
VRV SYSTEM Inverter Air Conditioners

MODELS**BEV unit**

BEVQ71MVE	BEVQ71MAVE
BEVQ100MVE	BEVQ100MAVE
BEVQ125MVE	BEVQ125MAVE

English

Deutsch

Français

Español

Italiano

Ελληνικά

Nederlands

Portugues

Русский

READ THESE INSTRUCTIONS CAREFULLY BEFORE INSTALLATION.
KEEP THIS MANUAL IN A HANDY PLACE FOR FUTURE REFERENCE.

LESEN SIE DIESE ANWEISUNGEN VOR DER INSTALLATION SORGFÄLTIG DURCH.
BEWAHREN SIE DIESE ANLEITUNG FÜR SPÄTERE BEZUGNAHME GRIFFBEREIT AUF.

LIRE SOIGNEUSEMENT CES INSTRUCTIONS AVANT L'INSTALLATION.
CONSERVER CE MANUEL A PORTEE DE MAIN POUR REFERENCE ULTERIEURE.

LEA CUIDADOSAMENTE ESTAS INSTRUCCIONES ANTES DE INSTALAR.
GUARDE ESTE MANUAL EN UN LUGAR A MANO PARA LEER EN CASO DE TENER
ALGUNA DUDA.

PRIMA DELL'INSTALLAZIONE LEGGERE ATTENTAMENTE QUESTE ISTRUZIONI.
TENERE QUESTO MANUALE A PORTATA DI MANO PER RIFERIMENTI FUTURI.

ΔΙΑΒΑΣΤΕ ΠΡΟΣΕΚΤΙΚΑ ΑΥΤΕΣ ΤΙΣ ΟΔΗΓΙΕΣ ΠΡΙΝ ΑΠΟ ΤΗΝ ΕΓΚΑΤΑΣΤΑΣΗ ΕΧΕΤΕ ΑΥΤΟ
ΤΟ ΕΓΧΕΙΡΙΔΙΟ ΕΥΚΑΙΡΟ ΓΙΑ ΝΑ ΤΟ ΣΥΜΒΟΥΛΕΥΕΣΤΕ ΣΤΟ ΜΕΛΛΟΝ.

LEES DEZE INSTRUCTIES ZORGVULDIG DOOR VOOR INSTALLATIE. BEWAAR DEZE HAN-
DLEINDING WAAR U HEM KUNT TERUGVINDEN VOOR LATERE NASLAG.

LEIA COM ATENÇÃO ESTAS INSTRUÇÕES ANTES DE REALIZAR A INSTALAÇÃO.
MANTENHA ESTE MANUAL AO SEU ALCANCE PARA FUTURAS CONSULTAS.

ПЕРЕД НАЧАЛОМ МОНТАЖА ВНИМАТЕЛЬНО ОЗНАКОМЬТЕСЬ С ДАННЫМИ
ИНСТРУКЦИЯМИ. СОХРАНИТЕ ДАННОЕ РУКОВОДСТВО В МЕСТЕ, УДОБНОМ ДЛЯ
ОБРАЩЕНИЯ В БУДУЩЕМ.

CONTENTS

1	SAFETY PRECAUTIONS.....	1
2	BEFORE INSTALLATION	3
3	SELECTING INSTALLATION SITE.....	4
4	PREPARATIONS BEFORE INSTALLATION	6
5	BEV UNIT INSTALLATION	7
6	REFRIGERANT PIPING WORK	7
7	ELECTRIC WIRING WORK	10
8	WIRING EXAMPLE AND HOW TO SET THE REMOTE CONTROLLER.....	12
9	HOW TO ATTACH THE NAMEPLATE	16
10	TEST OPERATION	16

1. SAFETY PRECAUTIONS


Please read these “SAFETY PRECAUTIONS” carefully before installing air conditioning unit and be sure to install it correctly. After completing installation, conduct a trial operation to check for faults and explain to the customer how to operate the air conditioner and take care of it with the aid of the operation manual. Ask the customer to store the installation manual along with the operation manual for future reference.


This air conditioner comes under the term “appliances not accessible to the general public”.

VRV System is a class A product. In a domestic environment this product may cause radio interference in which case the user may be required to take adequate measures.

Meaning of WARNING and CAUTION notices

 **WARNING**Failure to follow these instructions properly may result in personal injury or loss of life.

 **CAUTION**Failure to observe these instructions properly may result in property damage or personal injury, which may be serious depending on the circumstances.

-
-  **WARNING**
- Ask your dealer or qualified personnel to carry out installation work.
Do not attempt to install the air conditioner yourself. Improper installation may result in water leakage, electric shocks or fire.
 - Install the air conditioner in accordance with the instructions in this installation manual.
Improper installation may result in water leakage, electric shocks or fire.
 - When installing the unit in a small room, take measures against 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.
 - Be sure to use only the specified accessories and parts for installation work.
Failure to use the specified parts may result in the unit falling, water leakage, electric shocks or fire.
 - Install the air conditioner on a foundation strong enough to withstand the weight of the unit.
A foundation of insufficient strength may result in the equipment falling and causing injury.
 - Carry out the specified installation work after taking into account strong winds, typhoons or earthquakes.
Failure to do so during installation work may result in the unit falling and causing accidents.

- Make sure that a separate power supply circuit is provided for this unit and that all electrical work is carried out by qualified personnel according to local laws and regulations and this installation manual.
An insufficient power supply capacity or improper electrical construction may lead to electric shocks or fire.
- Be sure to earth the air conditioner.
Do not earth the unit to a utility pipe, lightning conductor or telephone earth lead. Imperfect earthing may result in electric shocks or fire.
A high surge current from lightning or other sources may cause damage to the air conditioner.
- Be sure to install an earth leakage breaker.
Failure to install an earth leakage breaker may result in electric shocks or fire.
- Be sure to switch off the unit before touching any electrical parts.
- Make sure that all wiring is secured, the specified wires are used, and that there is no strain on the terminal connections or wires.
Improper connections or securing of wires may result in abnormal heat build-up or fire.
- When wiring the power supply and connecting the remote controller wiring and transmission wiring, position the wires so that the control box lid can be securely fastened.
Improper positioning of the control box lid may result in electric shocks, fire or the terminals overheating.
- If refrigerant gas leaks during installation, ventilate the area immediately.
Toxic gas may be produced if the refrigerant gas comes into contact with fire.
- After completing installation, check for refrigerant gas leakage.
Toxic gas may be produced if the refrigerant gas leaks into the room and comes into contact with a source of fire, such as a fan heater, stove or cooker.
- Do not directly touch refrigerant that has leaked from refrigerant pipes or other areas, as there is a danger of frostbite.



CAUTION

- Install the BEV units, power cord and connecting wires at least 1 meter away from televisions or radios to prevent picture interference and noise.
(Depending on the incoming signal strength, a distance of 1 meter may not be sufficient to eliminate noise.)
 - Remote controller (wireless kit) transmitting distance can be shorter than expected in rooms with electronic fluorescent lamps (inverter or rapid start types).
Install the BEV unit as far away from fluorescent lamps as possible.
 - Make sure to provide for adequate measures in order to prevent that the outdoor unit be used as a shelter by small animals.
Small animals making contact with electrical parts can cause malfunctions, smoke or fire. Please instruct the customer to keep the area around the unit clean.
 - Do not install the air conditioner in the following locations:
 1. Where there is a high concentration of mineral oil spray or vapour (e.g. a kitchen).
Plastic parts will deteriorate, parts may fall off and water leakage could result.
 2. Where corrosive gas, such as sulphurous acid gas, is produced.
Corroding of copper pipes or soldered parts may result in refrigerant leakage.
 3. Near machinery emitting electromagnetic radiation.
Electromagnetic radiation may disturb the operation of the control system and result in a malfunction of the unit.
 4. Where flammable gas may leak, where there is carbon fibre or ignitable dust suspensions in the air, or where volatile flammables such as paint thinner or gasoline are handled.
Operating the unit in such conditions may result in fire.
 5. Do not use in areas where the air is salty, such as along seacoasts, in factories or other areas with significant voltage fluctuations, or in automobiles and watercraft.
Doing so could result in a malfunction.
 - The BEV unit is not intended for use in a potentially explosive atmosphere.
-

2. BEFORE INSTALLATION

- When moving the unit while removing it from the carton box, be sure to lift it by holding on to the two lifting lugs without exerting any pressure on other parts, especially, the refrigerant piping.
- Be sure to check the type of R410A refrigerant to be used before installing the unit. (Using an incorrect refrigerant will prevent normal operation of the unit.)
- BEV unit is an electronic expansion valve unit for allowing the indoor unit to be connected to the system for the VRV system.
- BEV unit may only be connected to the models shown in the table below. Do not attempt connection with other models.

Indoor unit
Ceiling Suspended Cassette Type

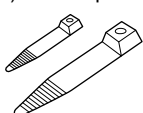
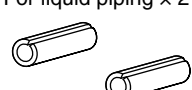


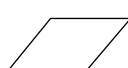
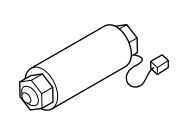
- See the included installation manuals on the VRV outdoor unit and the ceiling suspended cassette type indoor unit for details.
- For the indoor unit connected to the BEV unit, cooling/heating cannot be switched over with the remote controller.
- When the cooling/heating free system is connected to the BS unit, a cooling/heating selection right is allowed.
- When the ceiling suspended cassette type indoor unit and BEV unit are used for all indoor units, a separate "Cool/Heat SELECTOR" is needed to enable the cooling/heating switchover.

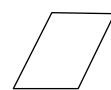

2-1 PRECAUTIONS

- Do not install or operate the unit in rooms mentioned below.
 - Laden with mineral oil, or filled with oil vapor or spray like in kitchens. (Plastic parts may deteriorate which could eventually cause the unit to fall out of place, or could lead to leaks.)
 - Where corrosive gas like sulfurous gas exists. (Copper tubing and brazed spots may corrode, which could eventually lead to refrigerant leaks.)
 - Where exposed to combustible gas and where volatile flammable gas like thinner or gasoline is used. (Gas in the vicinity of the unit could ignite.)
 - Where machines can generate electromagnetic waves. (Control system may malfunction.)
 - Where the air contains high levels of salt such as that near the ocean and where voltage fluctuates greatly such as that in factories.
Also in vehicles or vessels.
- This unit, both indoor and outdoor, is suitable for installation in a commercial and light industrial environment. If installed as a household appliance it could cause electromagnetic interference.

2-2 ACCESSORIES

Check if the following accessories are included with your unit.

Name	Clamp	Insulation for fitting	Sealing pad	(7) Gas piping connection piping
Quantity	9 pcs.	3 pcs.	3 pcs.	1 pc.
Shape	(1) 3 short pieces  (2) 6 long pieces	(3) For liquid piping × 2  (4) For gas piping × 1 	(5)  Small × 2 (6)  × 1	

Name	(8) Installation manual	(9) Nameplate
Quantity	1 pc.	1 pc.
Shape		

2-3 COMBINATION

- Attach a BEV unit with the same capacity to the indoor unit.

BEV unit	BEVQ71M(A)VE	BEVQ100M(A)VE	BEVQ125M(A)VE
Indoor unit	FXUQ71M(A)V1	FXUQ100M(A)V1	FXUQ125M(A)V1

FOR THE FOLLOWING ITEMS, TAKE SPECIAL CARE DURING CONSTRUCTION AND CHECK AFTER INSTALLATION IS FINISHED.

a. Items to be checked after completion of work

Items to be checked	If not properly done, what is likely to occur	Check
Are the indoor and outdoor and BEV unit fixed firmly?	The units may drop, vibrate or make noise.	
Is the gas leak test finished?	It may result in insufficient cooling.	
Is the unit fully insulated?	Condensate may drip.	
Does the power supply voltage correspond to that shown on the name plate?	The unit may malfunction or the components burn out.	
Are wiring and piping correct?	The unit may malfunction or the components burn out.	
Is the unit safely grounded?	Risk of electric shock at electric leakage.	
Is wiring size according to specifications?	The unit may malfunction or the components burn out.	
Are refrigerant piping length and additional refrigerant charge noted down?	The refrigerant charge in the system is not clear.	

3. SELECTING INSTALLATION SITE

⟨When moving the unit while removing it from the carton box, be sure to lift it by holding on to the four lifting lugs without exerting any pressure on other parts, especially, the refrigerant piping. When it may exceed 30°C and RH80% in the ceiling or fresh air is inducted into the ceiling, an additional insulation (Thickness 10mm or more of glasswool or polyethylene form) is required.⟩

(1) Select an installation site where the following conditions are fulfilled and that meets your customer's approval.

- Where is resistible against weight of BEV unit.
- Where the false ceiling is not noticeably on an incline.
- Where there is no risk of flammable gas leakage.
- Where sufficient clearance for maintenance and service can be ensured.
- Where the total piping length involving indoor unit and outdoor unit is below the allowable piping length. (See the installation manual included with the outdoor unit for "6. REFRIGERANT PIPING WORK.")
- Locations where a maintenance hole can be installed. **(Refer to Fig. 1)**

(2) After considering whether the location the unit is to be installed can support its weight, if it seems dangerous, install it after reinforcing the location with boards, crossbeams, etc.

(3) Install the gas piping connection piping (7) no further than 250mm from the hole for the thermistor on the unit. (Refer to the "8-1 HOW TO CONNECT WIRINGS")

(4) Avoid any contact with the ceiling surface, as this may cause noise and vibration.

[CAUTIONS]

- Install the indoor and outdoor units, power supply wiring and connecting wiring 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.)

《《When hanging the unit from the ceiling》》
 Install so that the control box lid is facing down.

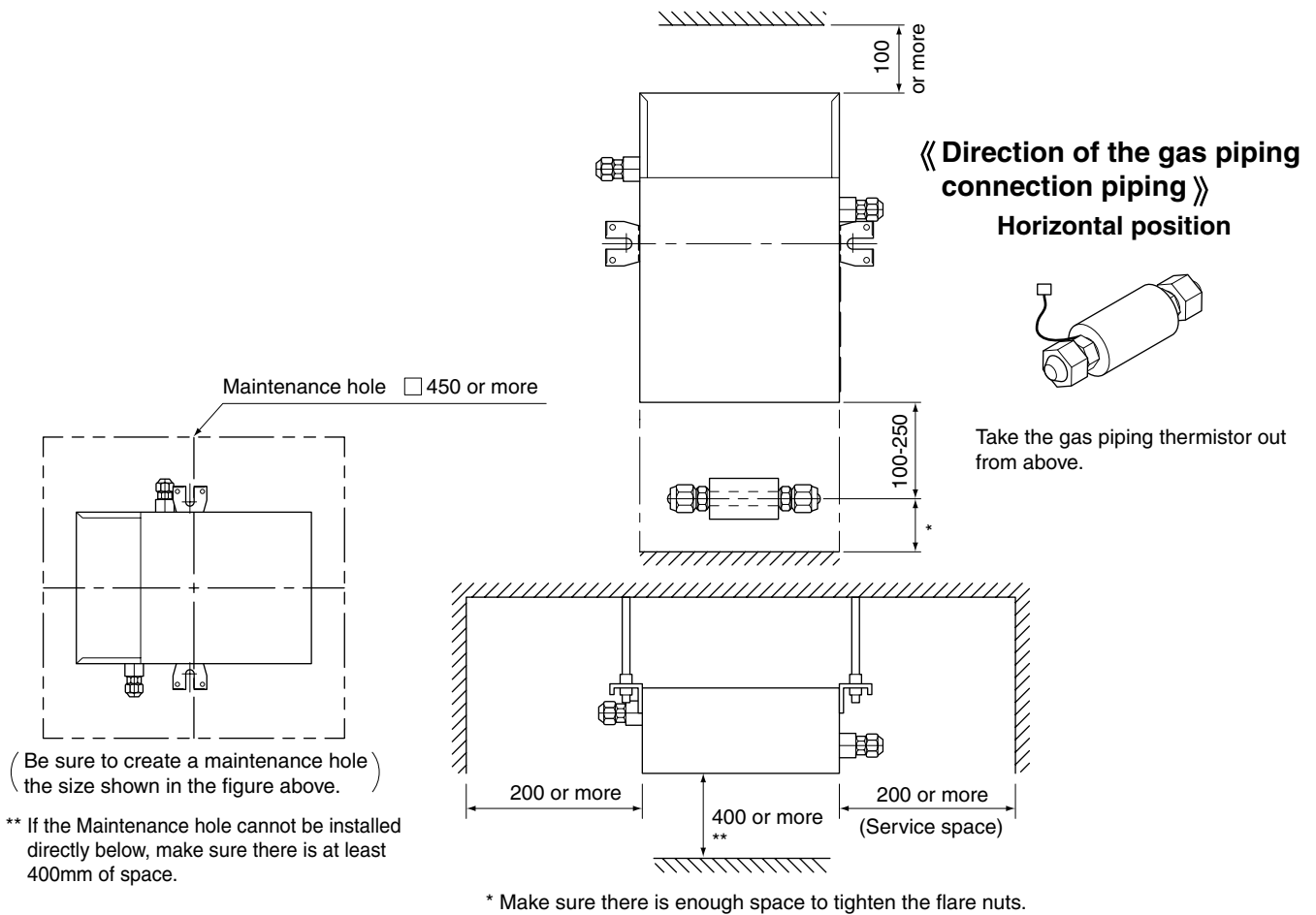


Fig. 1
 (length: mm)

《《When installing the unit on a wall》》
 Make sure the wiring outtake is facing down, and no other direction.

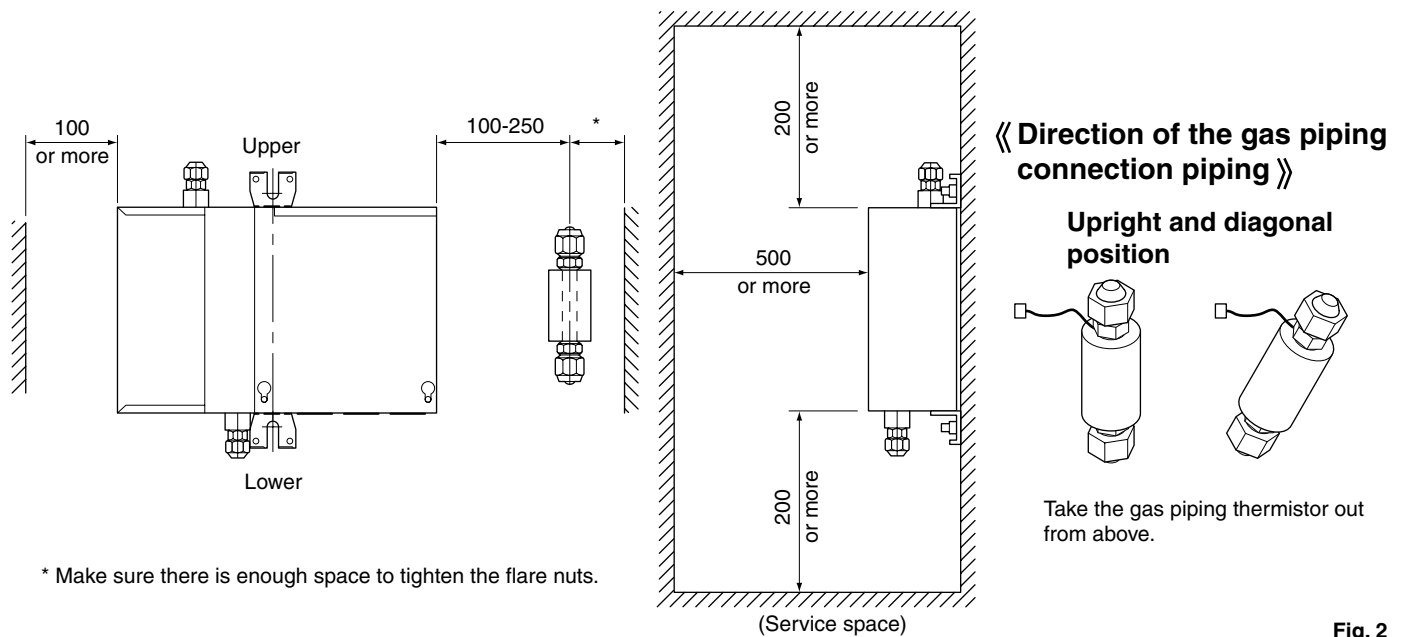


Fig. 2
 (length: mm)

4. PREPARATIONS BEFORE INSTALLATION

⟨⟨When hanging the unit from the ceiling⟩⟩

(1) Check the relative locations of ceiling hole, unit, and hanging bolts.

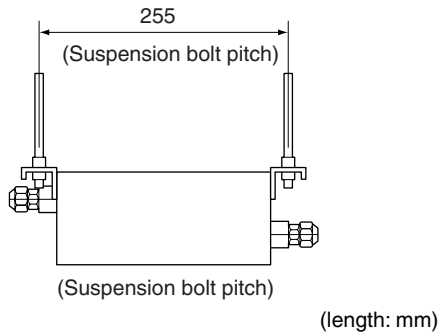


Fig. 3

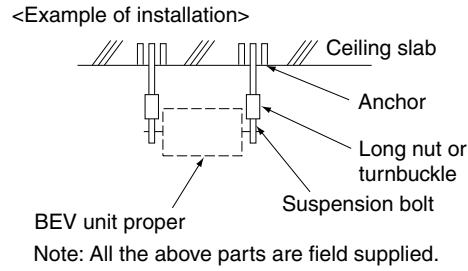


Fig. 4

(2) Open the eyebolt holes or the holes for passing the piping and wiring out of the unit.

- Set the locations for the above holes, open them up and then lay the piping (refrigerant) and wiring (including both power supply and transmission wiring) up to the piping and wiring connections in the unit. (See “6. REFRIGERANT PIPING WORK” and “7. ELECTRIC WIRING WORK” for details.)
- It might be necessary to reinforce the ceiling frame to maintain the levelness and to prevent vibration. Consult an architect or carpenter for details.

(3) Install the hanging bolts. (Use M8 hanging bolts.)

- If it is pre-set, use hole-in anchors. Otherwise, use embedded inserts or embedded foundation bolts to make sure that the weight of the unit can be supported. Adjust the distance to the ceiling beforehand.

⟨⟨When installing the unit on a wall⟩⟩

(1) Check the relative locations of ceiling hole, unit, and hanging bolts.

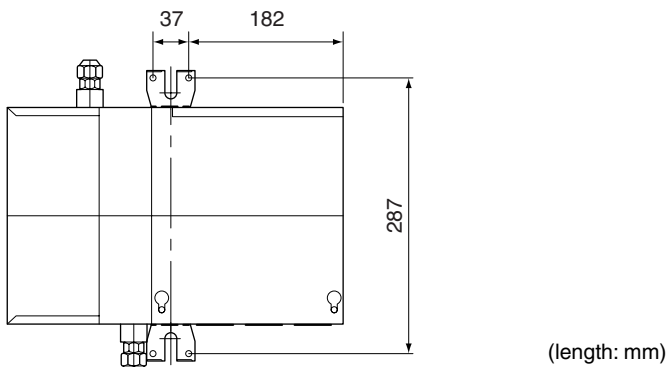


Fig. 5

5. BEV UNIT INSTALLATION

- Use only accessories and parts which are of the designated specification when installing.

⟨⟨When hanging the unit from the ceiling⟩⟩

- (1) Temporarily install the BEV unit.
 - Mount the hanging fittings to hanging bolts. Secure the hanging fittings on the top and the bottom with nuts (M8, field supplied) and washers (M8: Outside diameter size 24 to 28 mm) (field supplied).
- (2) Adjust the height of the main unit with the nut.
- (3) Check that the main unit is installed on the level.
- (4) Tighten the nut on both the top and the bottom to fix securely.

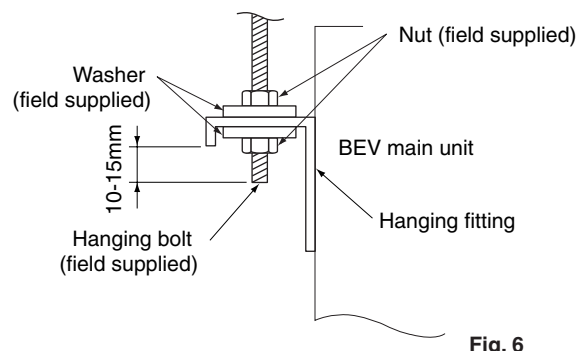


Fig. 6

⟨⟨When installing the unit on a wall⟩⟩

- (1) Mount the hanging fittings with the mounting screws (4 pieces).
- (2) Use M4 screws.

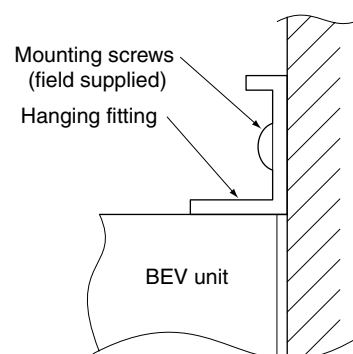


Fig. 7

6. REFRIGERANT PIPING WORK

⟨This shows the piping method between the outdoor unit and the BEV unit and the indoor unit. Select the pipe size and refrigerant branch kit depending on how the piping will be laid.⟩

⟨For refrigerant piping of outdoor units, see the installation manual attached to the outdoor unit.⟩

⟨Execute heat insulation work completely on both sides of the gas piping and the liquid piping. Otherwise, a water leakage can result sometimes.⟩

⟨When using a heat pump, the temperature of the gas piping can reach up to approximately 120°C, so use insulation which is sufficiently resistant.⟩

⟨Improve the insulation on the refrigerant piping depending on the installation environment.⟩

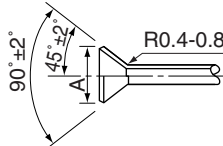
⟨If the insulation is not sufficient, condensation may form on the surface of the insulation.⟩

⟨Before refrigerant piping work, check which type of refrigerant is used. Proper operation is not possible if the types of refrigerant are not the same.⟩

— ⚠ CAUTION —

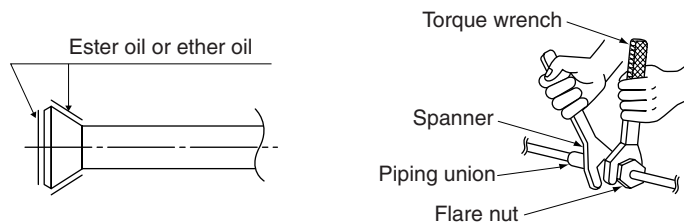
- Use a pipe cutter and flare suitable for the type of refrigerant.
 - Apply ester oil or ether oil around the flare section before connecting.
 - To prevent dust, moisture or other foreign matter from infiltrating the tube, either pinch the end or cover it with tape.
 - Do not allow anything other than the designated refrigerant to get mixed into the refrigerant circuit, such as air, etc. If any refrigerant gas leaks while working on the unit, ventilate the room thoroughly right away.
-
- The outdoor unit is charged with refrigerant.
 - For the refrigerant piping and branching, follow the “**piping connection procedure**”.
 - Be sure to use both a spanner and torque wrench together, as shown in the drawing, when connecting or disconnecting piping to/from the unit.
 - Refer to the Table 1 for the dimensions of flare nut spaces.
 - When connecting the flare nut, coat the flare both inside and outside with ester oil or ether oil and initially tighten by hand 3 or 4 turns before tightening firmly.
 - Refer to the Table 1 to determine the proper tightening torque.

Table 1

Pipe size	Tightening torque	Flare dimension A (mm)	Flare shape
φ 9.5 (3/8")	32.7 – 39.9N · m	12.8 – 13.2	
φ 15.9 (5/8")	61.8 – 75.4N · m	19.3 – 19.7	

NOTE

The flare nuts used must be those included with the main body.

**CAUTION**

Over-tightening may damage the flare and cause a refrigerant leakage.

Not recommendable but in case of emergency

You must use a torque wrench but if you are obliged to install the unit without a torque wrench, you may follow the installation method mentioned below.

When you keep on tightening the flare nut with a spanner, there is a point where the tightening torque suddenly increases. From that position, further tighten the flare nut the angle shown below:

Table 2

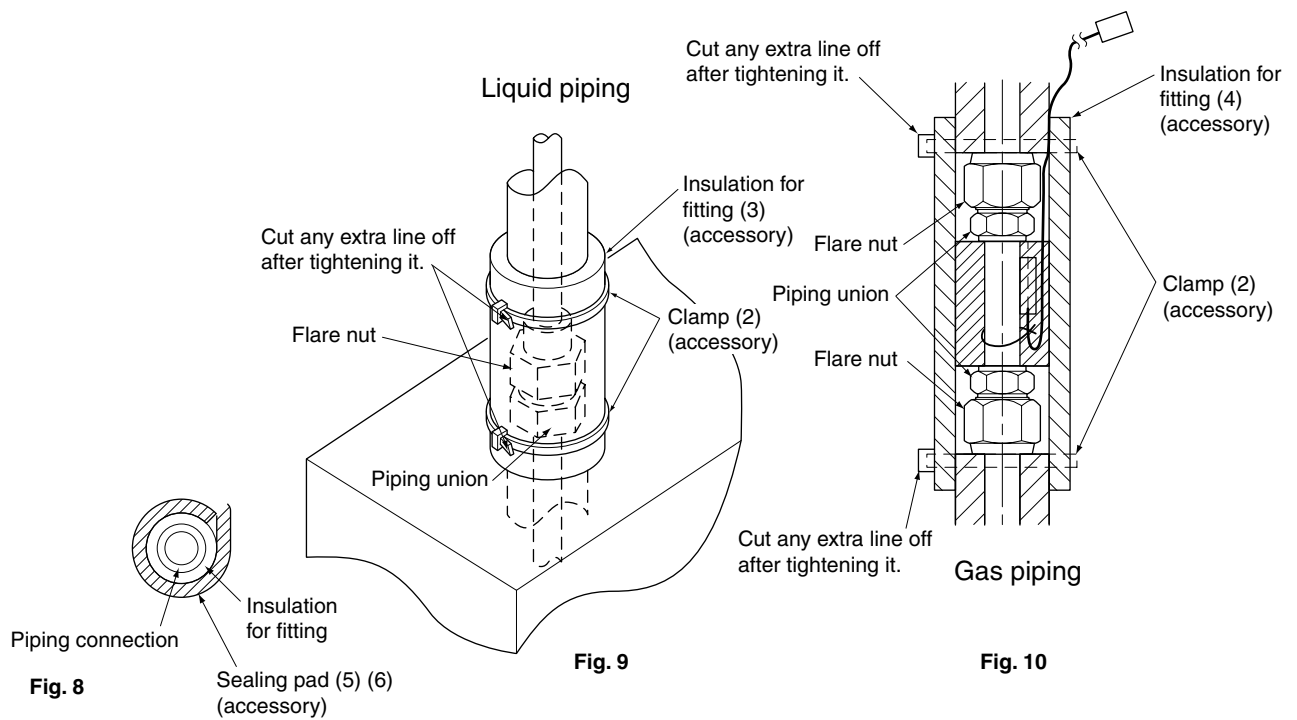
Pipe size	Further tightening angle	Recommended arm length of tool
φ 9.5 (3/8")	60 to 90 degrees	Approx. 200mm
φ 15.9 (5/8")	30 to 60 degrees	Approx. 300mm

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

- Make absolutely sure to execute heat insulation works on the pipe-connecting section after checking gas leakage by thoroughly studying the following figure.
- Wrap the insulation for fitting (3) (4) around the insulation for the joints on the liquid piping side and the gas piping side. **(Refer to Fig. 9, 10)**
- When installing the unit onto the ceiling, make sure that the seam between the insulation for fitting (3) (4) faces up. (Fasten both ends with the clamps (2).) (Fig.9, 10 shows the case of installation on the wall.)
- Wrap the included sealing pad (5) (6) around the insulation for fitting (3) (4). **(Refer to Fig. 8)**

CAUTION

Be sure to insulate any field piping all the way to the piping connection inside the unit. Any exposed piping may cause condensation or burns if touched.



CAUTION

CAUTION TO BE TAKEN WHEN BRAZING REFRIGERANT PIPING

Do not use flux when brazing refrigerant piping. Therefore, use the phosphor copper brazing filler metal (BCuP-2:JIS Z 3264/B-Cu93P-710/795:ISO 3677) which does not require flux.

(Flux has extremely harmful influence on refrigerant piping systems. For instance, if the chlorine based flux is used, it will cause piping corrosion or, in particular, if the flux contains fluorine, it will damage the refrigerant oil.)

- Before brazing local refrigerant piping, nitrogen gas shall be blown through the piping to expel air from the piping. If your brazing is done without nitrogen gas blowing, a large amount of oxide film develops inside the piping, and could cause system malfunction.
- When brazing the refrigerant piping, only begin brazing after having carried out nitrogen substitution or while inserting nitrogen into the refrigerant piping. Once this is done, connect the indoor unit with a flared connection.
- Nitrogen should be set to 0.02 MPa with a pressure-reducing valve if brazing while inserting nitrogen into the piping.

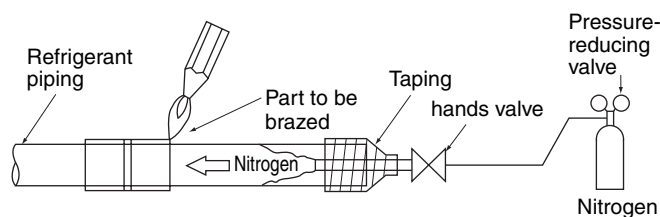


Fig. 11



CAUTION

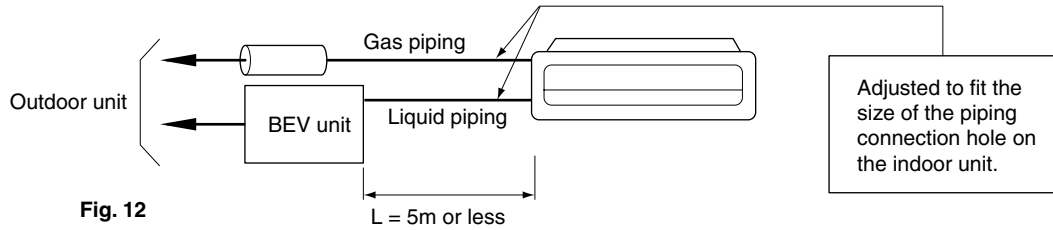
Do not use anti-oxidants when brazing the piping joints. Residue can clog piping and break equipment.

Piping connection procedure

- Make sure the length of the refrigerant piping between the BEV unit and the indoor unit is no more than 5m and that the difference in height is at least 4m.

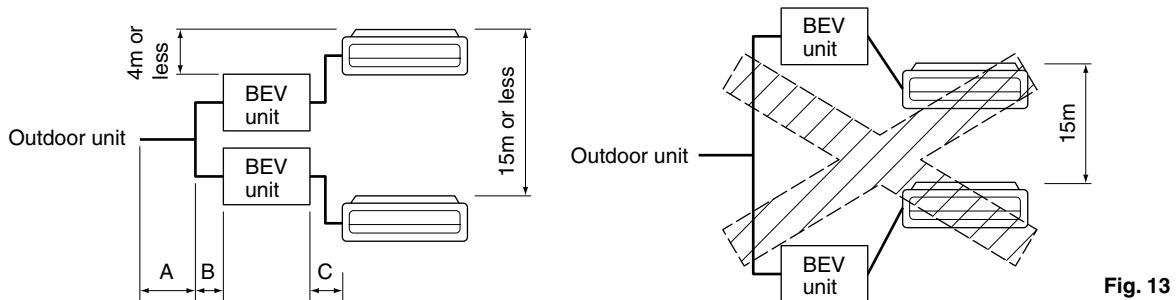
(1) Connection example for the indoor unit

- Only one indoor unit may be connected to each BEV unit.



(2) Height difference between indoor units

- Install the BEV unit in the 15m range of difference in height between the indoor units.
- Make sure the difference in height between the BEV unit and the indoor unit is no more than 4m.



(3) Allowable length after split (actual piping length)

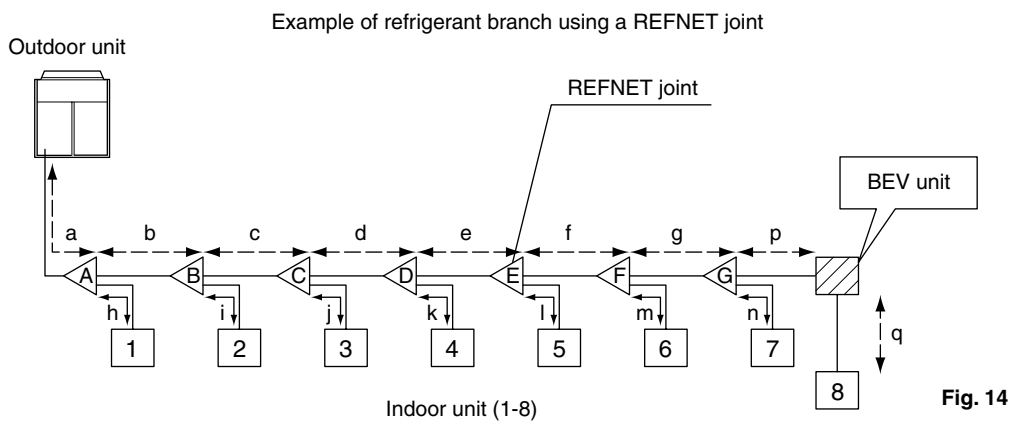
$B+C \leq 35m$ (length from the first branch piping to the indoor unit)

(4) Additional refrigerant amount

When measuring the amount of additional to refrigerant to fill, include the length of the liquid piping between the BEV unit and the indoor unit.

Additional filling amount = $a+b+c+d+e+f+g+h+i+j+k+l+m+n+p+q$

Refer also to the installation manual included with the outdoor unit.



7. ELECTRIC WIRING WORK

7-1 GENERAL INSTRUCTIONS

- All field supplied parts and materials and electric works must conform to local codes.
- Use copper wire only.
- For electric wiring work, refer to also "WIRING DIAGRAM" attached to the control box lid.
- For remote controller wiring details, refer to the installation manual attached to the remote controller.
- All wiring must be performed by an authorized electrician.

- One BEV unit is connected to one indoor unit. Mark each indoor unit and BEV unit as unit A, unit B..., and be sure the terminal block wiring to the outdoor unit and BS unit are properly matched. If wiring and piping between the outdoor unit and an indoor unit and BEV unit are mismatched, the system may cause a malfunction.
- A circuit breaker capable of shutting down power supply to the entire system must be installed.
- Refer to the installation manual attached to the outdoor unit for the size of power supply wiring connected to the outdoor unit, the capacity of the circuit breaker and switch, and wiring instructions.
- Be sure to ground the air conditioner.
- Do not connect the ground wire to gas and water pipes, lightning rods, or telephone ground wires.
 - Gas pipes : might cause explosions or fire if gas leaks.
 - Water pipes : no grounding effect if hard vinyl piping is used.
 - Telephone ground wires or lightning rods : might cause abnormally high electric potential in the ground during lightning storms.

7-2 ELECTRICAL CHARACTERISTICS

Model	Units			Power supply		Fan motor	
	Hz	Volts	Voltage range	MCA	MFA	KW	FLA
FXUQ71M(A)V1+BEVQ71M(A)VE	50	220-240	Max. 264 Min. 198	0.8	15	0.045	0.6
FXUQ100M(A)V1+BEVQ100M(A)VE				1.3	15	0.090	1.0
FXUQ125M(A)V1+BEVQ125M(A)VE							

MCA: Min. Circuit Amps (A);

MFA: Max. Fuse Amps (A)


KW: Fan Motor Rated Output (kW);

FLA: Full Load Amps (A)

NOTES

- The above Table of Electrical Characteristics refers to the BEV unit only.
- See the technical documents for other details.

7-3 SPECIFICATIONS FOR FIELD SUPPLIED FUSES AND WIRE

Model	Power supply wiring			Transmission wiring	
	Field fuse 	Wire	Size	Wire	Size
BEVQ71 · 100 · 125M(A)VE	15A	H05VV-U3G	Size must comply with local codes.	Vinyl cord with sheath or cable (2 wire) (NOTE 2)	0.75 - 1.25 mm ²

NOTES

1. Select the particular size of electrical wire for power line in accordance with the standards of the given nation and region.
2. Allowable length of the transmission wiring should be as follows.

Between outdoor unit and BEV unit:	Max. 1000 m (Total wiring length: 2000 m)
Between BEV unit and indoor unit:	Max. 500 m
Max. branches No. of branches:	16
3. Insulated thickness: 1mm or more
4. Up to 16 branches are possible for unit-to unit cabling. No branch is allowed after first branch.

(Refer to Fig. 15)

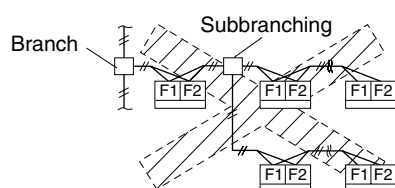


Fig. 15

8. WIRING EXAMPLE AND HOW TO SET THE REMOTE CONTROLLER

8-1 HOW TO CONNECT WIRINGS

- Connect the piping only after finishing the refrigerant piping work.
- Make sure all power supply is shut down to the unit first.
- As shown in the Fig. 16, loosen the two screws in the control box lid, remove it, and do the wiring work.
- Once all wiring is done, attach the control box lid and secure it with the screws.
If you are using “8-4 DEFAULT SETTINGS,” however, finish that and then attach the control box lid and secure it with the screws.

8-2 THE GAS PIPING THERMISTOR

- Connect to (X5A) on A1P.
- Bundle the gas piping thermistor lead wire and the branch wiring (transmission) using the included clamping material.
- Tension is not added to the gas pipe thermistor lead wire coming out of the unit.

• Power supply wiring • Ground wire

Connect the wiring to R (L) and S (N) on the power supply terminal block (X1M). Also, connect the ground wire to the ground terminal. Take the wiring and the ground wire into the unit through the wiring pass-through hole, and firmly secure them together using the included clamp (1).

• Indoor unit inter-unit wiring

Connect the wires to 1, 2, and 3 on the power supply terminal block (X1M). Take the wires into the unit through the wiring pass-through hole, and firmly secure them using the included clamp (1).

• Transmission wiring

Connect the wires to F1 and F2 on the transmission terminal block (X2M). Take them into the unit through the wiring pass-through hole, and firmly secure the gas piping thermistor lead wire and the transmission wiring using the included clamp (1).

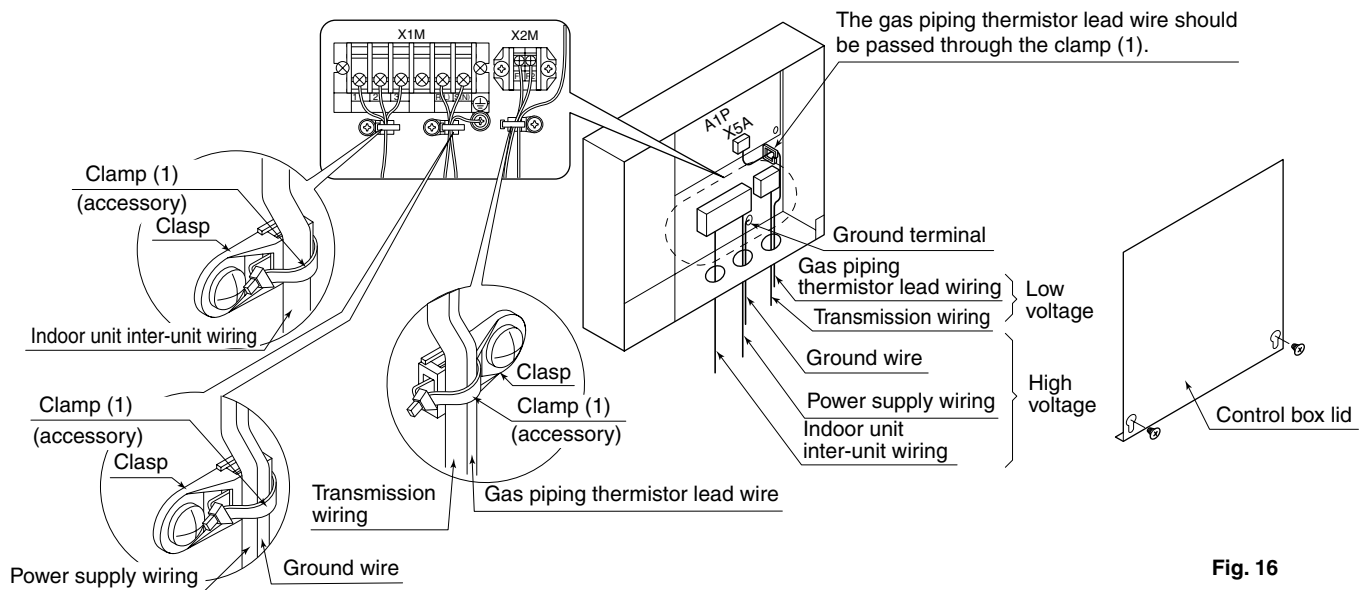


Fig. 16

[CAUTIONS]

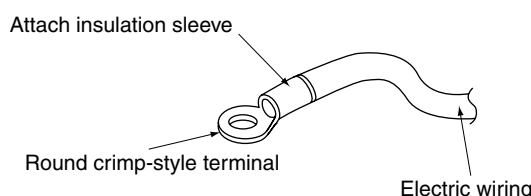
- Do not under any circumstances connect the power supply wiring to the transmission terminal block (F1, F2), as this may cause damage to the entire system.

⚠ CAUTION

- When clamping wiring, use the included clamping material to prevent outside pressure being exerted on the wiring connections and clamp firmly. When doing the wiring, make sure the wiring is neat and does not cause the control box lid to stick up, then close the cover firmly.
- When attaching the control box lid, make sure you do not pinch any wires.
- After all the wiring connections are done, fill in any gaps in the through holes with putty or insulation (procured locally) to prevent small animals and insects from entering the unit from outside. (If any do get in, they could cause short circuits in the control box.)
- Outside the machine, separate the weak wiring (gas piping thermistor lead wire, transmission wiring) and strong wiring (power supply wiring, inter-unit wiring, ground wire, and other power wiring) at least 50mm so that they do not pass through the same place together. Proximity may cause electrical interference, malfunctions, and breakage.

[PRECAUTIONS]

1. Use round crimp-style terminals for connecting wiring to the power supply terminal block. If unavailable, observe the following points when wiring.
 - Do not connect wiring of different gauge to the same power supply terminal. (Looseness in the connection may cause overheating.)
 - Use the specified electric wiring. Connect the wiring securely to the terminal. Lock the wiring down without applying excessive force to the terminal. (Tightening torque: 131N·cm ±10 %)



2. Tightening torque for the terminal screws.

- Use the correct screwdriver for tightening the terminal screws. If the blade of screwdriver is too small, the head of the screw might be damaged, and the screw will not be properly tightened.
- If the terminal screws are tightened too hard, screws might be damaged.
- Refer to the table below for the tightening torque of the terminal screws.

Terminal	Size	Tightening torque
Transmission terminal block (2P)	M3.5	0.79 – 0.97N·m
Power supply and inter-unit wiring terminal block (6P)	M4	1.18 – 1.44N·m
Ground terminal	M4	1.44 – 1.94N·m

3. Do not connect wiring of different gauge to the same grounding terminal. Looseness in the connection may deteriorate protection.
4. Outside of the unit, keep the weak wiring (gas piping thermistor lead wire, transmission wiring) at least 50 mm away from strong wiring (power supply wiring, inter-unit wiring, ground wire, and other power wiring). The equipment may malfunction if subjected to electrical (external) noise.
5. For remote controller wiring, refer to the “INSTALLATION MANUAL OF REMOTE CONTROLLER” attached to the remote controller.
6. **Never connect power supply wiring to the terminal block for remote controller wiring. A mistake of the sort could damage the entire system.**
7. Use only specified wiring and tightly connect wiring to terminals. Be careful wiring do not place external stress on terminals. Keep wiring in neat order and so as not to obstruct other unit such as popping open the control box lid. Make sure the lid closes tight. Incomplete connections could result in overheating, and in worse case, electric shock or fire.

8-3 WIRING EXAMPLE

- Fit the power supply wiring of each unit with a switch and fuse as shown in the drawing.

COMPLETE SYSTEM EXAMPLE (3 systems)

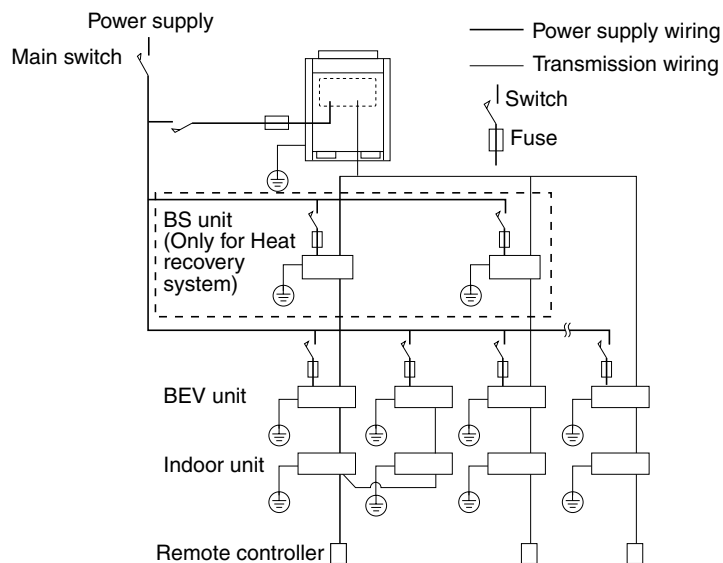


Fig. 17

1. When using 1 remote controller for 1 indoor unit. (Normal operation)

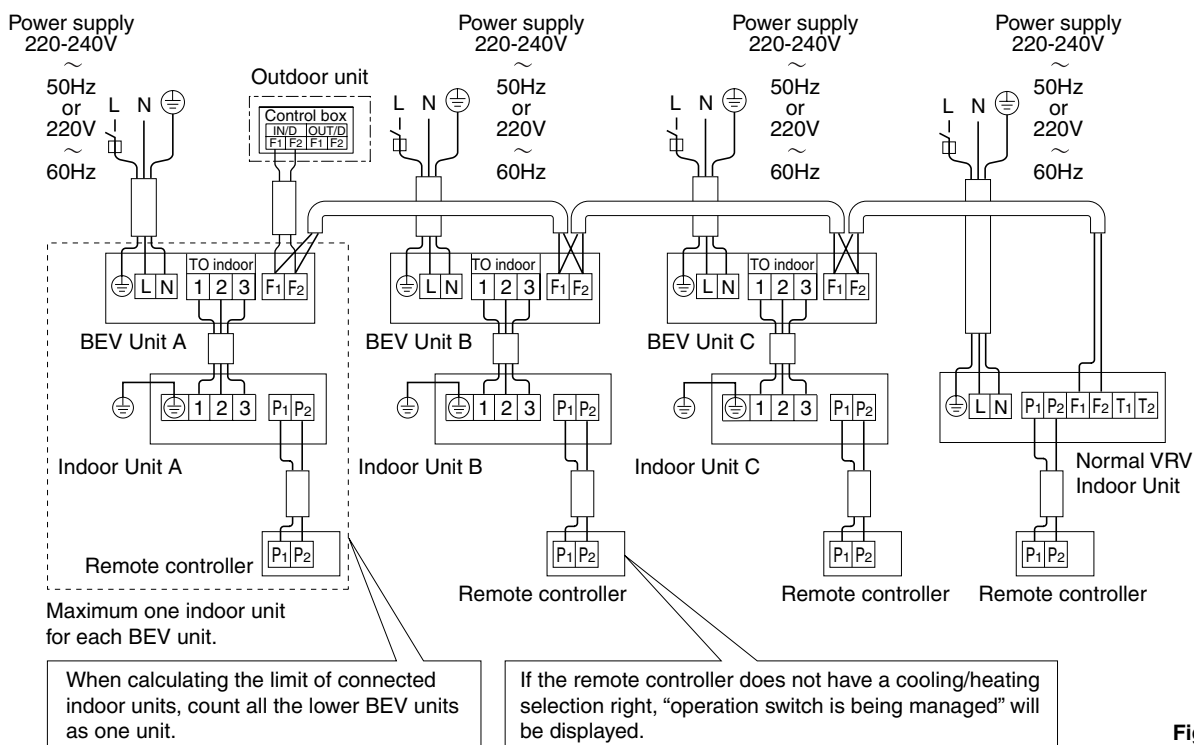


Fig. 18

<Caution>

Group control is not possible between ceiling suspended cassette type units and normal VRV indoor units.

2. For group control or use with 2 remote controllers

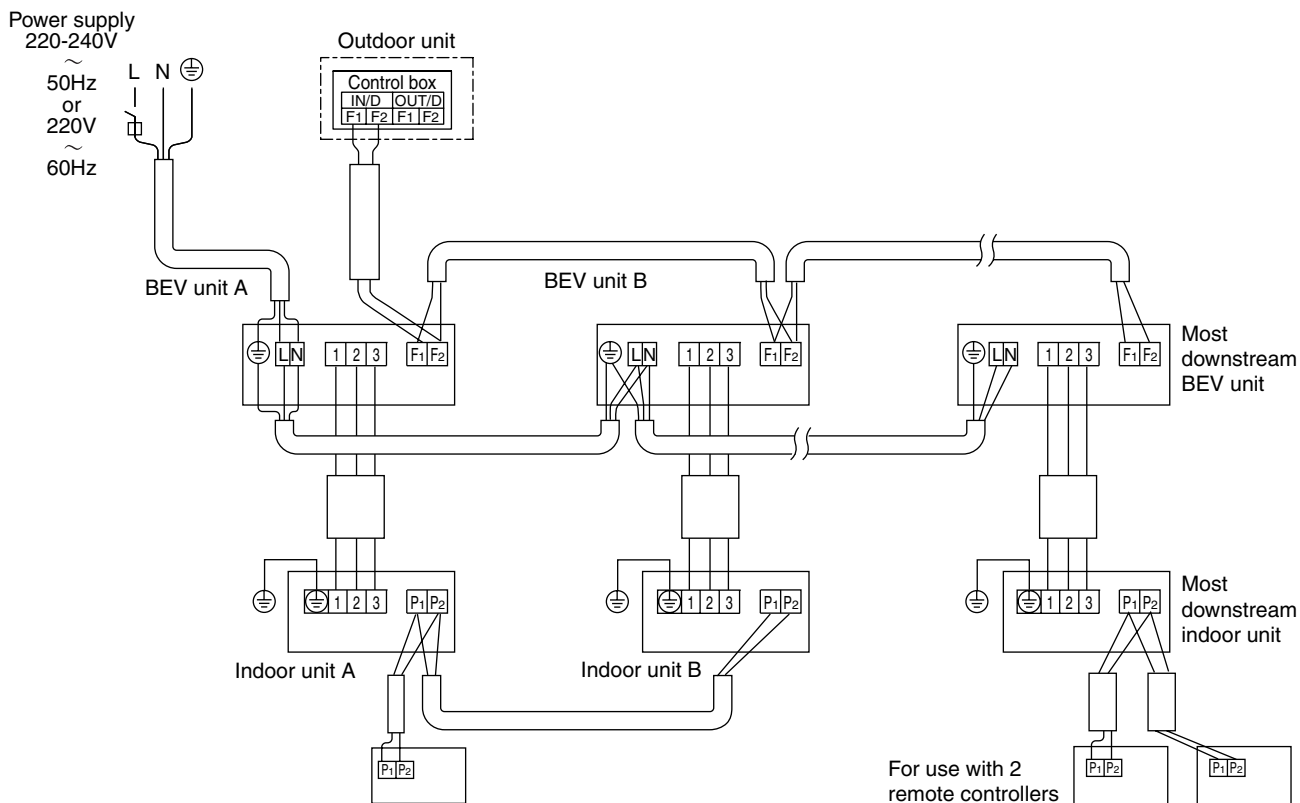


Fig. 19

3. When including BS unit

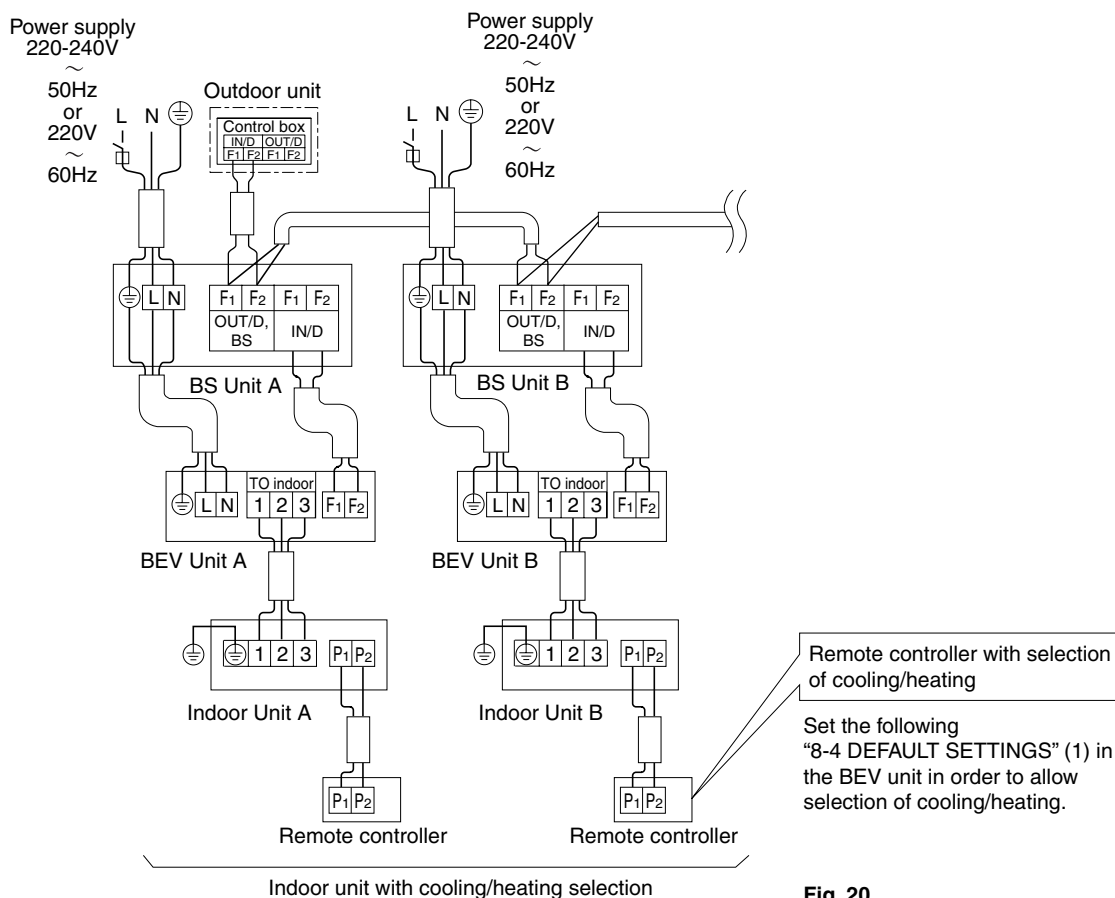


Fig. 20

8-4 DEFAULT SETTINGS

1. Once piping work is completed, conduct the following settings as needed.

- (1) When connecting the BEV unit to the BS unit in the heating/cooling free system, turn the SS1 on the A1P to M (Main) for only one of the BEV units connected to the remote controller on which heating/cooling switching is made possible.

(Refer to Fig. 21)

- (2) For BEV unit-only systems

The Cool/Heat SELECTOR is needed.

Refer to the installation manual included with the Cool/Heat SELECTOR for details on how to set it.

2. Once all piping work is done, screw the control box lid shut using the mounting screws.

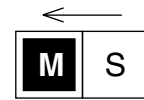


Fig. 21

9. HOW TO ATTACH THE NAMEPLATE

Attach the included nameplate (9) next to the machine nameplate on the indoor unit.

10. TEST OPERATION

Make sure the control box lids are closed on the indoor and BEV and outdoor units.

Refer to the installation manual of the outdoor unit.

- The operation lamp of the remote controller will flash when a malfunction occurs. Check the malfunction code on the liquid crystal display to identify the point of trouble. An explanation of malfunction codes and the corresponding trouble is provided in “CAUTION FOR SERVICING” of the outdoor unit.

