Installation Manual

Horizontal Discharge Inverter Outdoor Variable Airflow EC Quick Split Indoor

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the new space

CONTENTS

1. PRECAUTIONS

- **Be sure to conform with the local, national and international laws and regulations.**
- **Read "PRECAUTIONS" carefully before installation.**
- **The following precautions include important safety items.**
- **Observe them and never forget.**
- **Keep this manual with the owner's manual in a handy place for future reference.**

The safety precautions listed here are divided into two categories. In either case, important safety information is listed which must be read carefully.

WARNING

Failure to observe a warning may result in death.

CAUTION

Failure to observe a caution may result in injury or damage to the equipment..

After completing the installation, make sure that the unit operates properly during the start-up operation. Please instruct the customer on how to operate the unit and keep it maintained. Inform customers that they should store this installation manual along with the owner's manual for future reference.

WARNING

Be sure only trained and qualified service personnel to install, repair or service the equipment. Improper installation, repair, and maintenance may result in electric shocks, short-circuit, leaks, fire or other damage to the equipment.Ask your dealer for improvement, repair, and maintenance.

Install strictly according to these installation instructions.
If installation is defective, it may cause water leakage, electrical shock fire.

When installing the unit in a small room, take measures to keep refrigerant concentration from exceeding allowable safety limits in the event of refrigerant leakage.
Contact the place of purchase for more information. Excessive refrigerant in a closed ambient can lead to oxygen deficiency.

Use the attached accessories parts and specified parts for installation.

Install at a strong and firm location which is able to withstand the set' s weight.
If the strength is not enough or installation is not properly done, the set will drop to cause injury.

The appliance must be installed at least 2.5m above floor.

The appliance shall not be installed in the laundry.

Before obtaining access to terminals, all supply circuits must be disconnected.

For electrical work, follow the local national wiring standard, regulation and this installation instructions. An independent circuit must be used.
If electrical circuit capacity is insufficient or there is a defect in electrical work, it may cause electrical shock and/or fire.

Use the specified cable and connect tightly and clamp the cable so that cable is protected from external force.
If connection or fixing is not perfect, it may cause heating/arcing or fire at the connection.

Wiring routing must be properly arranged so that control board cover is fixed properly.
If control board cover is not fixed perfectly, it will cause heat-up at connection point of terminal, fire or electrical shock.

An all-pole disconnection device which has at least 3mm separation distance in all pole and a residual current device (RCD) with the rating of above 10mA shall be incorporated in the fixed wiring according to the national rule.

When carrying out piping connection, take care not to let air substances go into refrigeration cycle.
Otherwise, it will cause lower capacity, abnormal high pressure in the refrigeration cycle, explosion and injury.

Carry out the specified installation work after taking into account strong winds, typhoons or earthquakes. Improper installation work may result in the equipment falling and causing accidents.

If the refrigerant leaks during installation, ventilate the area immediately.
Toxic gas may be produced if the refrigerant comes into the place contacting with fire.

The temperature of refrigerant circuit will be high, please keep the interconnection cable away from the copper tube.

After completing the installation work, check that the refrigerant does not leak.
Toxic gas may be produced if the refrigerant leaks into the room and comes into contact with a source of fire, such as a fan heater, stove or cooker.

CAUTION

Ground the air conditioner.
Do not connect the ground wire to gas or water pipes, lightning rod or a telephone ground wire. Incomplete grounding may result in electric shocks.

Be sure to install an earth leakage breaker.
Failure to install an earth leakage breaker may result in electric shocks.

Connect the outdoor unit wires, then connect the indoor unit wires.
You are not allow to connect the air conditioner with the power source until wiring and piping the air conditioner is done.

While following the instructions in this installation manual, install drain piping in order to ensure proper drainage and insulate piping in order to prevent condensation.
Improper drain piping may result in water leakage and property damage.

Install the indoor and outdoor units, power supply wiring and connecting wires at least 1 meter away from televisions or radios in order to prevent image interference or noise.
Depending on the radio waves, a distance of 1 meter may not be sufficient enough to eliminate the noise.

The appliance is not intended for use by persons(including children) with reduced physical,sensory or mental capabilities,or lack of experience and knowledge,unless they have been given supervision or instruction concerning use of the appliance by a person responsible for their safety.

Don't install the air conditioner in the following locations:

- **There is petrolatum existing.**
- **Corrosive environments.**
- **There is caustic gas (the sulfide, for example) existing in the air (near a hot spring).**
- **The Volt vibrates violently (in the factories).**
- **In buses or cabinets.**
- **In kitchen where it is full of oil gas.**
- **There is strong electromagnetic wave existing.**
- **There are inflammable materials or gas.**
- **There is acid or alkaline liquid evaporating.**
- **Other special conditions.**

2. INSTALLATION INFORMATION

- **To install properly, please read this "installation manual" at first.**
- **The air conditioner must be installed by qualified persons.**
- **When installing the indoor unit or its tubing, please follow this manual as strictly as possible.**
- **If the air conditioner is installed on a metal part of the building, it must be electrically insulated according to the relevant standards to electrical appliances.**
- **When all the installation work is finished, please turn on the power only after a thorough check.**
- **We reserve the right to make changes to this document.**

INSTALLATION ORDER

- **Select the location;**
- **Install the indoor unit;**
- **Install the outdoor unit;**
- **Install the connecting pipe ;**
- **Connect the drain pipe;**
- **Wiring;**
- **Test operation.**

Indoor Units

DIMENSION	H-VAV-7	H-VAV-11	H-VAV-15
Length	856	1200	1400
Width	808	808	808
Hieght	400	400	400
Weight	51	71	84
Supply Air	305 x 225	905 x 255	1105 x 255
Return Air	515 x 345	1000 x 345	1200 x 345

Notes

- All units split into two parts.
- Supply and Return air sizes are designed for Airtite series plenums.
- Field or installation wiring must be connected as per the connection diagram to ensure the unit performs as it is designed.
- Installer / electrician is to ensure that when an external overload device is fitted, it be calibrated or set to the maximum amp draw on the rating plate of the motor it is controlling.

H-VAV-7

Unit: mm

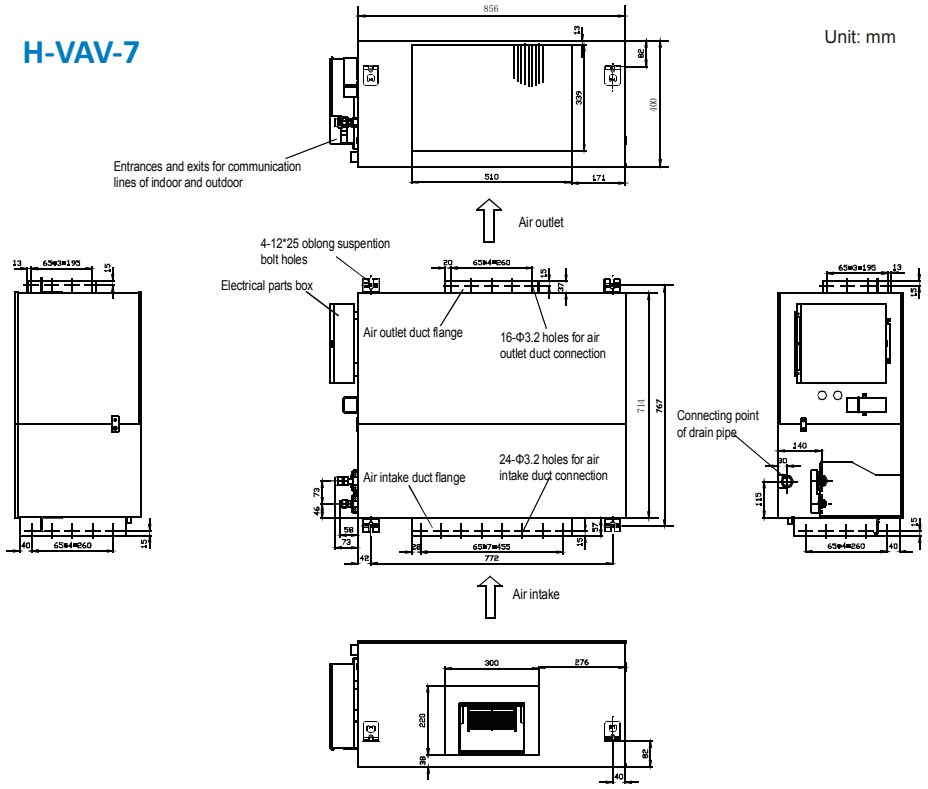


Fig.5-8

H-VAV-11

Unit: mm

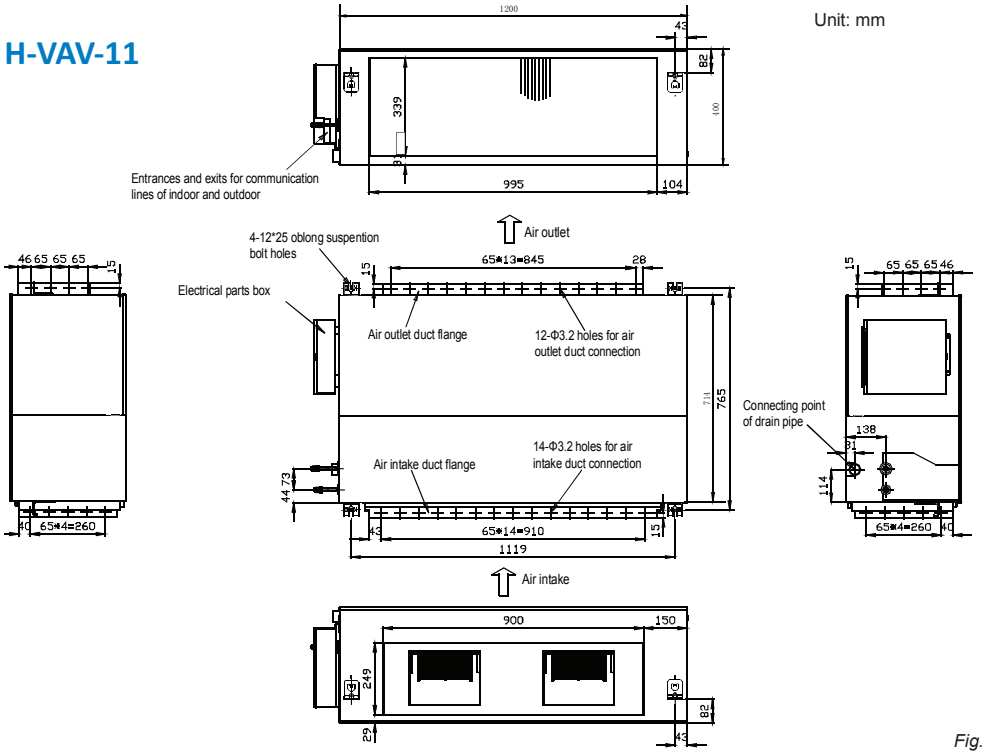


Fig.5-9

H-VAV-15

Unit: mm

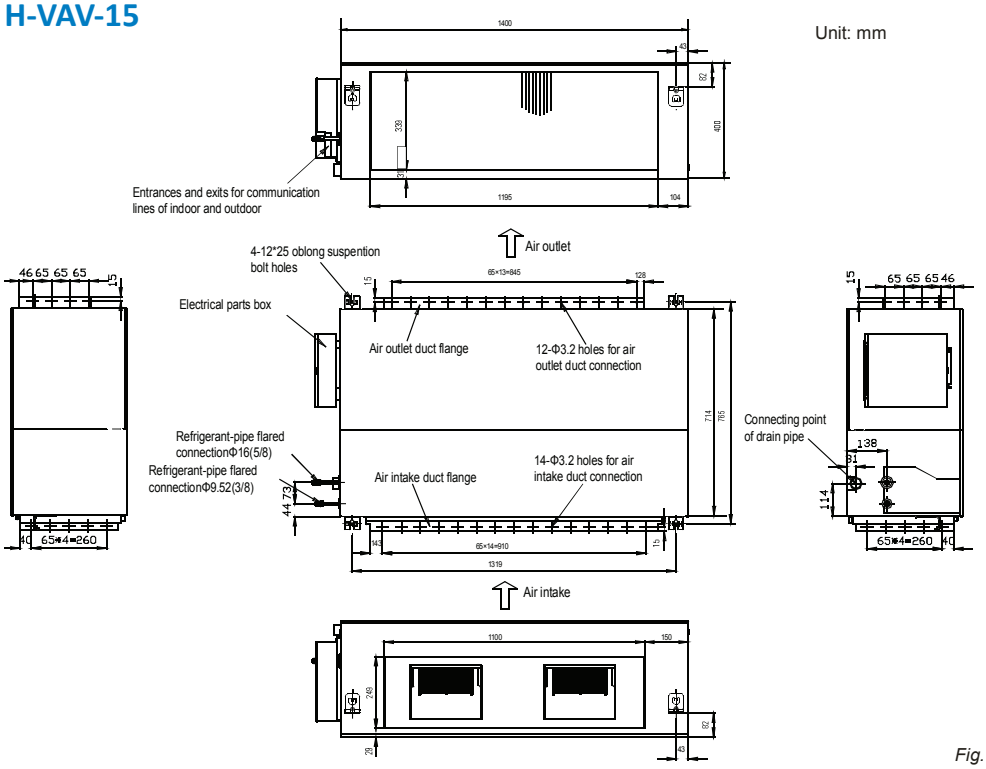


Fig.5-10

model	A	B	C	D	E	F	H	remark
7kW	895	590	333	355	302	313	862	R410A Fig 6.2
11kW	990	624	366	396	340	354	966	
15kW	940	600	376	400	340	360	1245	

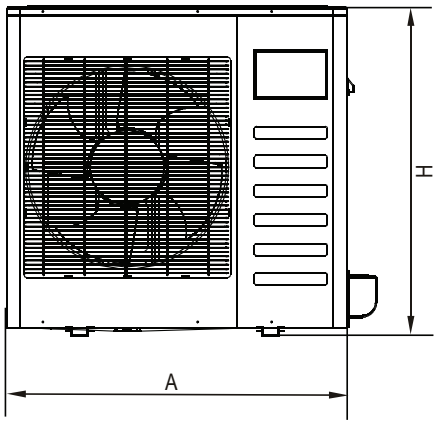


Fig.6-2

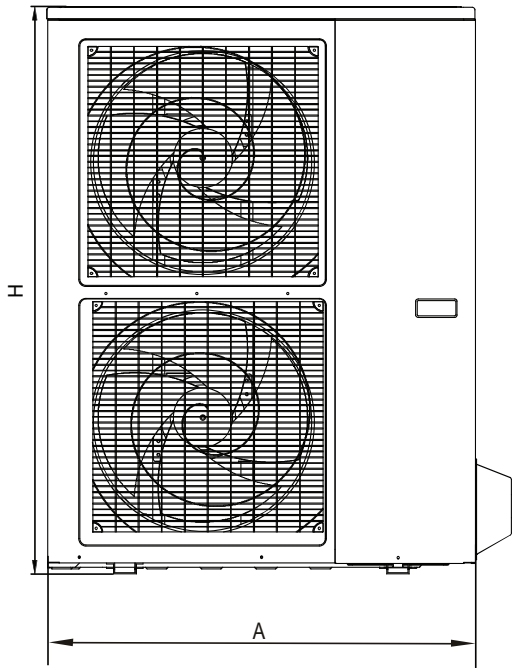


Fig.6-3

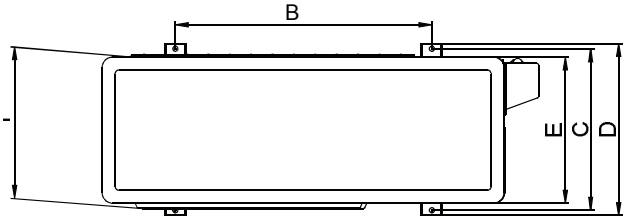


Fig.6-4

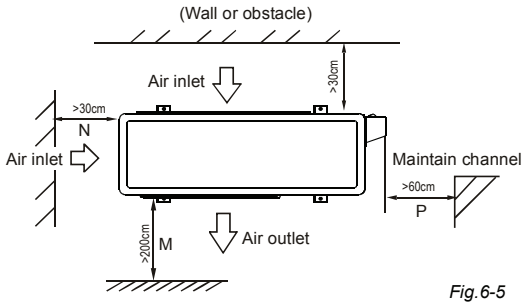


Fig.6-5

NOTE

All the pictures in this manual are for explanation purpose only They may be slightly different from the air conditioner you purchased(depend on model).The actual shape shall prevail.

6.2 Moving and installation

- Since the gravity center of the unit is not at its physical center, so please be careful when lifting it with a sling.
- Never hold the inlet of the outdoor unit to prevent it from deforming.
- Do not touch the fan with hands or other objects.
- Do not lean it more than 45, and do not lay it sidelong.
- Make concrete foundation accoding to the sepecif-ications of the outdoor units.(Refer to Fig.6-6)
- Fasten the feet of this unit with bolts firmly to prevent it from collapsing in case of earthquake or strong wind.(Refer toFig.6-6)

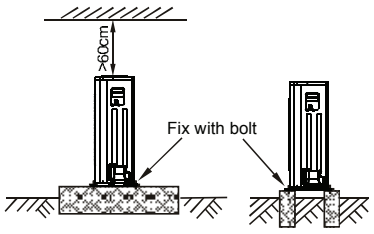


Fig.6-6

NOTE

All the pictures in this manual are for explanation purpose only They may be slightly different from the air conditioner you purchased(depend on model).The actual shape shall prevail.

7. INSTALL THE CONNECTING PIPE

Check whether the height drop between the indoor unit and outdoor unit, the length of refrigerant pipe, and the number of the bends meet the following requirements:

MODEL		7			11			15
The Max Height Drop (m)	When unit is top	15			25			35
	when outdoor unit is bottom	10			20			25
The length of refrig. pipe (m)	When unit is top	25			30			50
	when outdoor unit is bottom	25			30			50

CAUTION

When the pipe matrix is not observed significant reductions in system capacity and longevity should be expected.

7.1 The Procedure for Connecting Pipes

CAUTION

1. Drill a hole in the wall (suitable just for the size of the wall conduit), then set on the fittings such as the wall conduit and its cover.
2. Bind the connecting pipe and the cables together tightly with binding tapes.
3. Pass the bound connecting pipe through the wall conduct from outside. Be careful of the pipe allocation to do on damage to the tubing.
4. Connect the pipes. Refer to “How to Connect the pipes” for details.
5. Expel the air with a vacuum pump. Refer to “How to expel the air with a vacuum pump” for details. Open the stop values of the outdoor unit to make the refrigerant pipe connecting the indoor unit with the outdoor unit in fluent flow.
6. Check the leakage. Check all the joints with the leak detector or soap water.
7. Cover the joints of the connecting pipe with the soundproof / insulating sheath (fittings), and bind it well with the tapes to prevent leakage.

NOTE

CAUTION

Be sure to with insulating materials cover all the exposed parts of the flare pipe joints and refrigerant pipe on the liquid-side and the gas-side. Ensure that there is no gap between them. Incomplete insulation may cause water condensation.

How to Connect the Pipes

1 Flaring

- **Cut a pipe with a pipe cutter. (Refer to Fig.7-1)**

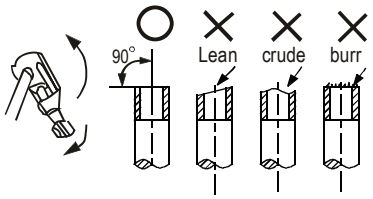
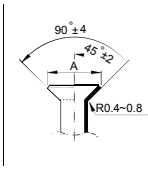


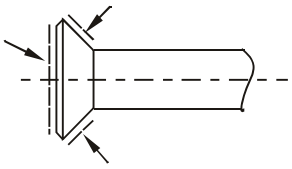
Fig.7-1

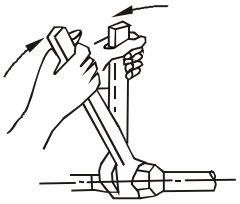
- **Insert a flare nut into a pipe and flare the pipe.**
- **Refer to Table 7-2 for the dimension of flare nut spaces.**

Pipe Gauge	Tighten Torque	Flare Dimension A		Flare Shape
		Min	Max	
Ø 6.35	14.2 17.2 N.m (144 176 kgf.cm)	8.3	8.7	
Ø 9.53	32.7 39.9 N.m(333 407 kgf.cm)	12.0	12.4	
Ø 12.7	49.5 60.3 N.m(504 616 kgf.cm	15.4	15.8	
Ø 16	61.8 75.4 N.m (630 770 kgf.cm)	18.6	19.0	
Ø 19	97.2 118.6 N.m(990 1210 kgf.cm)	22.9	23.3	

2 Connect the indoor unit at first, then the outdoor unit.

- **All bends must be performed using appropriate tools. Deformed bends can reduce system capacity**
- **The bend angle should not exceed 90.**
- **Bend position is preferably in the middle of the pipe. The larger the bend radius the better it is.**
- **Do not bend the pipe more than three times.**
- **When connecting the flare nut, coat the flare both inside and outside with either oil or ester oil and initially tighten by hand 3 or 4 turns before tightening firmly.**





CAUTION

Too large torque will harm the bell mouthing and too small will cause leakage. Please determine the torque according to Table 7-3.

After the connecting work is finished, be sure to check that there is no gas leak.

How to expel the air with a vacuum pump

Stop valve operation introduction

1 Opening stop valve

- **Remove the cap and turn the valve counter clock-wise with the hexagon wrench.**
- **Turn it until the shaft stops. Do not apply excessive force to the stop valve. Doing so may break the valve body, as the valve is not a backseat type. Always use the special tool.**
- **Make sure to tighten the cap securely.**

2 Closing stop valve

- **Remove the cap and turn the valve clockwise with the hexagon wrench.**
- **Securely tighten the valve until the shaft contacts the main body seal.**
- **Make sure to tighten the cap securely.**
- **For the tightening torque,refer to the table below.**

Tightening torque N.m (Turn clockwise to close)				
Stop Valve Size	Shaft (valve Body)		Cap (valve Lid)	Maintenance nut
Ø6.35	5.4-6.6	Hexagonal wrench 4mm	13.5-16.5	11.5-13.9
Ø9.53				
Ø12.7	8.1-8.9		18-22	
Ø16	13.5-16.5	Hexagonal wrench 6mm	23-27	
Ø22.2	27-33	Hexagonal Wrench 10mm	36-44	
Ø25.4				

CAUTION

Always use a charge hose for service port connection.

After tightening the cap, check that no refrigerant leaks are present.

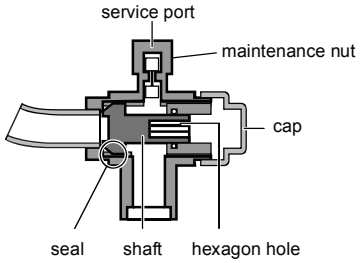


Fig.7-5

Using the Vacuum Pump

1. **Loosen and remove the maintenance nuts of stop valves A and B, and connect the charge hose of the manifold valve to the service port of stop valve A. (Be sure that stop valves A and B are both closed)**
2. **Connect the joint of the charge hose with the vacuum pump.**
3. **Open the Lo-lever of the manifold value completely.**
4. **When the pumping has finished, close the Lo-lever of the manifold valve completely and turn off the vacuum pump. Evacuate to 500 microns**
5. **Loosen and remove the cap of stop valves A and B to open stop valve A and B completely, then fasten the cap.**
6. **Disassemble the charge hose from the service port of stop valve A, and fasten the nut.**

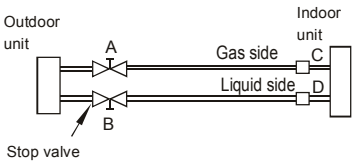


Fig.7-6

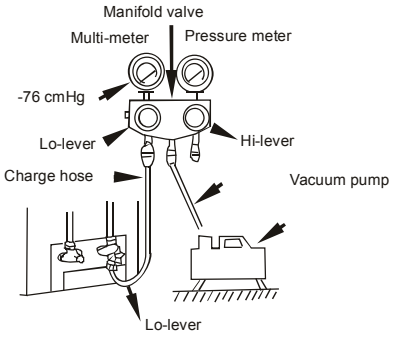


Fig.7-7

7.2 Additional Refrigerant Charge

CAUTION

Refrigerant cannot be charged until field wiring has been completed.

Refrigerant may only be charged after performing the leak test and the vacuum pumping.

When charging a system, care shall be taken that its maximum permissible charge is never exceeded, in view of the danger of liquid hammer.

Charging with an unsuitable substance may cause explosions and accidents, so always ensure that the appropriate refrigerant is charged.

Refrigerant containers shall be opened slowly.

Always use protective gloves and protect your eyes when charging refrigerant.

■ **The outdoor unit is factory charged with refrigerant. Calculate the added refrigerant according to the diameter and the length of the liquid side pipe of the outdoor unit/indoor unit connection.**

L (m) / R(G) / D(mm)	Ø6.35	Ø9.53	Ø12.7
Less than 5m	----------	----------	----------
Added refrigerant when over 5 m	11g/m°—(L-5)	30g/m°—(L-5)	60g/m°—(L-5)

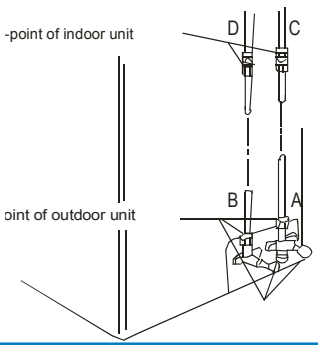
R(g): Additional refrigerant to be charged

L(m): The length of the refrigerant pipe(one-way)

D(mm): Liquid Side Piping Diameter

7.3 Check the Leakage

Check all the joints with the leak detector or soap water.



Note

In the figure
A.....Lo-stop valve
B.....Hi-stop valve
C,D..Joints of the connecting pipe to the indoor unit.

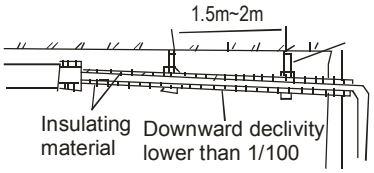
8. CONNECT THE DRAIN PIPE

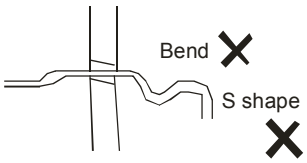
8.1 Install the drainpipe of the indoor unit

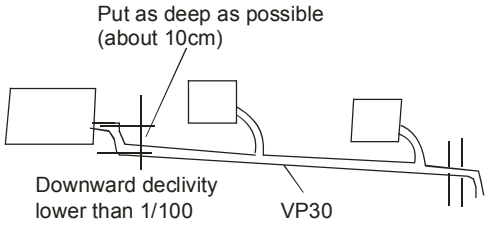
The outlet has PTI screw thread, Please use easy clean drain trap supplied with the unit.

CAUTION

- The outlet has PTI screw bread, Please use sealing materials and pipe sheath(fitting) when connecting PVC pipes.
- The drain pipe of indoor unit must be insulated, or it will condense dew, as well as the connections of the indoor unit.
- PVC solvent must be used for pipe connection, and make sure there is no leakage.
- With the connection part to the indoor unit, please be noted not to impose pressure on the side of indoor unit pipes.
- The total length of the drain pipe when pulled out transversely shall not exceed 20m, when the pipe is over long, a prop stand must be installed to prevent winding.
- Refer to the under figures for the installation of the pipes







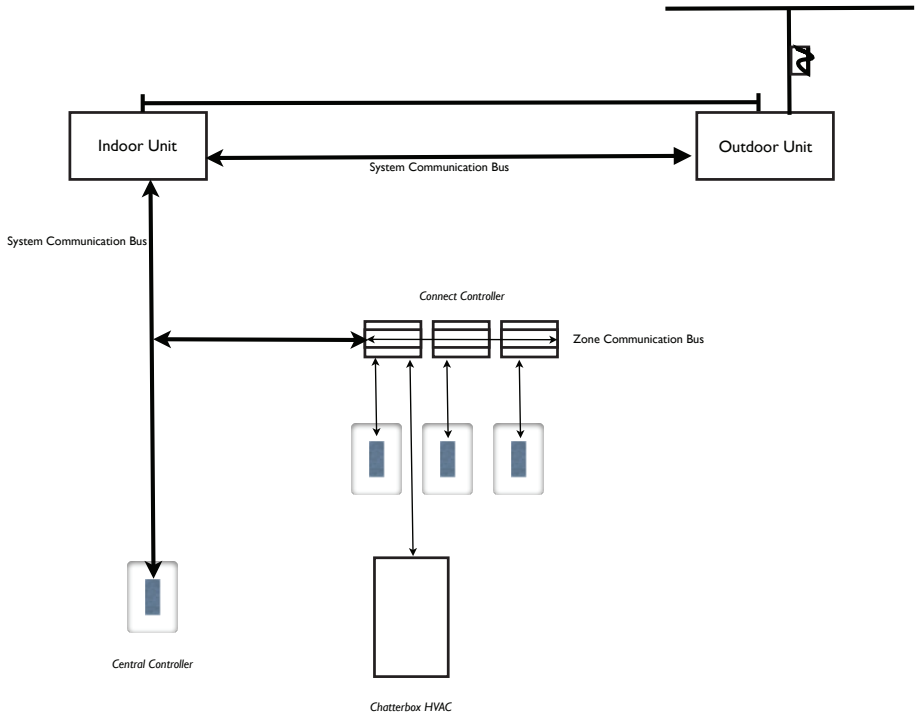
8.1 Drain Test

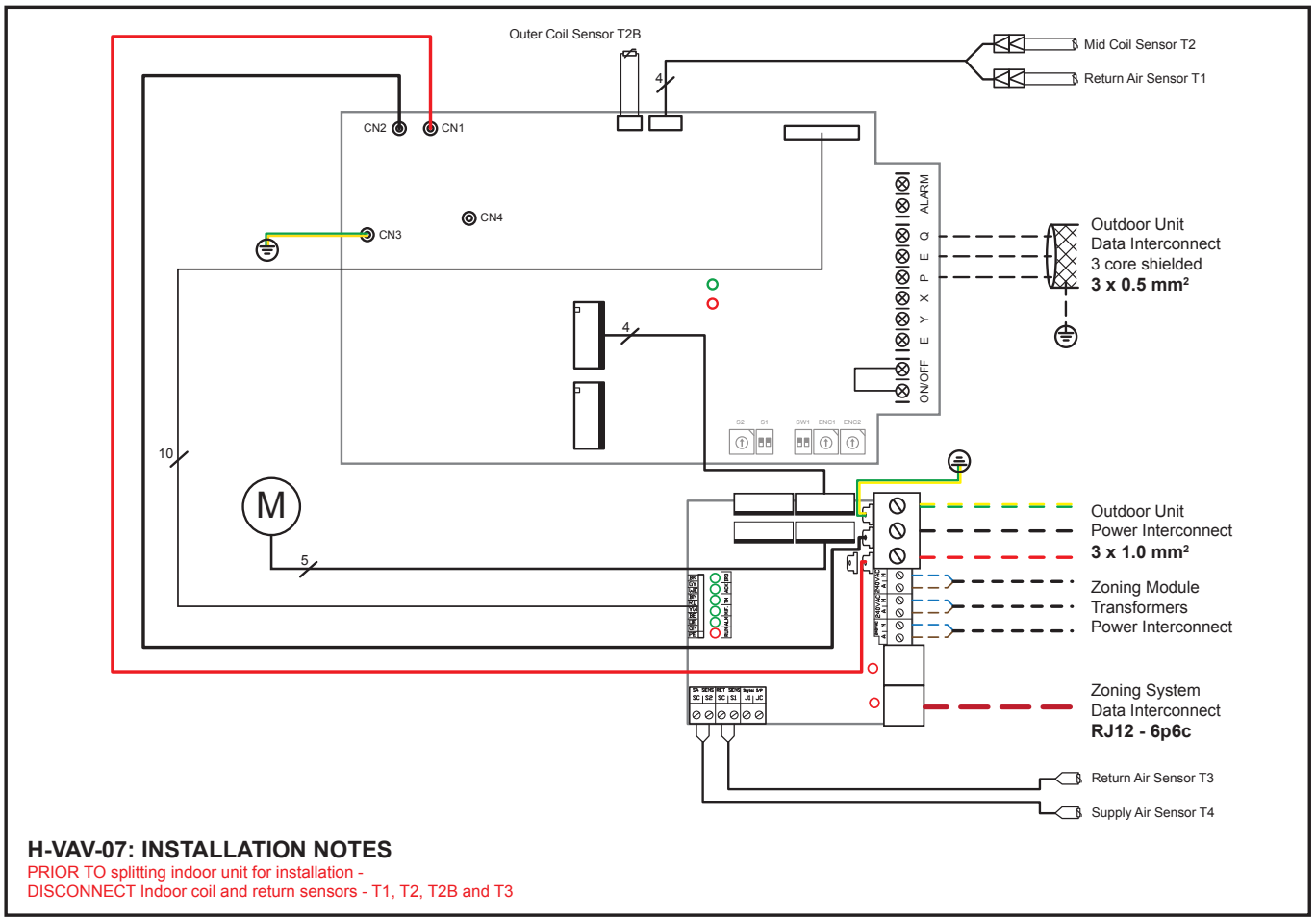
1. **Check whether the drainpipe is unhindered.**
2. **Newly built homes should have this test done before sheeting the ceiling.**

POWER SPECIFICATION

Type		H-INV-7 + H-VAV-7	H-INV-11 + H-VAV-11	H-INV-15 + H-VAV-15
Indoor Unit Power	Phase	1 phase	1 phase	1 phase
	Frequency & volt	220-240V~, 50hz	220-240V~, 50hz	220-240V~, 50hz
	Power Wiring (mm^2)	3x1.0	3x1.0	3x1.0
	Circuit Breaker (A)	10	10	10
Outdoor Unit Power	Phase	1 phase	1 phase	1 phase
	Frequency & volt	220-240V~, 50hz	220-240V~, 50hz	220-240V~, 50hz
	Power Wiring (mm^2)	3x2.5	3x2.5	3x2.5
	Circuit Breaker (A)	20	25	32
Indoor/Outdoor Connecting Wiring (Weak Electric Signal) (mm^2)		3-core shielded wire - 3 x 0.5	3-core shielded wire - 3 x 0.5	3-core shielded wire - 3 x 0.5

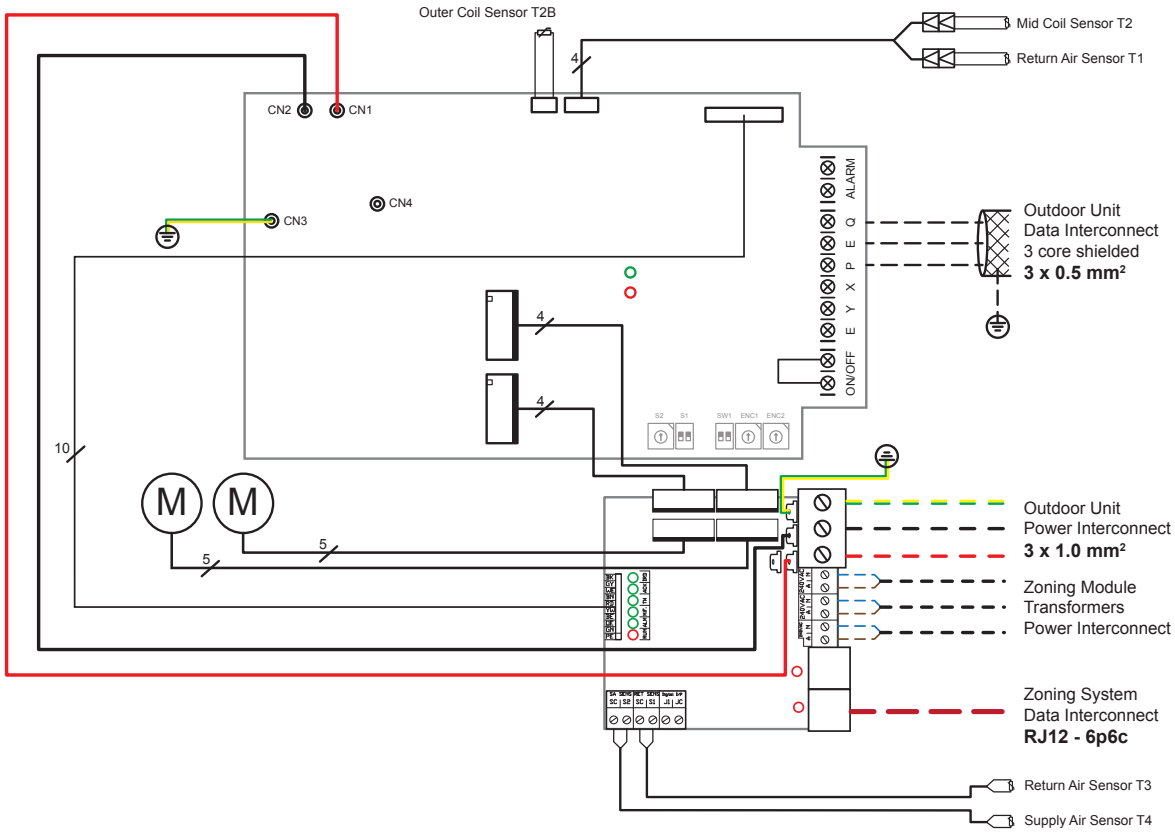
10.3 Wiring Figure





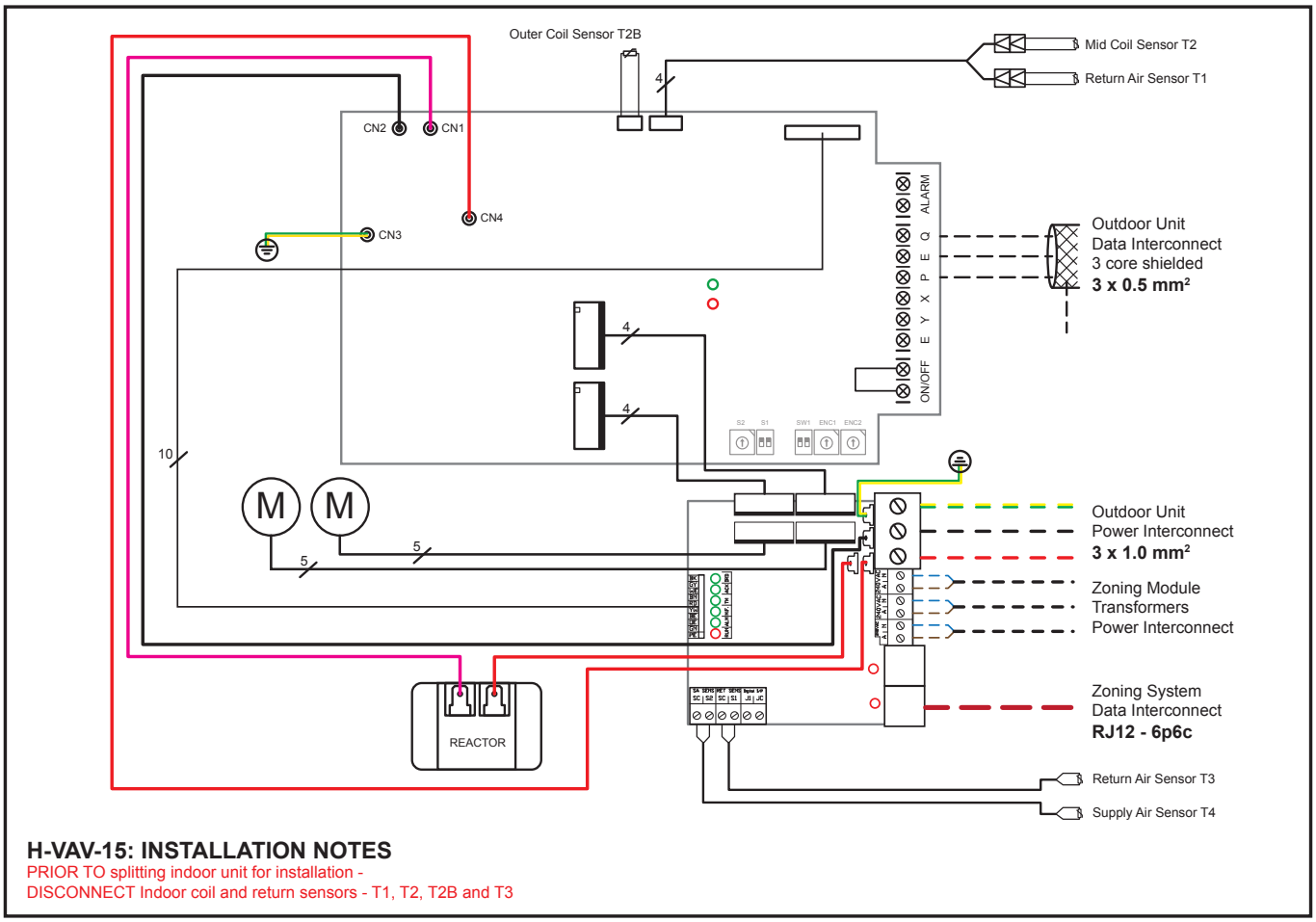
H-VAV-07: INSTALLATION NOTES

PRIOR TO splitting indoor unit for installation -
DISCONNECT Indoor coil and return sensors - T1, T2, T2B and T3



H-VAV-11: INSTALLATION NOTES

PRIOR TO splitting indoor unit for installation -
DISCONNECT Indoor coil and return sensors - T1, T2, T2B and T3



H-VAV-15: INSTALLATION NOTES

PRIOR TO splitting indoor unit for installation -
DISCONNECT Indoor coil and return sensors - T1, T2, T2B and T3

Notes

Notes

Livezi
Phone 1300 306 125
Fax 07 3890 8734
Web: www.livezi.com.au
Email: info@livezi.com.au