



**AIR CONDITIONER**

## **Installation Manual**

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**Chilled Water Fan Coil Unit**

**Model Name :**

Floor / Ceiling Type

**42VFS004W**

**42VFS006W**

**42VFS008W**

**42VFS012W**

**42VFS014W**

**42VFS016W**

**42VFS020W**



Installation Manual **English**

VL\_ENG\_IM\_42VFS\_REV.0121

### Safety Precautions

For safety and proper installation, please read this manual carefully. After installation is complete, the installer should run a test to check for errors and explain to the customer how to operate the air conditioner including maintenance methods specified in the manual and advise the customer to keep the manual for reference in future. The general person cannot accessed the air conditioner.

### Symbols meaning :

- ⓘ **WARNING** : Failure to follow this warning could result in personal injury or death.
- ⓘ **CAUTION** : Failure to follow this warning could result in personal injury or equipment damage that could lead to serious consequences.

### ⓘ **WARNING**

- Only trained and certified technicians should install, repair and service this air conditioning unit. Improper installation may result in electrical shock, short circuit, water leak, a fire or other damage to the unit and personal property.
- Only use accessories and installation parts must be as described. Otherwise it may result in water leak, electrical shock or a fire.
- The unit should be installed on a base that is strong enough in order to be able to support its weight, if the base is not strong enough that may cause the unit fall down and cause the unit and property damage, personal injury or death.
- Before installing the unit, consider strong winds, typhoons and earthquakes that might affect the unit accordingly. Improper installation may result in the unit falling down or other accidents.

### ⓘ **WARNING**

- The power supply must be isolated from the unit and electrical work should be performed by certified technicians and in accordance with the law and installation manual. Electric current not enough or improper installation may result in electrical shock or a fire.
- Wiring must be stored in a tidy and safe manner. Use wiring that meets the specifications in the installation manual and the stipulations in the local regulations and laws. Use of wiring which does not meet the specifications may result in electrical shock, electrical leakage, smoking and/or a fire.
- Ensure that wiring, remote control wires and transceiver wires must be installed in the cabinet. Improper positioning of the cabinet may cause electrical shock, a fire or overheating at the power connector.
- Disconnect the power supply before working on the unit.
- Ensure that the unit is installed with a ground wire. The ground wire should be located away from gas pipes, water pipes, lightning rods, telephone wires or other ground wires. Improper installation of ground wire may cause electrical shock and/or a fire.
- Ensure that the unit is installed with a circuit breaker to prevent electrical leak. Improper installation of circuit breaker may cause electrical shock and/or a fire.

### **ⓘ CAUTION**

- The unit should be installed in a balanced manner to prevent vibration or water leak.
- Install water pipes and insulate cold water pipes to prevent condensation and water leak. Improper installation of water pipes may cause a water leak and property damage.
- Ensure that there is no water leak after installation or repair.
- **DO NOT** install the air conditioning unit in the location by follows :
  - 1.Areas there are oil mist, oil steam or steam because this may damage parts of the unit.
  - 2.Areas with caustic gases because this will cause copper pipes or the connection points have been damaged that causing a gas leak.
  - 3.Close to machines that can send out electromagnetic waves because the electromagnetic waves will disturb operation of the control system. It may cause an error.
  - 4.In an area where flammable gases may leak or where there is dust inflammable air or areas with evaporation flammable substances in the air. For example in areas with thinner, gasoline if turn on the air conditioner in such conditions could cause a fire.
- The unit should not be operated for a long time in high humidity conditions such as near a door or window is opened because it will cause a lot of condensed water. This may damage the ceiling and furnitures.
- The manufacturer does not guarantee any damage that cause by neglecting the instructions in this manual.

A chilled water fan coil unit with ceiling concealed - duct type is air conditioner that needs to be designed with supply cool air to suit its use therefore the unit will work efficiently. In choosing to use and design of cool air ducts user should consult an air conditioner engineer or an installer who has experience in the air conditioning systems.

### **Delivery of products**

- 1.Please verify that the air conditioner you have been delivered is the model that meets your needs and meets the product delivery receipt or not. You can check and compare information between the name plate and the delivery receipt.
- 2.The air conditioner that you have been delivered must have the same quality warranty card and model name as the product that you have ordered.
- 3.Check the product  
When the product delivered to the consignee whose must check and ensure that the unit is inside the package. If the product does not meet such requirements, the consignee should not accept the product or make a notification with the dealer that you ordered immediately to request the replacement of new products.

### Installation recommendations

The unit is suitable for hanging, ceiling mounted or hidden within the ceiling and connect the air pipe to send cool air to the point where you want to use it therefore user should choose the installation location before installing according to recommendations are as follows :

1. Area where the unit is installed must have a space around for useful of checking and maintenance the unit in the future.
2. The point to be fixed on the ceiling or structure must be strong enough to support the weight and vibration machine.
3. Cold air pipe connection should refer to the specification of the unit.
4. Cold water pipe connection both inlet and outlet should refer to the specification of the unit.
5. Water pipes connection should refer to the specification of the unit.
6. Electrical wiring connection should refer to the specification of the unit.
7. Blower is designed for horizontal installation only.
8. The unit should be installed in the same level as possible to keep the unit working normally and reduce the vibration.
9. Type and thickness of the insulation must be in accordance with the installation standards. Cold water pipe both inlet and outlet must be insulated to prevent condensation.
10. Fan speed selection should use only one speed as appropriate for the area of using.
11. Water pipe should be bent so that water can flow out easily including having to do a drain trap to trap odors as well.

### Physical data

Model	42VFS 004W	42VFS 006W	42VFS 008W	42VFS 012W	42VFS 014W	42VFS 016W	42VFS 020W
Air Flow Rate (CFM)	400	600	800	1200	1400	1600	2000
Power Supply (V./ Ph./ Hz.)	220-230/150-60						
Fan	Type Q'ty		2		3		4
	DIRECT DRIVEN FORWARD CURVED CENTRIFUGAL FAN						
	PERMANENT SPLIT CAPACITOR TYPE						
Motor	Type Q'ty						
	1						
	Out put (hp.)	1/35	1/15	1/8	1/7	1/5	1/4
	Operation Current (A.)	0.26	0.46	0.70	0.88	1.09	1.14
	Fan Speed	3 SPEED					
	Inlet Ø (inch)	1/2 (FPT)					
	Outlet Ø (inch)	1/2 (FPT)					
Connecting pipe	Drain Ø (inch) 3/4						
	Wide (mm.)	720	915	1020	1305	1470	1705
	High (mm.)	630					
	Dept (mm.)	245					270

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## Selection of installation place

**Select the place that can circulate cold and hot air regularly.**

### **Avoid installing in the following places.**

- Place exposed to air with high salt content (seaside area)
- Place in acidic or basic atmosphere (hot spring, factory producing chemical or medicine, and places where exhaust gases can affect to the air conditioner). If the air conditioner is placed in those area, the heat exchanger and some parts will be corroded.
- Place where iron or other metal dust is present. If iron or other metal dust adheres to or collects on the interior of the air conditioner, it may spontaneously combust and start to fire.
- Place where oil aerosol or lubricating oil can spread in the atmosphere. This can corrode the heat exchanger. The aerosol will obstruct heat exchanging, damage plastic parts and cause the insulator to slip off and other problems.
- A restaurant kitchen where a lot of oil is used. This causes oil adhering to air filter which will decrease the air conditioner working efficiency. Condensing oil will damage plastic parts and other problems.
- Place near obstacle for example ventilator or lamp which impede the air flow (air impeding will decrease the air conditioner working efficiency and stop the air conditioner to work)
- Place where generator is used from the inside. The electric frequency and voltage will be fluctuated. Therefore, the air conditioner work in a wrong way.
- Do not use the air conditioner for special purposes such as preserving food, precision instruments, or art objects, or where breeding animals or growing plants are kept. (This may degrade the quality of preserved materials.)
- Place where any of high-frequency appliances (including inverter devices, private power generators, medical equipment, and communication equipment). (A malfunction of the air conditioner,

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abnormal control, or problems due to noise to such appliances / equipment may occur.)

- The area under the air conditioner can be damaged because of moisture (if the ventilator is blocked or the relative humidity level is over 80%, water will be condensed into droplets from the inside. This droplets can damage the air conditioner.)
- When the wireless remote controller is used in a room equipped with an inverter-type fluorescent light or at a place exposed to direct sunlight, signals from the remote controller may not be received correctly.
- Place where organic solvent is used. The air conditioner can not be used for chilling liquid carbonic acid or chemical factories.
- Place near a door or window exposed to humid outside air (Dew dropping may form.)

### Installation Place

- Before installing the unit the installation location should be considered so that the cool air can be distributed throughout the room as shown in figure 1.

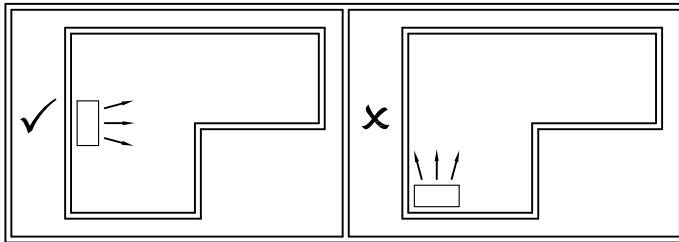


Figure 1.

- Avoid installing the unit in a position near a door or a blower fan because this will cause heavy loads and may cause condensation problems on the unit due to the humidity from the outside as shown in figure 2.

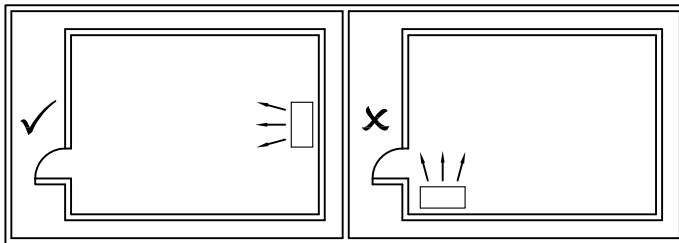
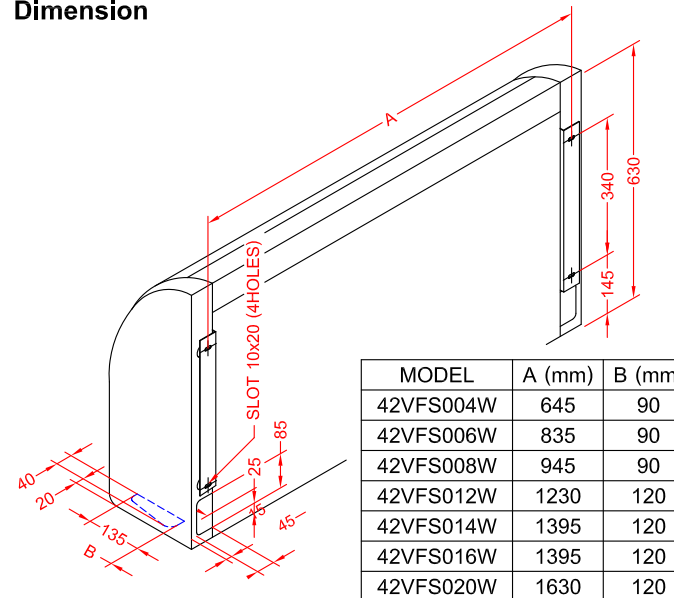


Figure 2.

- The unit should not be installed in location obstructing the air vents and return vents which may cause uneven distribution of the cold air.
- The unit should be installed in an area where cold water pipes and electrical wiring can be routed easily.

- Install the unit in a room that will not get wet as it is designed for internal installation.
- Install the unit in an area where the sewage can drain well.
- Install the unit in an area where there is enough space around for service and maintenance.
- For the hanging unit, do not hang on electrical equipment such as televisions, video players or other electronic devices.

### Dimension

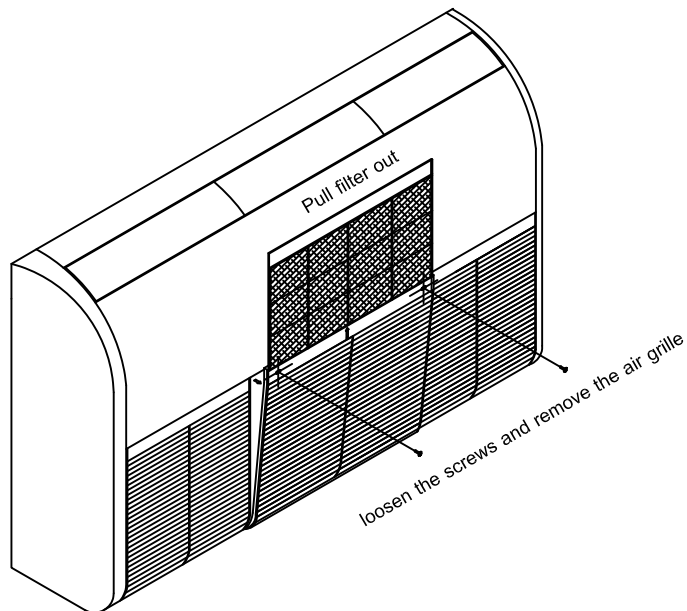


### Remark :

A template for positioning the drill pipe out of the hold and position within the packaging.

## Installation

- After installing the unit already the installer should check the electric current in the house, the total current must be less than the maximum current of current meter.
- Select the fan coil position and determine the routing of cold water pipes, wiring and water pipes.
- Determine the position of the machine mounting holes and the drain holes according to the drilling distance.
- Prepare the unit and place it in the specified position.
- Open the return air grille by pulling the air filter out first then loosening the screws to open or remove the return air grille.

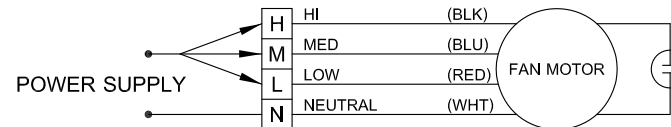


- Remove the side cover by loosening the screws first then slowly pull the side cover off.
- If want to use the unit in a hanging or wall-mounted manner, first remove the hanging brackets then use ones to fix on the wall or ceiling in the correct positions then insert the unit to the hanging brackets.
- Select the control switch position for convenient use.

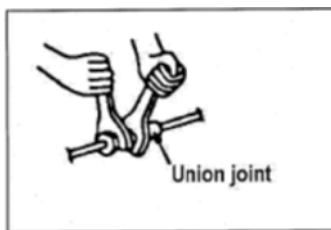
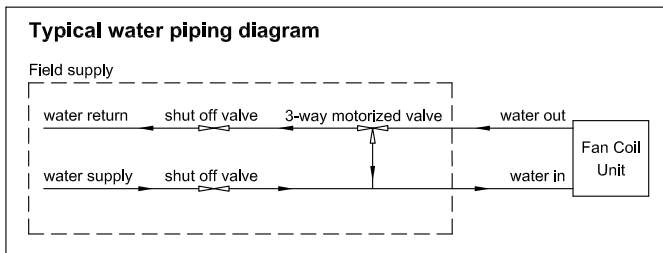
## Wiring

The fan coil unit is capable of operating at three speed levels. When the circuit is connected, the motor operation should be tested to see that it can operate at different speed levels. In the circuit, the number and color of the wires are specified in order to connect the wires correctly. All wiring connectors must be tightened by screws or wire nuts.

### Wiring diagram



## Pipe connection



- Connecting the pipe into or out of the air conditioner should use 2 wrenches (as in the picture).

- Assembling the valve to the coil. The pipe should be insulated to prevent condensation.

## Insulation material / pipes

Pipes and insulation must be made of the following materials :

- Pipe: Rigid vinyl chloride pipe VP25 (Outer diameter = Ø32 mm)
- Insulation: Polyethylene foam, thickness 10 mm or more.

## Drain piping work

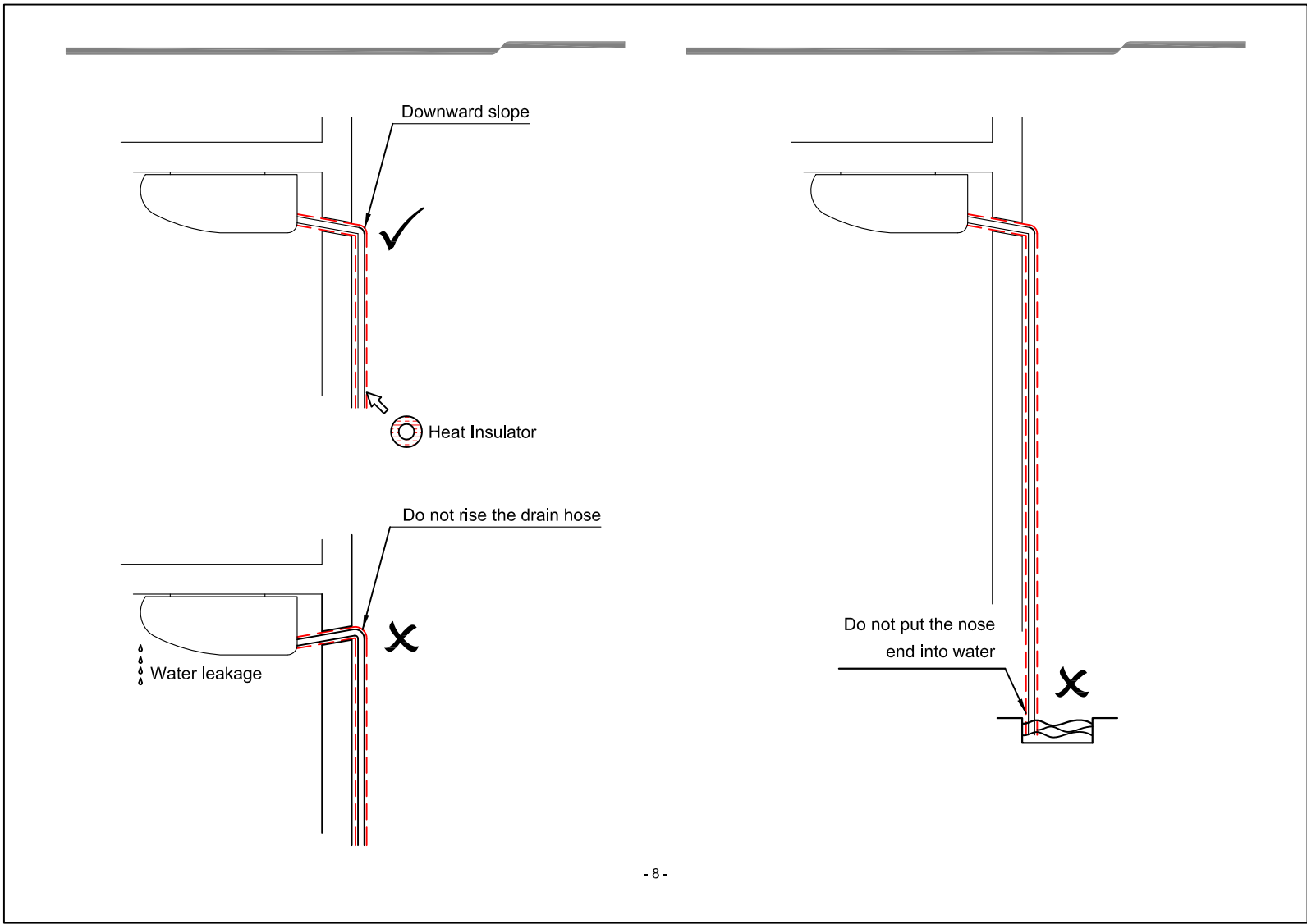
Drain pipes must be installed according to the instructions below to prevent damage due to leaks and condensation

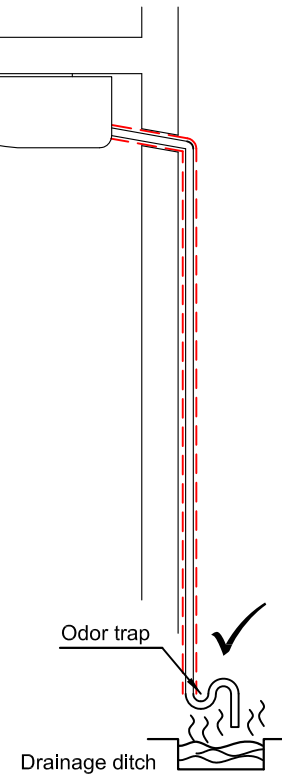
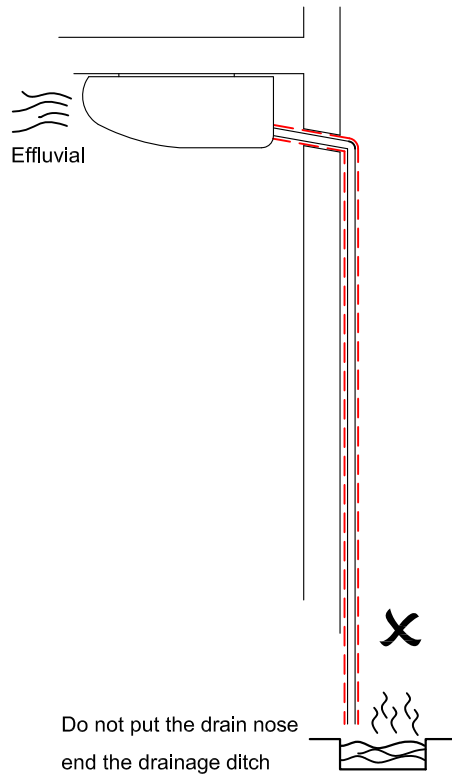
**Use PVC pipe not less than CLASS 8.5 in thickness, with an outer diameter of 3/4 inch.**

**For soft connector between unit and PVC pipe should be tightened by clamp**

- Drain pipes connection should be installed as short as possible and must be sloped down for easy flow.
- The connectors must be Insulated to prevent condensation on surface of the pipes.
- A drain trap must be installed to prevent odors from outside entering the unit and release the negative pressure relative to the atmospheric pressure during operation.
- Drain pipes must be installed as straight as possible to facilitate cleaning and prevent the build-up of dirt and insects.
- Pour water into the water tray to test water runoff that flows easily or not.











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