
VRV SYSTEM Inverter Air Conditioners

MODELS**BEV unit****BEVQ71MVE****BEVQ100MVE****BEVQ125MVE**

English

Deutsch

Français

Español

Italiano

Ελληνικά

Nederlands

Portugues

Russian

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.

DAIKIN INDUSTRIES, LTD.

declares under its sole responsibility that the air conditioning models to which this declaration relates:
erklärt auf seine alleinige Verantwortung daß die Modelle der Klimageräte für die diese Erklärung bestimmt ist:
déclare sous sa seule responsabilité que les appareils d'air conditionné visés par la présente déclaration:

verklaart hierbij op eigen exclusieve verantwoordelijkheid dat de airconditioning units waarop deze verklaring betrekking heeft:
declara baja su única responsabilidad que los modelos de aire acondicionado a los cuales hace referencia la declaración:
dichiara sotto sua responsabilità che i condizionatori modello a cui è riferita questa dichiarazione:

δηλώνει με αποκλειστική της ευθύνη ότι τα μοντέλα των κλιματιστικών συσκευών στα οποία αναφέρεται η παρούσα δήλωση:
declara sob sua exclusiva responsabilidade que os modelos de ar condicionado a que esta declaração se refere:
erklærer under eiansvar, at klimaanlægmodellerne, som denne deklaration vedrører:

deklarerar i egenskap av huvudansvarig, att luftkonditioneringsmodellerna som berörs av denna deklaration innebär att:
erklærer et fullstendig ansvar for at de luftkonditioneringsmodeller som berøres av denne deklarasjon innebærer at:
ilmoittaa yksinomaan omalla vastuullaan, että tämän ilmoituksen tarkoitamat ilmastointilaitteiden mallit:

FXZQ20MVE, FXZQ25MVE, FXZQ32MVE, FXZQ40MVE, FXZQ50MVE
FXCQ20MVE, FXCQ25MVE, FXCQ32MVE, FXCQ40MVE, FXCQ50MVE, FXCQ63MVE, FXCQ80MVE, FXCQ125MVE
FXMQ40MVE, FXMQ50MVE, FXMQ63MVE, FXMQ80MVE, FXMQ100MVE, FXMQ125MVE, FXMQ200MVE, FXMQ250MVE
FXLQ20MVE, FXLQ25MVE, FXLQ32MVE, FXLQ40MVE, FXLQ50MVE, FXLQ63MVE
FXNQ20MVE, FXNQ25MVE, FXNQ32MVE, FXNQ40MVE, FXNQ50MVE, FXNQ63MVE
FXHQ32MVE, FXHQ63MVE, FXHQ100MVE
FXSQ20MVE, FXSQ25MVE, FXSQ32MVE, FXSQ40MVE, FXSQ50MVE, FXSQ63MVE, FXSQ80MVE, FXSQ100MVE, FXSQ125MVE
FXXQ25MVE, FXXQ32MVE, FXXQ40MVE, FXXQ63MVE
FXAQ20MVE, FXAQ25MVE, FXAQ32MVE, FXAQ40MVE, FXAQ50MVE, FXAQ63MVE
FXUQ71MV1, FXUQ100MV1, FXUQ125MV1
BEVQ71MVE, BEVQ100MVE, BEVQ125MVE

are in conformity with the following standard(s) or other normative document(s), provided that these are used in accordance with our instructions:
der/den folgenden Norm(en) oder einem anderen Normdokument oder -dokumenten entspricht/entsprechen, unter der Voraussetzung, daß sie gemäß unseren Anweisungen eingesetzt werden:
sont conformes à la/aux norme(s) ou autre(s) document(s) normatif(s), pour autant qu'ils soient utilisés conformément à nos instructions:

conform de volgende norm(en) of één of meer andere bindende documenten zijn, op voorwaarde dat ze worden gebruikt overeenkomstig onze instructies:
están en conformidad con la(s) siguiente(s) norma(s) u otro(s) documento(s) normativo(s), siempre que sean utilizados de acuerdo con nuestras instrucciones:
sono conformi al(i) seguente(i) standard(s) o altro(i) documento(i) a carattere normativo, a patto che vengano usati in conformità alle nostre istruzioni:

είναι σύμφωνα με το(α) ακόλουθο(α) πρότυπο(α) ή άλλο έγγραφο(α) κανονισμών, υπό την προϋπόθεση ότι χρησιμοποιούνται σύμφωνα με τις οδηγίες μας:
estão em conformidade com a(s) seguinte(s) norma(s) ou outro(s) documento(s) normativo(s), desde que estes sejam utilizados de acordo com as nossas instruções:
overholder følgende standard(er) eller andet/andre retningsgivende dokument(er), forudsat at disse anvendes i henhold til vore instrukser:

respektive utrustning är utförd i överensstämmelse med och följer följande standard(er) eller andra normgivande dokument, under förutsättning att användning sker i överensstämmelse med våra instruktioner:
respektive utstyr er i overensstemmelse med følgende standard(er) eller andre normgivende dokument(er), under forutsetning av at disse brukes i henhold til våre instrukser:
vastaavat seuraavien standardien ja muiden ohjeellisten dokumenttien vaatimuksia edellyttäen, että niitä käytetään ohjeidemme mukaisesti:

EN60335-2-40,

following the provisions of:
gemäß den Vorschriften der:
conformément aux stipulations des:

overeenkomstig de bepalingen van:
siguiendo las disposiciones de:
secondo le prescrizioni per:

με τήρηση των διατάξεων των:
de acordo com o previsto em:
under iagttagelse af bestemmelserne i:

enligt villkoren i:
gitt i henhold til bestemmelsene i:
noudattaen määräyksiä:

Low Voltage 73/23/EEC
Machinery Safety 98/37/EC
Electromagnetic Compatibility 89/336/EEC*

Directives, as amended.
Direktiven, gemäß Änderung.
Directives, telles que modifiées.

Richtlijnen, zoals geamendeerd.
Directivas, según lo enmendado.
Direttive, come da modifica.

Οδηγιών, όπως έχουν τροποποιηθεί.
Directivas, conforme alteração em.
Direktiver, med senere ændringer.

Direktiv, med företagna ändringar.
Direktiver, med foretatte endringer.
Direktiivejä, sellaisina kuin ne ovat muutettuina.

*Note as set out in the Technical Construction File **DAIKIN.TCF.022** and judged positively by **TNO** according to the **Certificate 0305020101**.
Hinweis wie in der Technischen Konstruktionsakte **DAIKIN.TCF.022** aufgeführt und von **TNO** positiv ausgezeichnet gemäß **Zertifikat 0305020101**.
Remarque tel que stipulé dans le Fichier de Construction Technique **DAIKIN.TCF.022** et jugé positivement par **TNO** conformément au **Certificat 0305020101**.

Bemerk zoals vermeld in het Technisch Constructiedossier **DAIKIN.TCF.022** en in orde bevonden door **TNO** overeenkomstig **Certificaat 0305020101**.
Nota tal como se expone en el Archivo de Construcción Técnica **DAIKIN.TCF.022** y juzgado positivamente por **TNO** según el **Certificado 0305020101**.
Nota delineato nel File Tecnico di Costruzione **DAIKIN.TCF.022** e giudicato positivamente da **TNO** secondo il **Certificato 0305020101**.

Σημείωση όπως προσδιορίζεται στο Αρχείο Τεχνικής Κατασκευής **DAIKIN.TCF.022** και κρίνεται θετικά από το **TNO** σύμφωνα με το **Πιστοποιητικό 0305020101**.
Nota tal como estabelecido no Ficheiro Técnico de Construção **DAIKIN.TCF.022** e com o parecer positivo de **TNO** de acordo com o **Certificado 0305020101**.
Bemærk som anført i den Tekniske Konstruktionsfil **DAIKIN.TCF.022** og positivt vurderet af **TNO** i henhold til **Certifikat 0305020101**.

Information utrustningen är utförd i enlighet med den Tekniska Konstruktionsfilen **DAIKIN.TCF.022** som positivt intygas av **TNO** vilket också framgår av **Certifikat 0305020101**.
Merk som det fremkommer i den Tekniske Konstruktionsfilen **DAIKIN.TCF.022** og gjennom positiv bedømmelse av **TNO** ifølge **Sertifikat 0305020101**.
Huom jotka on esitetty Teknisessä Asiakirjassa **DAIKIN.TCF.022** ja jotka **TNO** on hyväksynyt **Sertifikaatin 0305020101** mukaisesti.

DAIKIN



Yoshiaki Hirata
Manager Quality Control Department
Sakai, 1st of May 2004

DAIKIN INDUSTRIES, LTD.

Umeda Center Bldg., 4-12, Nakazaki-Nishi 2-chome,
Kita-ku, Osaka, 530-8323 Japan

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1. SAFETY CONSIDERATIONS


Please read these “SAFETY CONSIDERATIONS” carefully before installing air conditioning unit and be sure to install it correctly. 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.


Also, inform customers that they should store this installation manual along with the operation manual for future reference. This air conditioner comes under the term “appliances not accessible to the general public”.

Safety Precaution

This unit 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 symbols.

 **WARNING**Failure to observe a warning may result in death.

 **CAUTION**Failure to observe a caution may result in injury or damage to the unit.

WARNING

- Ask your dealer or qualified personnel to carry out installation work. Do not try to install the machine yourself. Improper installation may result in water leakage, electric shocks or fire.
- Perform installation work in accordance with 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 water leakage, electric shocks, fire or the unit falling.
- 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 unit falling and causing injuries.
- Carry out the specified installation work after taking into account strong winds, typhoons or earthquakes. Improper 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.

- Make sure that all wiring is secured, the specified wires are used, and no external forces act on the terminal connections or wires.
Improper connections or installation may result in 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 the 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 the installation work, check that the refrigerant gas does not leak.
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.
- Before touching electrical parts, turn off the unit.
- Do not directly touch the refrigerant leaked from refrigerant piping connections.
Frostbite may be caused.

⚠ 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.
- 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 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.)
- Remote controller (wireless kit) transmitting distance can result shorter than expected in rooms with electronic fluorescent lamps. (inverter or rapid start types)
Install the indoor unit as far away from fluorescent lamps as possible.
- Do not install the air conditioner in the following locations:
 - (a) where a mineral oil mist or an oil spray or vapor is produced, for example in a kitchen
Plastic parts may deteriorate and fall off or result in water leakage.
 - (b) where corrosive gas, such as sulfurous acid gas, is produced
Corroding copper pipes or soldered parts may result in refrigerant leakage.
 - (c) near machinery emitting electromagnetic waves
Electromagnetic waves may disturb the operation of the control system and result in a malfunction of the unit.
 - (d) where flammable gas may leak, where there are carbon fiber or ignitable dust suspensions in the air, or where volatile flammables such as thinner or gasoline are handled.
Operating the unit in such conditions may result in fire.

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

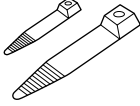
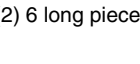
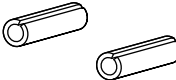
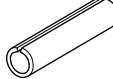

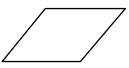
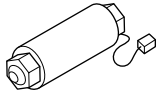
- See the included installation manuals on the VRV outdoor unit and the ceiling suspended cassette type indoor unit for details.
- For the indoor unit connected to the BEV unit, cooling/heating cannot be switched over with the remote controller.
- When the cooling/heating free system is connected to 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.

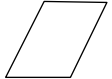

2-1 PRECAUTIONS

- 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 CONBINATION

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

BEV unit	BEVQ71MVE	BEVQ100MVE	BEVQ125MVE
Indoor unit	FXUQ71MV1	FXUQ100MV1	FXUQ125MV1

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.

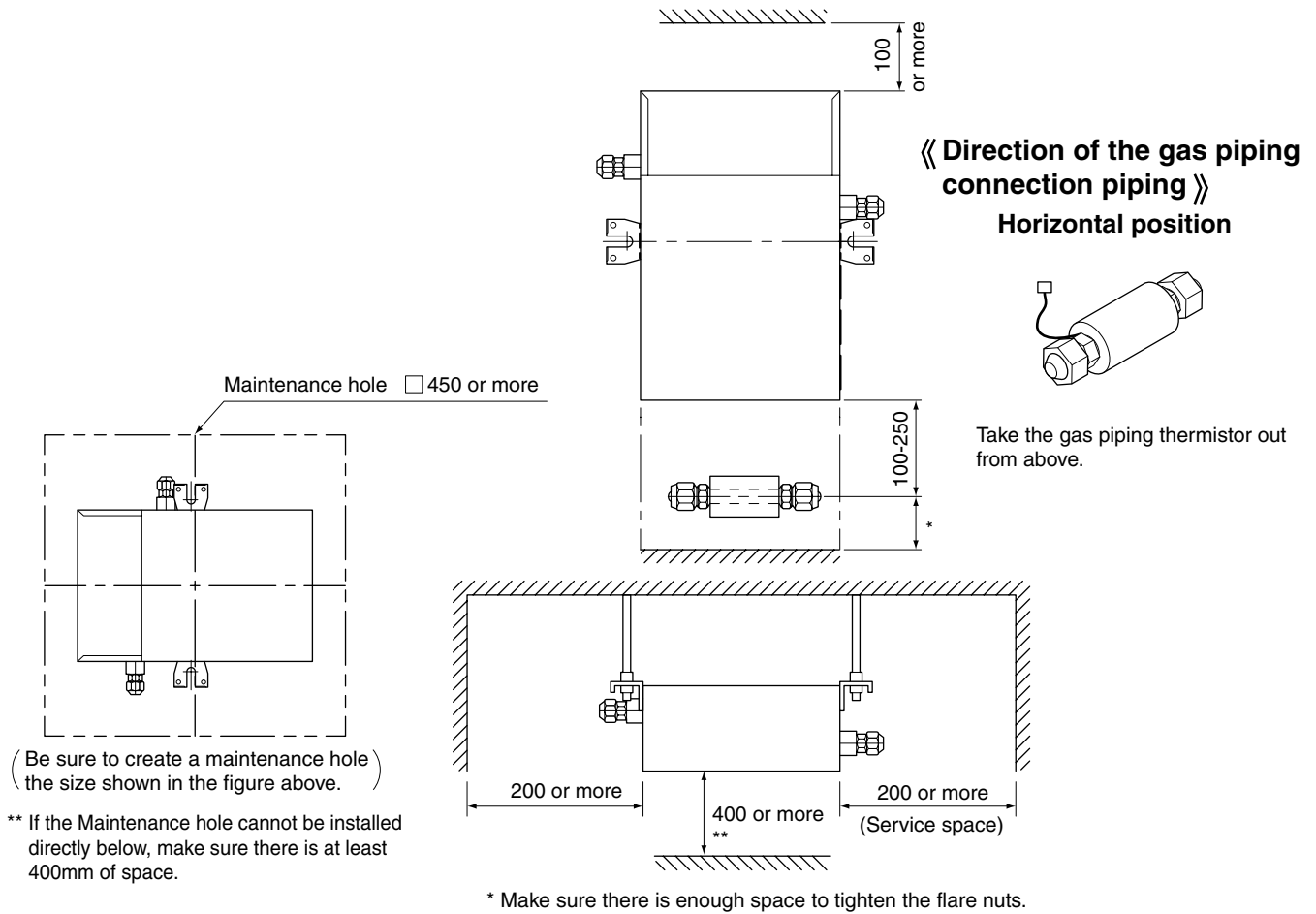


Fig. 1
(length: mm)

《 When installing the unit on a wall 》

Make sure the wiring outtake is facing down, and no other direction.

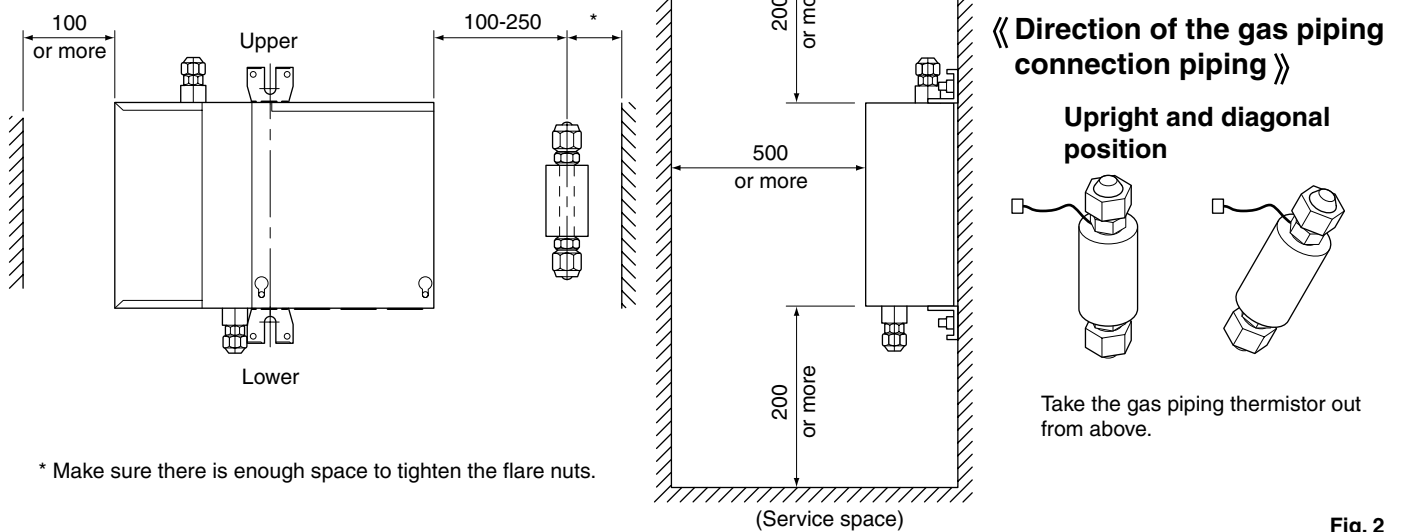


Fig. 2
(length: mm)

4. PREPARATIONS BEFORE INSTALLATION

《 When hanging the unit from the ceiling 》

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

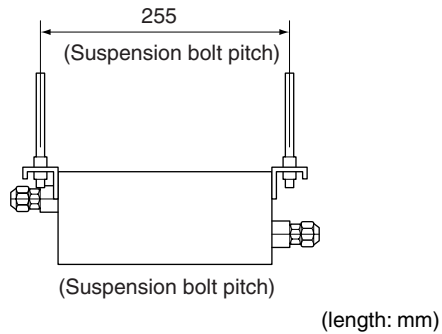


Fig. 3

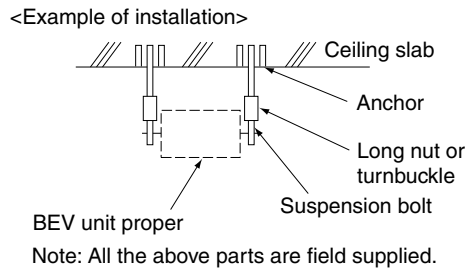


Fig. 4

(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.

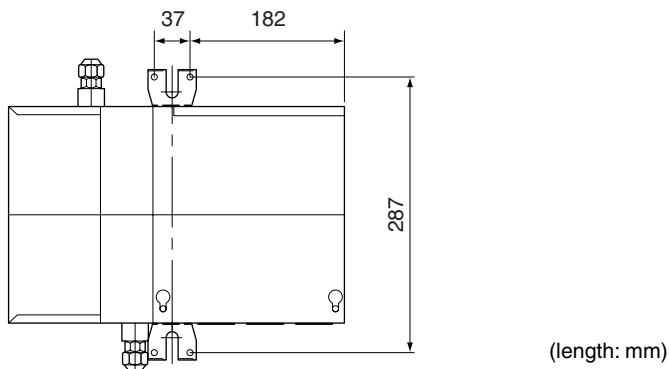


Fig. 5

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.

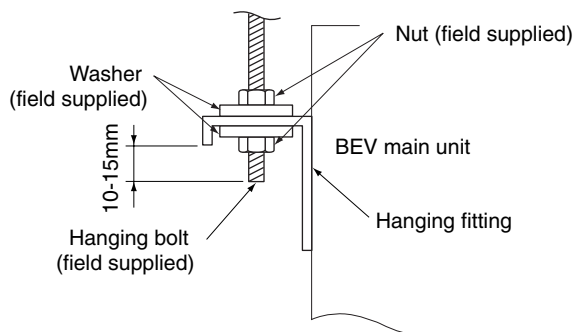


Fig. 6

《 When installing the unit on a wall 》

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

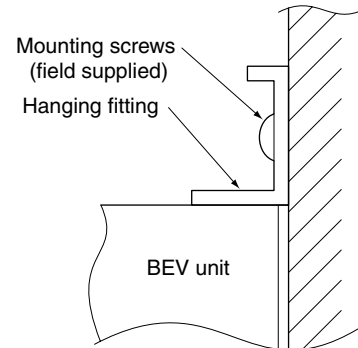


Fig. 7

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.》

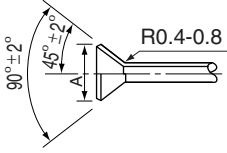
⚠ CAUTION

- 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.

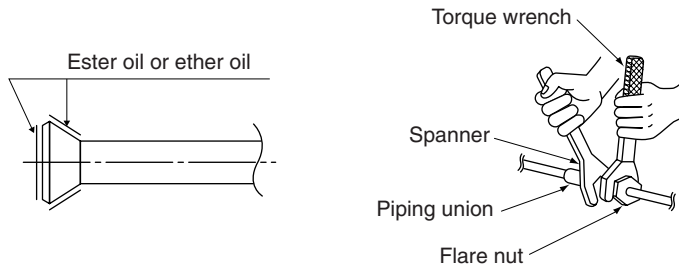
- When connecting the flare nut, coat the flare both inside and outside with ester oil or ether oil and initially tighten by hand 3 or 4 turns before tightening firmly.
- Refer to the Table 1 to determine the proper tightening torque.

Table 1

Pipe size	Tightening torque	Flare dimension A (mm)	Flare shape
φ 9.5 (3/8")	32.7 – 39.9N·m (333 – 407 kgf·cm)	12.8 – 13.2	
φ 15.9 (5/8")	61.8 – 75.4N·m (630 – 770 kgf·cm)	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

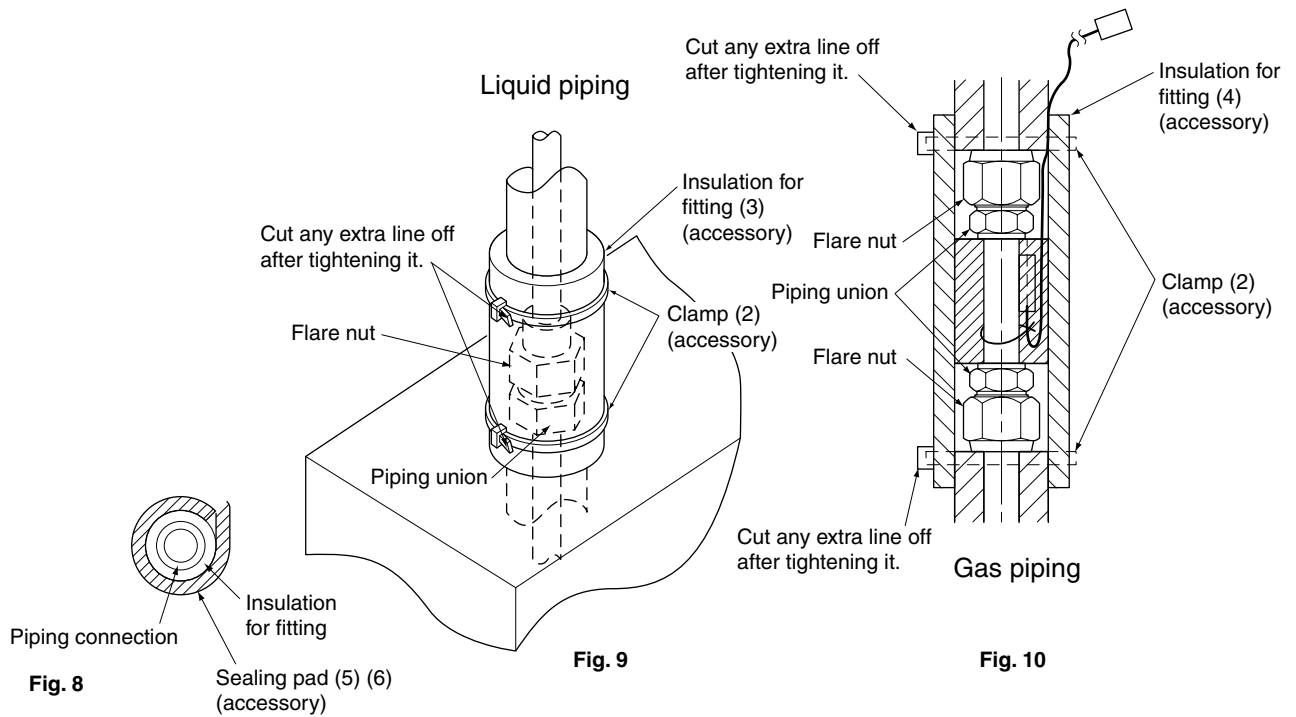
Pipe size	Further tightening angle	Recommended arm length of tool
φ 9.5 (3/8")	60 to 90 degrees	Approx. 200mm
φ 15.9 (5/8")	30 to 60 degrees	Approx. 300mm

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.

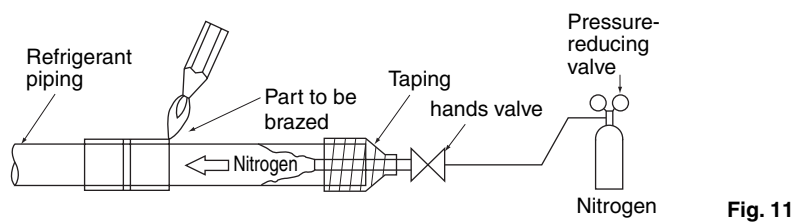


CAUTION

CAUTION TO BE TAKEN WHEN BRAZING REFRIGERANT PIPING

Do not use flux when brazing refrigerant piping. Therefore, use the phosphor copper brazing filter metal (BCuP) 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 (0.2 kg/cm²) with a pressure-reducing valve if brazing while inserting nitrogen into the piping.



CAUTION

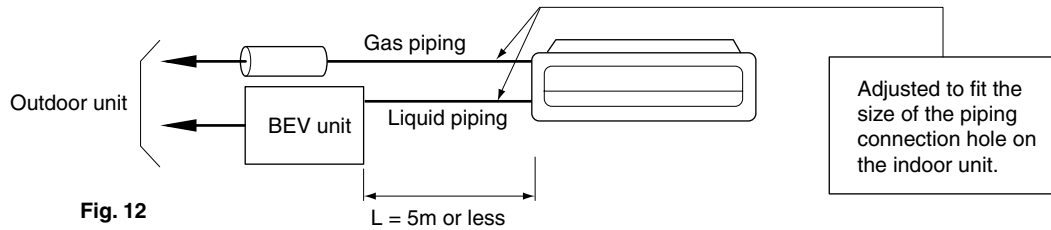
Do not use anti-oxidants when brazing the piping joints. Residue can clog piping and break equipment.

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.

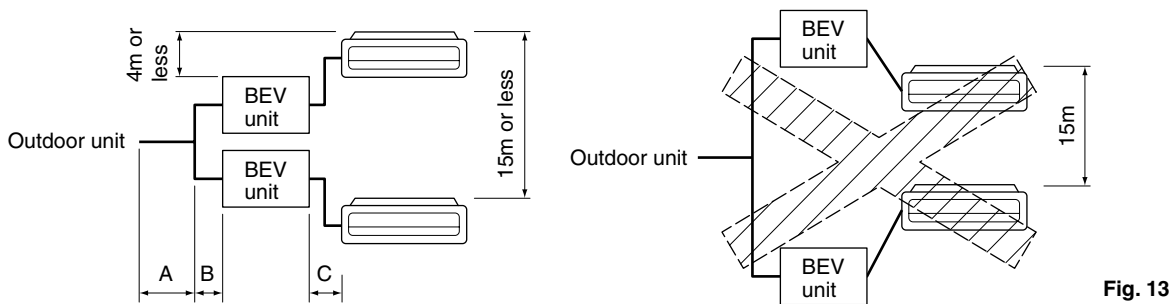
(1) Connection example for the indoor unit

- 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)

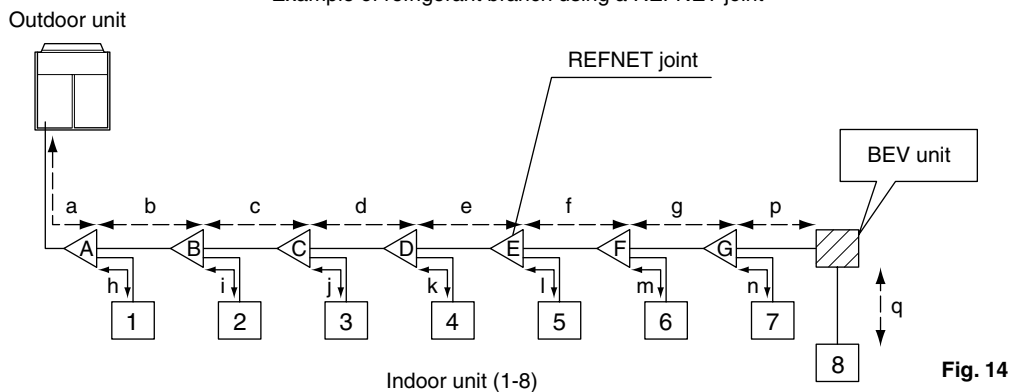
(4) Additional refrigerant amount

When measuring the amount of additional 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.

Example of refrigerant branch using a REFNET joint



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
FXUQ71MV1+BEVQ71MVE	50	220-240	Max. 264 Min. 198	0.8	15	0.045	0.6
FXUQ100MV1+BEVQ100MVE				1.3	15	0.090	1.0
FXUQ125MV1+BEVQ125MVE							

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
BEVQ71-100-125MVE	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)

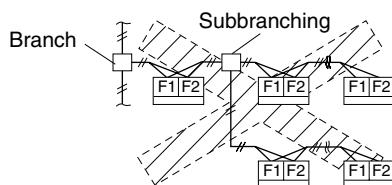


Fig. 15

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).

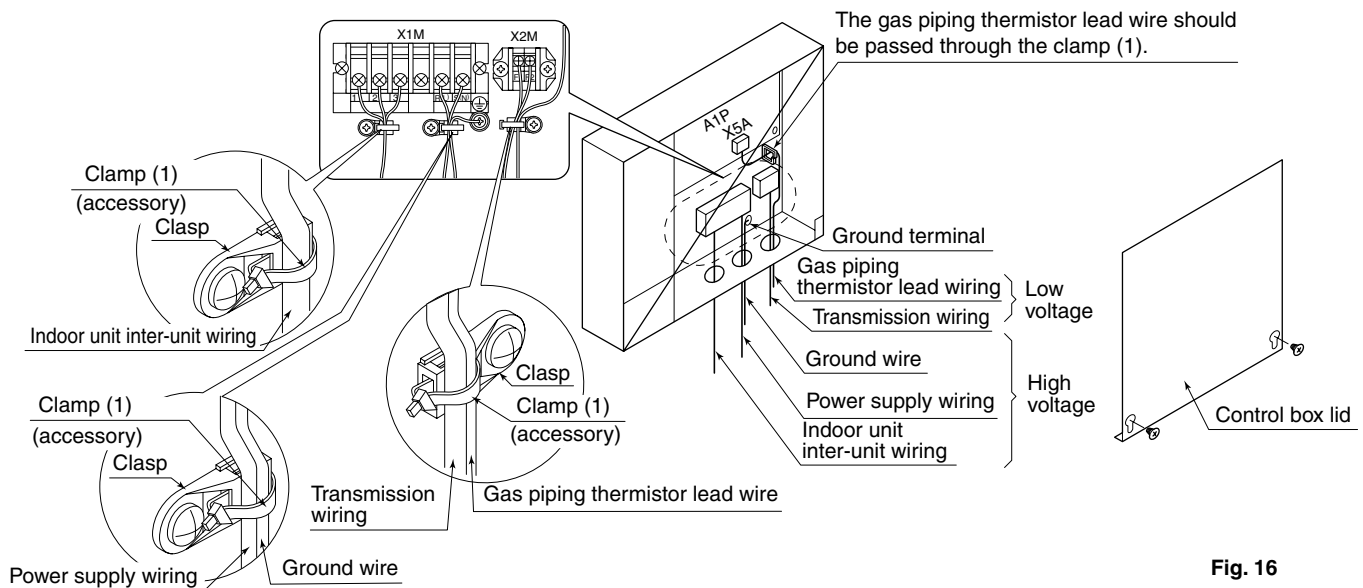


Fig. 16

[CAUTIONS]

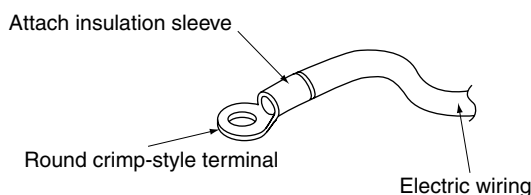
- Do not under any circumstances connect the power supply wiring to the transmission terminal block (F1, F2), as this may cause damage to the entire system.

⚠ 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)

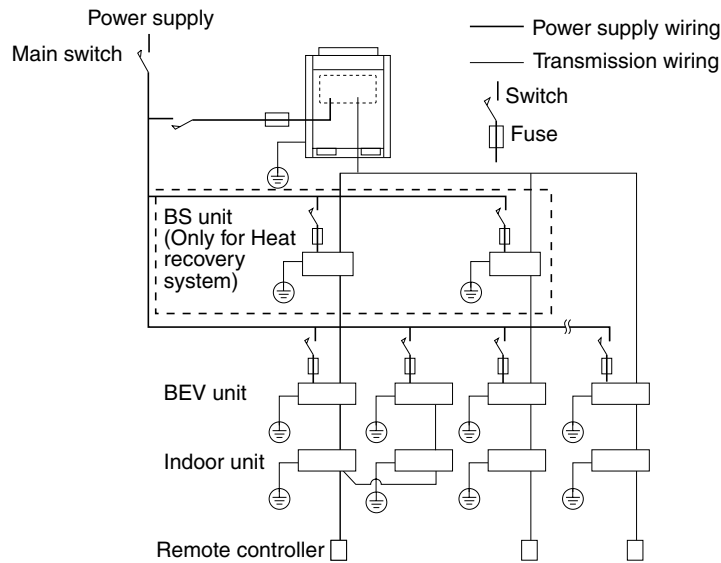


Fig. 17

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

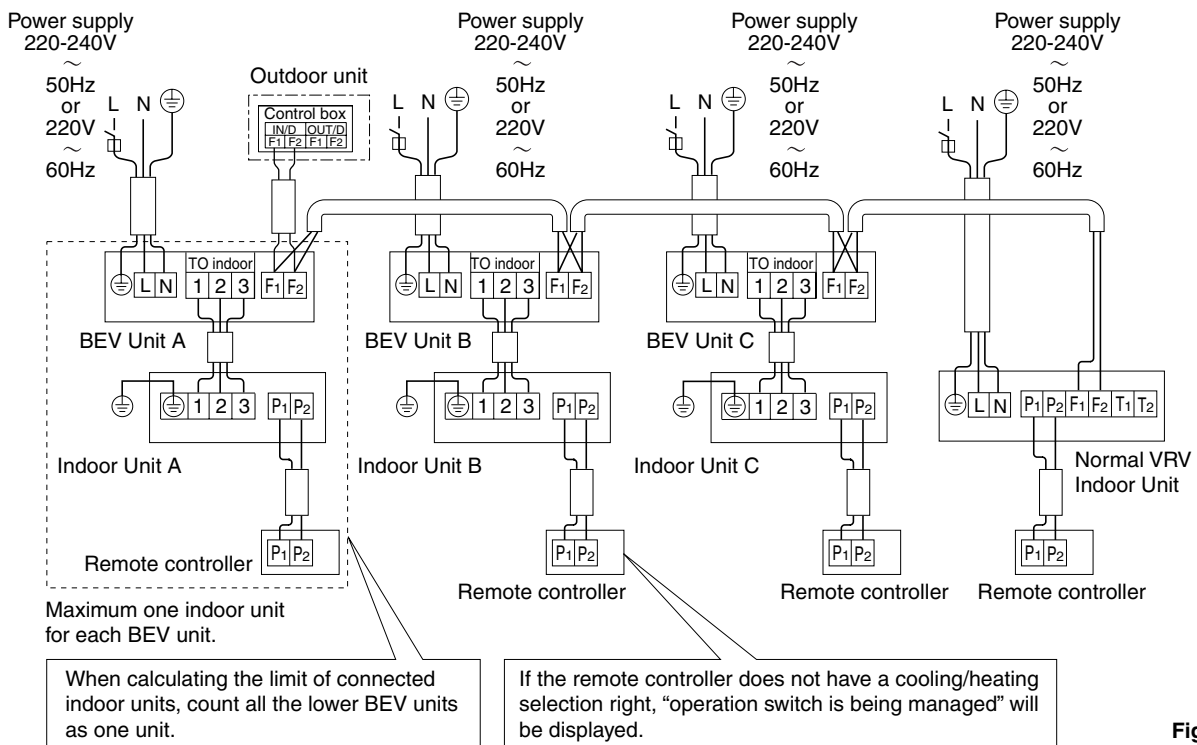


Fig. 18

<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

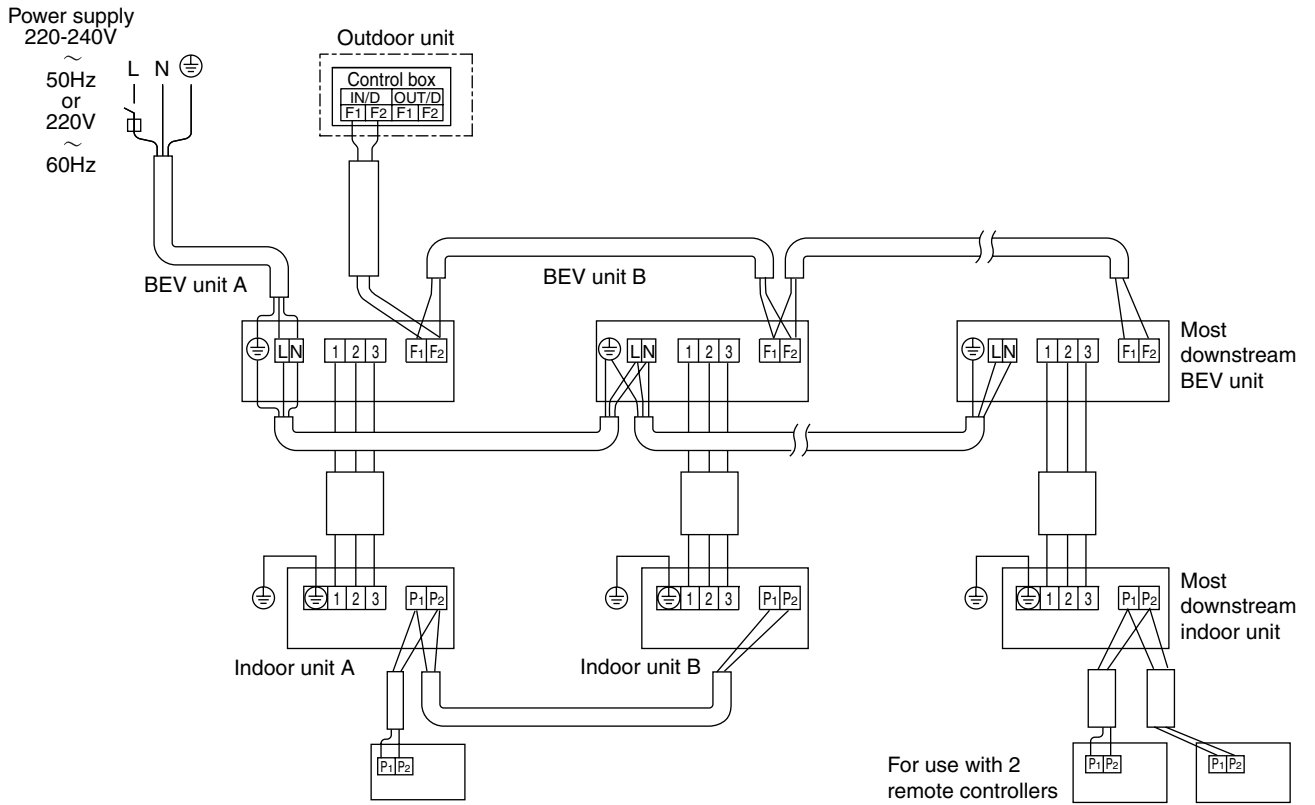


Fig. 19

3. When including BS unit

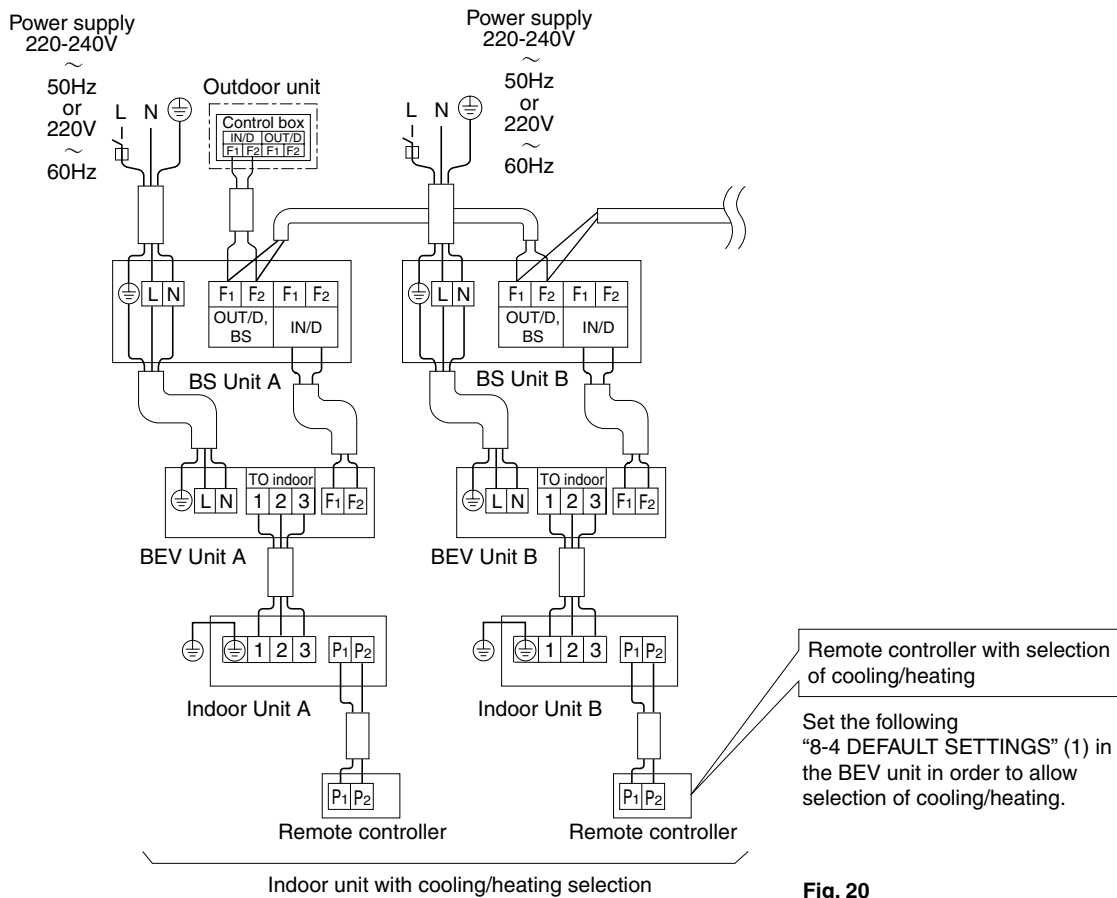


Fig. 20

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)

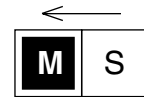


Fig. 21

- (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.

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.

