number of cylinders for holding the total system charge are available.

All cylinders to be used are designated for the recovered refrigerant and labelled for that refrigerant (i.e. special cylinders for the recovery of refrigerant). Cylinders shall be complete with pressure relief valve and associated shut-off valves in good working ord Recovery cylinders are evacuated and, if possible, cooled before recovery occurs.

The recovery equipment shall be in good working order with a set of instructions concerning the equipment shall be in good working order with a set of instructions concerning the equipment and in addition, a set of calibrated weighing scales shall be available and in good working order.

Notes that be complete with leak-free disconnect couplings and in good condition.
 Before using the recovery machine, check that it is in satisfactory working order, has been properly maintained and that any associated electrical components are sealed to prevent ignition in the event of a refingent release.
 Consult manufacture if in doubt.

The recovered refrigerant shall be returned to the refrigerant supplier in the correct recovery cylinder, and the relevant Waste Transfer Note arranged.

 Do not mix refrigerants in recovery units and especially not in cylinders.
 If compressors or compressor oils are to be removed, ensure that they have been evacuated to an acceptable level to make certain that flammable refrigerant does not remain within the lubrican The evacuation process shall be carried out prior to returning the compressor to the suppliers.

 Only electric heating to the compressor body shall be employed to accelerate this process When oil is drained from a system, it shall be carried out safely.

# Accessories part Qty. 09 0

# Accessories part Optional PCB (CZ-NS4P) Base Pan Heater (CZ-NE3P) Network Adaptor (CZ-TAW1)

Network Adaptor Cable (CZ-TAW1-CBL

No.	Part		Model	Specification	Maker
	2-way valve kit	Electromotoric Actuator	SFA21/18	AC230V	Siemens
		2-port Valve	VVI46/25		Siemens
	3-way valve kit	Electromotoric Actuator	SFA21/18	AC230V	Siemens
		3-port Valve	VVI46/25		Siemens
	Room thermostat	Wired	PAW-A2W-RTWIRED	AC230V	-
		Wireless	PAW-A2W-RTWIRELESS		
iv	Mixing valve		167032	AC230V	Caleffi
v	Pump	-	Yonos 25/6	AC230V	Wilo
vi	Buffer tank sensor		PAW-A2W-TSBU	-	
vii	Outdoor sensor		PAW-A2W-TSOD		
viii	Zone water sensor		PAW-A2W-TSHC	-	-
ix	Zone room sensor		PAW-A2W-TSRT		-

(Handling of Mono bloc unit) Mono bloc unit is a large and heavy apparatus. The handling of the unit only to be done by lifting tools with slings. These slings can be fitted into sleeves at the unit's base frame.

Main Components



### Dimension Diagram









R Flow Sensor

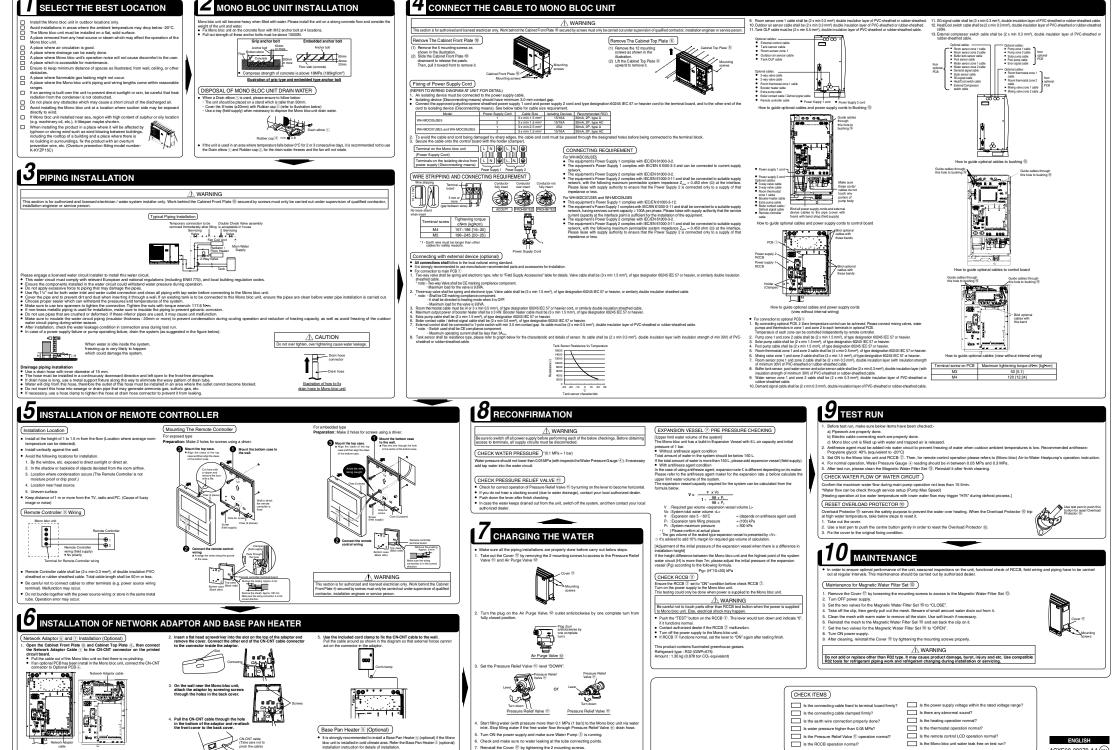


Overload Prosector (2 pai
 Pressure Relief Valve
 Air Punge Valve
 Magnatic Water Filter Ser
 Plug (2 pieces)
 Bushing (7 pieces)
 Cabinet Front Plate

@ Cover (2 pieces)

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

ACXF60-38370-AA(1/34)



ACXF60-38370-AA (2/34)