
VRV II SYSTEM Air Conditioners

MODELS
<BS unit>

BSVQ100MV1
BSVQ160MV1
BSVQ250MV1



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.

English

Deutsch

Français

Español

Italiano

Ελληνικά

Nederlands

Portugues

Russian

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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 eneansvar, at klimaenlægsmodellerne, 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 luftkondisjoneringsmodeller som berøres av denne erklæring innebærer at:
ilmoittaa yksinomaan omalla vastuullaan, että tämän ilmoituksen tarkoittamat ilmastointilaitteiden mallit:

**RXYQ5MY1B, RXYQ8MY1B, RXYQ10MY1B, RXYQ12MY1B, RXYQ14MY1B, RXYQ16MY1B
REYQ8MY1B, REYQ10MY1B, REYQ12MY1B, REYQ14MY1B, REYQ16MY1B,
RXY5MY1, RXY8MY1, RXY10MY1, RXY12MY1, RXY14MY1, RXY16MY1
BSVQ100MV1, BSVQ160MV1, BSVQ250MV1**

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 ohjeistettujen 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 foretagne ændringer.
Direktiver, med foretatte endringer.
Direktivevej, sellaisina kuin ne ovat muutettuina.

*Note as set out in the Technical Construction File **DAIKIN.TCF.022** and judged positively by **NMI** according to the **Certificate 0301130401**.
Hinweis wie in der Technischen Konstruktionsakte **DAIKIN.TCF.022** aufgeführt und von **NMI** positiv ausgezeichnet gemäß **Zertifikat 0301130401**.
Remarque tel que stipulé dans le Fichier de Construction Technique **DAIKIN.TCF.022** et jugé positivement par **NMI** conformément au **Certificat 0301130401**.
Bemærk zoals vermeld in het Technisch Constructiedossier **DAIKIN.TCF.022** en in orde bevonden door **NMI** overeenkomstig **Certificaat 0301130401**.
Nota tal como se expone en el Archivo de Construcción Técnica **DAIKIN.TCF.022** y juzgado positivamente por **NMI** según el **Certificado 0301130401**.
Nota delineato nel File Tecnico di Costruzione **DAIKIN.TCF.022** e giudicato positivamente da **NMI** secondo il **Certificato 0301130401**.
Σημείωση όπως προσδιορίζεται στο Αρχείο Τεχνικής Κατασκευής **DAIKIN.TCF.022** και κρίνεται θετικά από το **NMI** σύμφωνα με το **Πιστοποιητικό 0301130401**.
Nota tal como estabelecido no Ficheiro Técnico de Construção **DAIKIN.TCF.022** e com o parecer positivo de **NMI** de acordo com o **Certificado 0301130401**.
Bemærk som anført i den Tekniske Konstruktionsfil **DAIKIN.TCF.022** og positivt vurderet af **NMI** i henhold til **Certifikat 0301130401**.
Information utrustningen är utförd i enlighet med den Tekniska Konstruktionsfilen **DAIKIN.TCF.022** som positivt intygas av **NMI** vilket också framgår av **Certifikat 0301130401**.
Merk som det fremkommer i den Tekniske Konstruktionsfilen **DAIKIN.TCF.022** og gjennom positivt bedømmelse av **NMI** ifølge **Sertifikat 0301130401**.
Huom jotka on esitetty Teknisessä Asiakirjassa **DAIKIN.TCF.022** ja jotka **NMI** on hyväksynyt **Sertifikaatin 0301130401** mukaisesti.

DAIKIN

Hitoshi Jinno

Hitoshi Jinno
Manager Quality Control Department
Sakai, 1st of June 2003

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CONTENTS


1	SAFETY CONSIDERATIONS	1
2	BEFORE INSTALLATION	3
3	SELECTING INSTALLATION SITE.....	5
4	PREPARATIONS BEFORE INSTALLATION	6
5	BS UNIT INSTALLATION.....	6
6	ELECTRIC WIRING WORK	7
7	REFRIGERANT PIPING WORK	11
8	TEST OPERATION	16


1. SAFETY CONSIDERATIONS

Please read these “SAFETY CONSIDERATIONS” carefully before installing air conditioning equipment 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”.

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 equipment.

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.
- If the unit is to be installed in a small room, steps must be taken to prevent any leaked refrigerant from exceeding the threshold concentration.
Consult your dealer about ways to avoid exceeding the threshold concentration.
If the refrigerant does leak and the threshold concentration is breached, the room may become deprived of oxygen.
- 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 equipment 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 equipment 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 and 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 wiring between the indoor and outdoor units, position the wires so that the switch box cover can be securely fastened.
Improper positioning of the switch box cover 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.
-

CAUTION

- Ground the air conditioner.
Do not connect the ground wire to gas or water pipes, lightning conductor 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 cord 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.)
 - 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 equipment.
 - (d) where flammable gases 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.
-

CAUTION

The refrigerant R410A requires strict cautions for keeping the system clean, dry and tight.

A. Clean and dry

Foreign materials (including mineral oils such as SUNISO oil or moisture) should be prevented from getting mixed into the system.

B. Tight

R410A does not contain any chlorine, does not destroy the ozone layer, and does not reduce the earth's protection against harmful ultraviolet radiation.

R410A can contribute slightly to the greenhouse effect if it is released. Therefore we should take special attention to check the tightness of the installation.

Read the chapter "Refrigerant piping work" carefully and follow these procedures correctly.

2. BEFORE INSTALLATION

2-1 CAUTION CONCERNING NEW REFRIGERANT SERIES

- Since design pressure is 3.8MPa or 38bar (for R407C units: 3.3MPa or 33bar), the wall thickness of pipes should be more carefully selected.

Since R410A is a mixed refrigerant, the required additional refrigerant must be charged in its liquid state. (If the refrigerant is charged in a state of gas, its composition changes and the system will not work properly.)

The indoor/outdoor unit is for R410A. See the catalog for indoor/outdoor unit models which can be connected.

(Normal operation is not possible when connected to other units.)

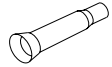
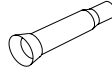
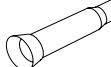
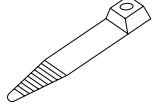



2-2 PRECAUTIONS

- 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 sports may corrode, which could eventually lead to refrigerant leaks.)**
 - **Where exposed to combustible gases 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.**
- Refer to the installation manual provided with the outdoor and the indoor unit.
- 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.

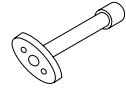
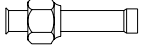



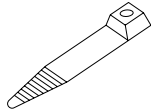



2-3 ACCESSORIES

Check the following accessories are included with your unit.

〈BSVQ100 · 160MV1〉

Name	1) Attached pipe			2) Clamp	3) Insulation for fitting		
Quantity	2 pcs.	1 pc.	2 pcs.	17 pcs.	2 pcs.	1 pc.	2 pcs.
Shape	1)-1 $\phi 9.5$ 	1)-2 $\phi 12.7$ 	1)-3 $\phi 15.9$ 		3)-1  Thin	3)-2  Medium	3)-3  Thick
	(Attached to BSVQ100MV1 only)						

〈BSVQ250MV1〉

Name	1) Attached pipe					2) Clamp	3) Insulation for fitting		
Quantity	2 pcs.	1 pc.	1 pc.	1 pc.	2 pcs.	17 pcs.	2 pcs.	1 pc.	2 pcs.
Shape	1)-1 	1)-2 	1)-3 	1)-4 	1)-5 		3)-1  Thin	3)-2  Medium	3)-3  Thick
			Auxiliary pipe						

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

Completion check items

Check items	Problems	Check
Are the indoor, outdoor, and BS units installed securely?	Falling, vibration, and operating noise	
Have you performed a gas leak test?	Does not cool	
Is the insulation complete? (Refrigerant piping)	Water leaking	
Is the voltage the same as that listed on the unit's nameplate?	Does not operate/burnt out	
Are all the wiring and piping correct?	Does not operate/burnt out	
Is the unit grounded?	Dangers during electrical leak	
Is the thickness of the power cord as specified?	Does not operate/burnt out	
Are any obstructions blocking the indoor and outdoor units' intake and outlet vents?	Does not cool	
Have you recorded the length of the refrigerant piping and the amount of refrigerant filled?	Uncertain amount of refrigerant	

Also review the "SAFETY CONSIDERATIONS"

Hand-over check items

Check items	Check
Did you explain to the customer how to use the unit while looking at the manual?	
Did you hand the operating manual and warranty card to the customer?	

Important points regarding operation

In addition to general operation methods, items listed with a **⚠** WARNING or **⚠** CAUTION indicate procedures that can cause physical or property damage. You must explain them to the customer as well as having him or her read these items very carefully.

2-4 COMBINATION

- For series of applicable indoor units, refer to the technical data or other literature.
- Select the BS unit to fit the total capacity sum of the indoor units to be connected downstream. To calculate the total capacity of the indoor units, use the figure A of the table below.

Model	Total capacity sum of all downstream indoor units
BSVQ100MV1	$A < 100$
BSVQ160MV1	$100 \leq A < 160$
BSVQ250MV1	$160 \leq A < 250$

Capacity of indoor unit

Capacity expressed as indoor unit's model No.	20	25	32	40	50	63	80	100	125	200	250
Indoor unit's capacity (for use in computation): A	20	25	31.25	40	50	62.5	80	100	125	200	250

3. SELECTING INSTALLATION SITE

NOTES

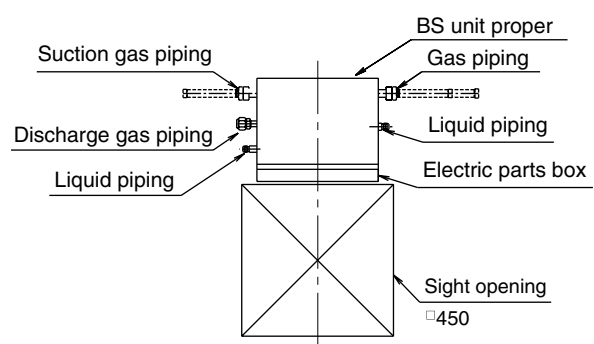
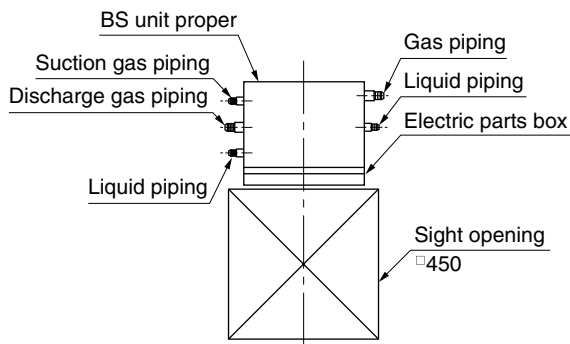
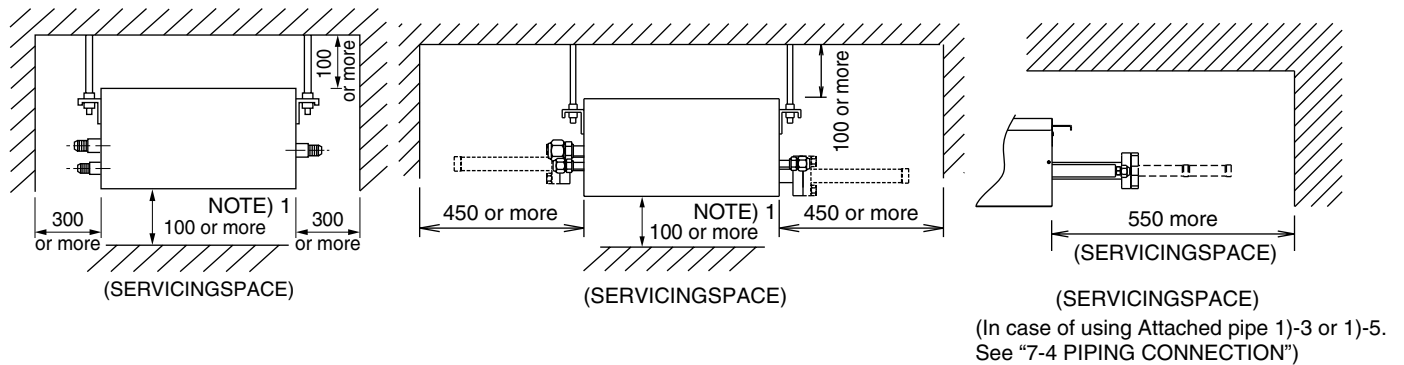
- Do not throw away any of the accessories until installation is complete.
- Hold the unit by the lifting lugs (4) when opening the box and moving it, and do not lift it holding on to any other part especially the refrigerant piping.
- If you think the humidity inside the ceiling might exceed 30°C and RH80%, reinforce the insulation on the inter-unit piping.
- Use glass wool or polyethylene foam as insulation so that it is no thicker than 10mm and fits inside the ceiling opening.

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

- Where is resistible against weight of BS unit.
- 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 installation manual attached to outdoor unit.)
- Locations where there is no possibility of flammable gas leaking.
- Locations where the wall is not significantly tilted.
- Locations where an inspection hole (see figure below) can be installed.

〈BSVQ100 · 160MV1〉

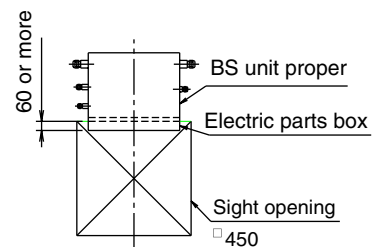
〈BSVQ250MV1〉



(Sight opening must be of above size and provided in front of electric parts box.)

NOTES

1. Leave 100mm of service space below the electric box. If this is not possible, open a service hole in the location indicated in the figure below.
2. Make sure the power, branch, and remote control wiring of the indoor, outdoor, and BS units are at least 1m away from radios and televisions. This is to prevent interference with picture and sound reception. (Interference may occur even at 1m away depending on the reception quality.)

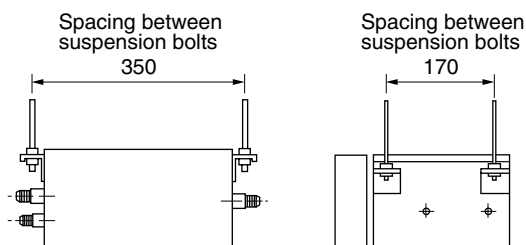


(2) Use eyebolts for installation. Check if the location for the installation is strong enough to support the weight of the unit, reinforce it if necessary, and install using eyebolts.

4. PREPARATIONS BEFORE INSTALLATION

(1) Position of suspension bolts on the BS unit.

<BSVQ100 · 160 · 250MV1>



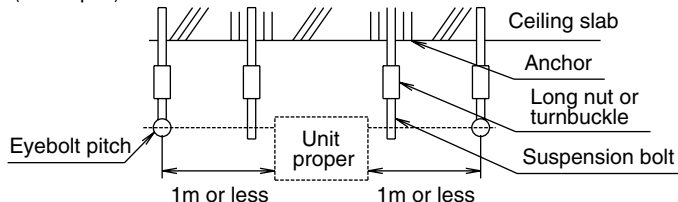
(2) Install suspension bolts.

- Use M8-M10 suspension bolts.
- When holes are to be made anew, use inserts or anchor bolts.

When holes are already provided, use hole-in anchors or the like.

Install the BS unit so that its weight can be withstood.

< Example >



Note: All the above parts are part to be procured in the field.

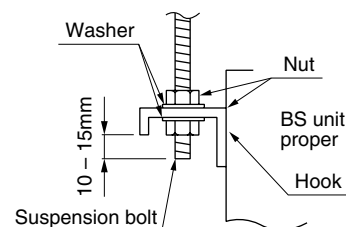
(3) **Support the connection piping.**

- To prevent excessive weight from bearing on the eyebolt pitches of the BS unit, support the connection piping around the unit and no further away than 1m from the unit. Too much weight on the eyebolt pitches will cause the BS unit to drop and cause injury.

5. BS UNIT INSTALLATION

(1) Attach the hooks to the suspension bolts.

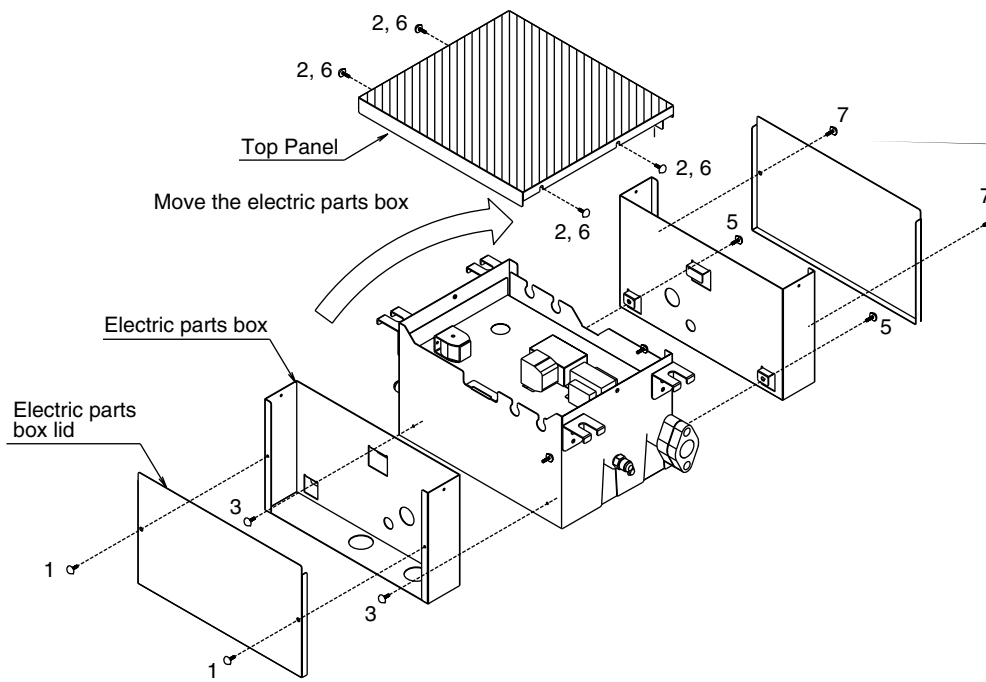
Be sure to sandwich the hooks between nuts and washers, and securely fix it.



<Caution>

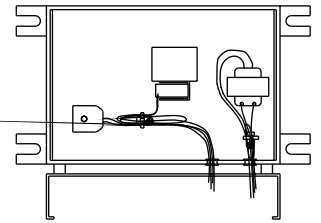
- The BS unit has a top and a bottom, so install it so that the diagonal lines in the figure next page are where the top is. (Failing to do so may prevent the unit from operating properly and increase the volume of the operating noise.)
- (2) The electric parts box may be installed on either side of the BS unit, as shown below.
1. Remove the electric parts box lid. (2 screws)
 2. Remove the top panel. (4 screws)
 3. Remove the electric parts box. (2 screws)
 4. Change the way the wiring between the unit and the electric parts box (transformer, two solenoid valve coils) is pulled out. (See the figure at next page.)
 5. Attach the electric parts box.
 6. Turn the top panel around 180° and attach it.
 7. Attach the electric parts box lid.

(Changing the installation position of the electric parts box)

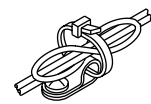
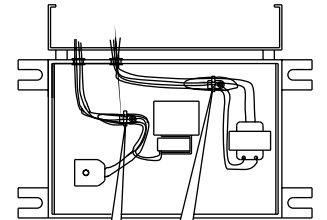


(Changing the direction the wiring is pulled out)

[Before change]



[After change]



Use the included clamping material 2) to tie excess lead wire so it does not droop.

NOTES

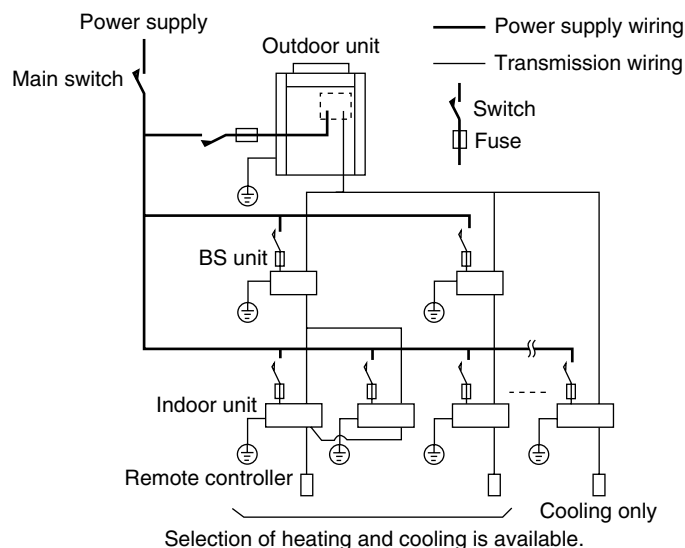
- Install the BS unit according to the instructions shown on the name plate attached to the electric parts box.
- Clamp securely so the interior wiring does not touch the screws or sheet metal due to looseness.

6. ELECTRIC WIRING WORK

6-1 GENERAL INSTRUCTIONS

- All field supplied parts and materials, electric works must conform to local codes.
- Use copper wire only.
- Follow the “WIRING DIAGRAM” attached to the unit body to wire the outdoor unit and indoor units.
- All wiring must be performed by an authorized electrician.
- This system consists of multiple BS units. Mark each BS unit as unit A, unit B . . . , and be sure the terminal board wiring to the outdoor unit and indoor unit are properly matched. If wiring and piping between the outdoor unit, BS unit and an indoor unit are mismatched, the system may cause a malfunction.
- A circuit breaker capable of shutting down the power supply to the entire system must be installed.
- Always ground wires. (In accordance with national regulations of the pertinent country.)
- Do not let the ground wire should come in contact with gas pipes, water pipes, lighting rods, or telephone ground wires.
 - Gas pipes: gas leaks can cause explosions and fire.
 - Water pipes: cannot be grounded if hard vinyl pipes are used.
 - Telephone ground and lightning rods: the ground potential when struck by lightning gets extremely high.
- Do not turn on the power supply (branch switches, overload interrupters) until all other work is done.

6-2 EXAMPLE FOR THE WHOLE SYSTEM



6-3 ELECTRICAL CHARACTERISTICS

Model	Type	Hz	Units			Power supply	
			Voltage	Min.	Max.	MCA	MFA
BSVQ100M BSVQ160M BSVQ250M	V1	50	220	198	264	0.2	15
			230				
			240				

MCA: Min. Circuit Amps (A);

MFA: Max. Fuse Amps (A)

NOTES

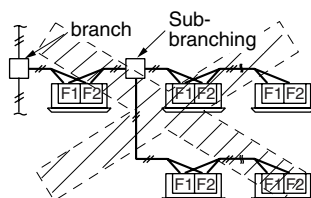
- The above Table of Electrical Characteristics refers to the BS unit only.
- See the technical documents for other details.

6-4 SPECIFICATIONS FOR FIELD SUPPLIED FUSES AND WIRE

Model	Power supply wiring			Transmission wiring	
	Field fuse	Wire	Size	Wire	Size
BSVQ100MV1	15A	H05VV-U3G	Size must comply with local codes.	Vinyl cord with sheath or cable (2 wire) (NOTE 2)	0.75 -1.25mm ²
BSVQ160MV1					
BSVQ250MV1					

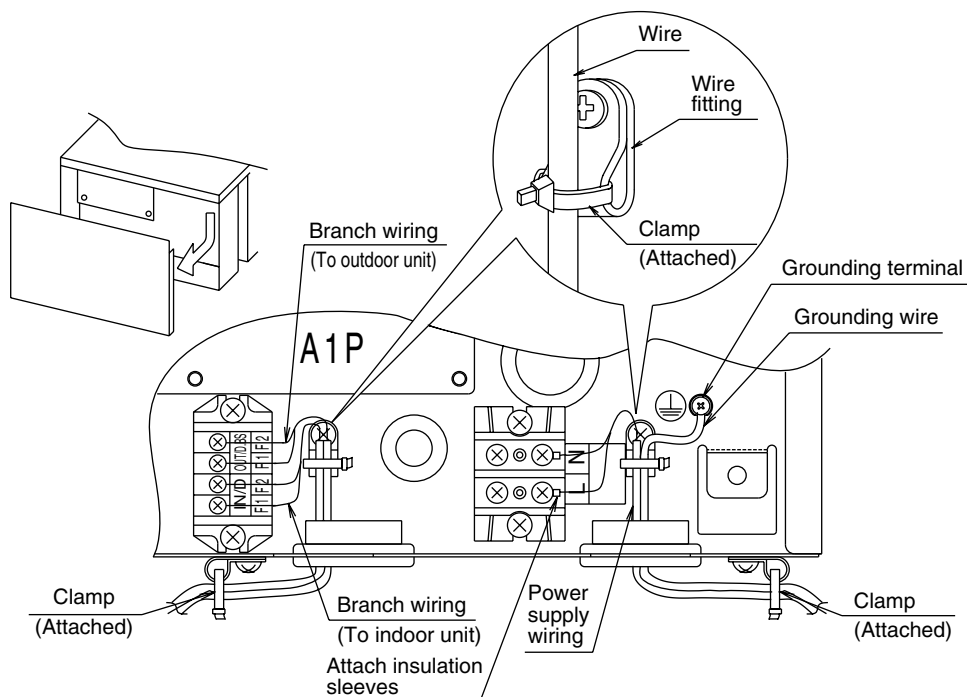
NOTES

1. Select the particular size of electrical wire for power line in accordance with the standards of the given nation and region.
2. Insulated thickness: 1 mm or more
3. Allowable length of the transmission wiring should be as follows.
Between outdoor unit, BS unit and indoor unit: Max. 1000m (Total wiring length: 2000m)
Between BS unit and remote controller: Max. 500m
Max. branches No. of branches: 16
4. Up to 16 branches are possible for unit-to-unit cabling. No branching is allowed after branching.



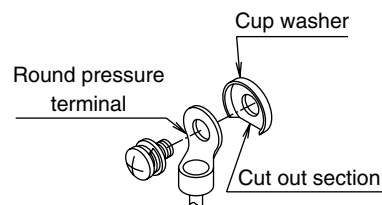
6-5 GIST OF FIELD LINE CONNECTION

- Remove the side cover of the electric parts box shown in the below figure and connect each wire.



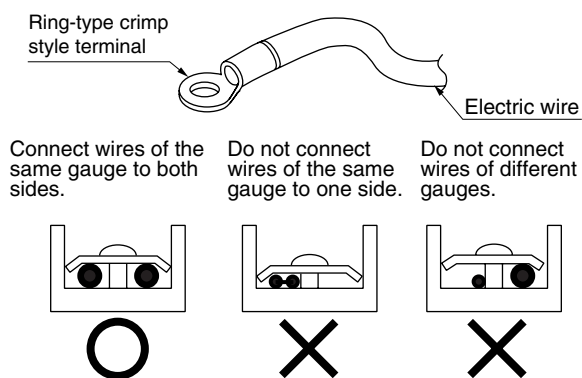
NOTE

- Keep transmission wiring a minimum of 50 mm from other electric wires so as to avoid the effects of external noise. (Bundle transmission wiring separate of other wires, with the included tie-wrap.)
- Do not connect power wiring to the transmission wiring terminal. Doing so could damage the entire system.
- Clamp power wiring and the grounding wire together with the included clamp.
- When clamping wiring, use the included clamping material 2) 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 electric parts box lid to stick up, then close the cover firmly. When attaching the electric parts box lid, make sure you do not pinch any wires. To prevent damaging the wires, be sure to pass all wires through the wiring guide.
- When pulling the ground wire out, wire it so that it comes through the cut out section of the cup washer. (An improper ground connection may prevent a good ground from being achieved.)
- After wiring work is complete, block all gaps in the holes for passing out wiring using sealing material (locally procured). (This is to prevent insects from entering the machine.)



PRECAUTIONS

- Use ring-type crimp-style terminals for connecting wires to the power supply terminal board. If unavailable, observe the following points when wiring.
 - Do not connect wires of different gauge to the same power supply terminal. (Looseness in the connection may cause overheating.)
 - When connecting wires of the same gauge, connect them according to the righthand figure.
 - Use the specified electric wire. Connect the wire securely to the terminal. Lock the wire down without applying excessive force to the terminal.
 - Use an appropriate screwdriver for tightening the terminal screws. A screwdriver with a small head will strip the head and make proper tightening impossible.
 - Over-tightening the terminal screws may break them.



- See the following table for the tightening torque of the terminal screws.

	Tightening torque (N/m)
Remote controller/branch wiring terminal block (4P)	0.79~0.97
Power supply terminal block (2P)	1.18~1.44
Grounding wire	1.52~1.86

- Keep total current of crossover wiring between indoor units less than 12 A. Branch the line outside the terminal board of the unit in accordance with electrical equipment standards. When using two power wiring of a gauge greater than 2mm^2 ($\phi 1.6$).
The branch must be sheathed to provide an equal or greater degree of insulation as the power supply wiring itself.
- Do not connect wires of different gauge to the same grounding terminal. Looseness in the connection may deteriorate protection.
- Keep transmission wiring at least 50 mm away from power supply wiring. The equipment may malfunction if subjected to electrical (external) noise.
- For remote controller wiring, refer to the “INSTALLATION MANUAL OF REMOTE CONTROLLER” attached to the remote controller.
- Never connect power supply wiring to the terminal board for transmission wiring. A mistake of the sort could damage the entire system.
- Use only specified wire and tightly connect wires to terminals. Be careful wires do not place external stress on terminals. Keep wiring in neat order and so as not to obstruct other equipment such as popping open the service cover. Make sure the cover closes tight. Incomplete connections could result in overheating, and in worse case, electric shock or fire.
- Use 2-core wires for branch wiring.
When wiring more than 2 indoor units and a remote controller with the same 3-core wire (or other multi-core wire), units sometimes stop unexpectedly because of trouble.
(3-core wires can be used only for the cool/heat selector)
- Connect the cooling unit to pins F1 and F2 (outdoor unit) in the final BS unit.

EXAMPLE OF TRANSMISSION LINE CONNECTION

- Example of connecting transmission wiring.
Connect the transmission wirings as shown in the Fig. 1.

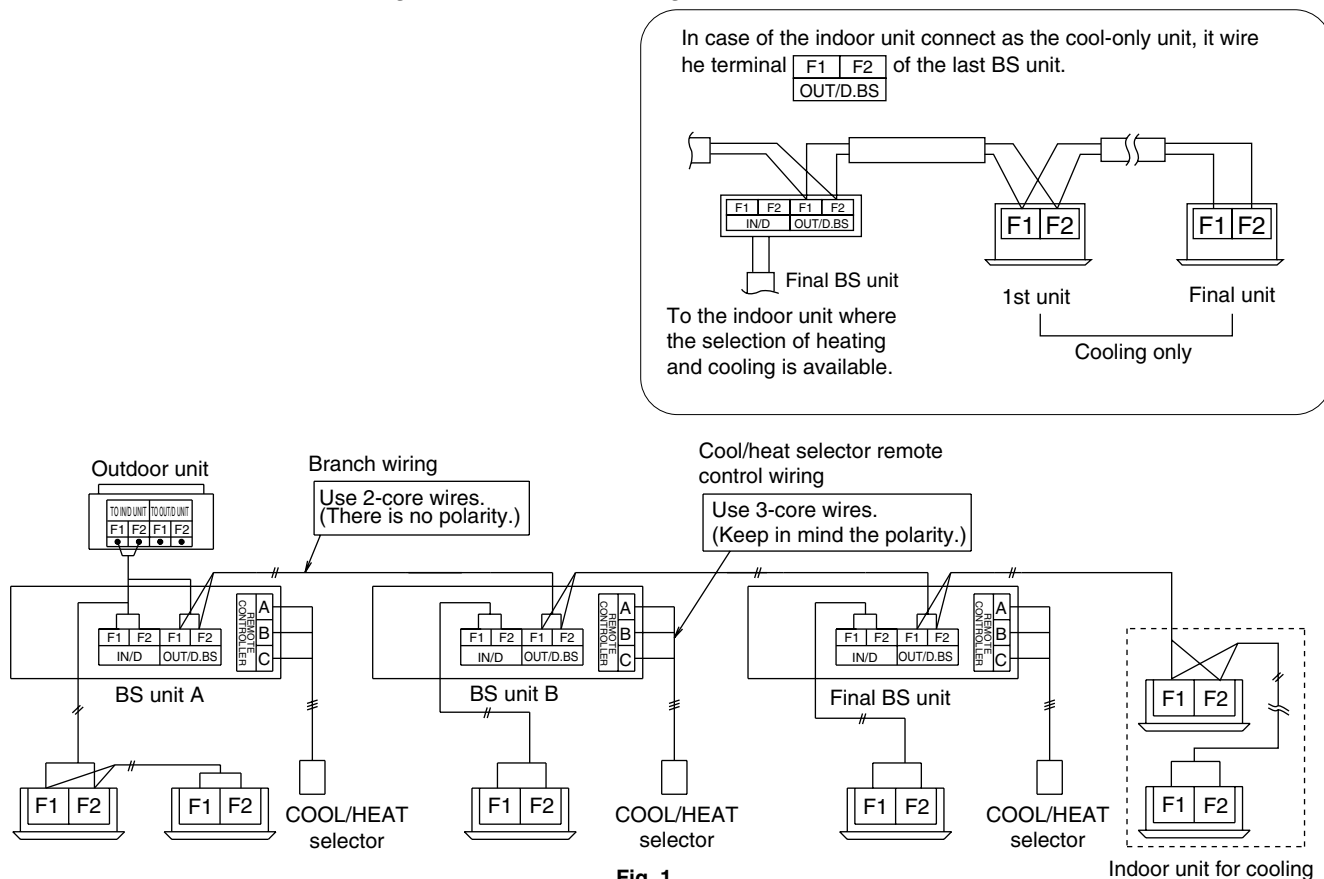


Fig. 1

6-6 INITIAL SETTING

After finishing wiring work, set the followings if necessary.

1. COOL/HEAT temperature difference setting switch (Set indoor unit remote controller to field setting mode.)

- Used to change the temperature difference upon occurrence of which to start cooling and heating in the automatic COOL/HEAT mode.

Settings are made from the remote controller of the indoor unit connected to the BS unit. The unit must be in “**Field setting mode**”. Make settings as explained in “**Field setting**” (provided with the remote controller).

Mode No.	First code No.	Second code No.	COOL/HEAT temperature difference (°C)
12 (22)	4	1	0
		2	1
		3	2
		4	3
		5	4
		6	5
		7	6
		8	7

The first and second code Nos. are set to 1 and 0°C respectively when the unit is shipped for the factory.

2. Remote controller change over switch (SS1, SS2)

- When using COOL/HEAT selector, turn this switch to the BS side.



NOTE: This setting must be completed before turning power supply ON.

When using cool/heat selector, connect to the terminal A, B and C on the EC of the electric parts box.

7. REFRIGERANT PIPING WORK

- This section describes how to connect the piping to the BS unit. Select the piping size based on the procedure outlined here.
- Regarding piping work between the outdoor unit and the BS unit, selection of the branch kit, and the piping work between the branch kit and the indoor unit, see the installation manual for the outdoor unit and other technical documents.
- Always check that the refrigerant to be used is R410A before starting work. (If the wrong refrigerant is used, the unit will not operate normally.)
- Completely insulate the discharge and suction piping both liquid and gas. Not insulating them may cause leaking or burns. Only use insulating material which is resistant to 120°C or higher. If you think the humidity in the ceiling might exceed 30°C and RH80%, reinforce the insulation on the cooling piping (at least 20mm thick). Condensation might form on the surface of the insulation.

⚠ CAUTION

- Use a pipe cutter and flare suitable for R410A.
- Use a piping branch pipe kit selected based on the selection procedure for refrigerant branch kits.
- See the installation manual for the outdoor unit and other relevant technical documents for details on refrigerant branch kit selection, maximum piping length, maximum height difference, and maximum length after branch.
- Apply ether oil or ester oil around the flare portions before connecting.
- Only use the flare nuts included with the unit. Using different flare nuts may cause the refrigerant to leak.
- To prevent dust, moisture or other foreign matter from infiltrating the tube, either pinch the end or cover it with tape.
- The outdoor unit is charged with refrigerant.

- Be sure to use both a spanner and torque wrench together when connecting or disconnecting pipes to/from the unit. **(Refer to Fig. 2)**
- When connecting the flare nut, coat the flare both inside and outside with refrigerating machine oil and initially tighten by your hand 3 or 4 turns. **(Refer to Fig. 3)**
- Refer to the Table 1 for the measurements of tightening torque and flare. Overtightening may damage the flare.
- Refer to Table 2 if no torque wrench is available.

Using a wrench to tighten flare nuts causes the tightening torque to suddenly grow much tighter after a certain point. From there, tighten the nut further by the appropriate angle listed in Table 2. After this is done, make sure no gas is leaking.

- When brazing the refrigerant piping, perform nitrogen replacement (note 1) first or perform the brazing (note 3) while feeding nitrogen into the refrigerant piping (note 2), and finally connect the indoor unit and BS unit using the flare or flange connections.

Notes

- 1 For details on nitrogen replacement, see the “VRV Installation Manual” (available at any Daikin dealer).
 - 2 When feeding nitrogen into the pipes while doing the brazing, the pressure-reducing valve should be set to 0.02Mpa (0.2kg/cm²). **(Refer to Fig. 5)**
 - 3 Do not use a flux when brazing the refrigerant pipe joints.
Use phosphor copper brazing (B cup) which does not require flux.
(Using a chlorine flux may cause the pipes to corrode, and if it contains fluoride it may cause the refrigerant lubricant to deteriorate, adversely affecting the refrigerant piping system.)
- Piping connections should be checked for gas leaks and then, referring to Fig. 4, insulated using the included joint insulating material 3) on all liquid and gas pipes (a total of 5 locations)
(Tighten both edges with clamping material 2.) Use the included joint insulating material for 100 and 160.
(For 250, insulating material must be procured on-site which has heat resistance of 70°C for the liquid piping and 120°C for the gas piping)
 - For locally procured insulation, be sure to insulate all the way to the pipe connections inside the machine. Exposed piping may cause condensation to form or burns on contact.
 - Use the following materia specification for refrigerant piping:
 - (1) construction material: Phosphoric acid deoxidized seamless copper for refrigerant.
 - (2) size: Determine the proper size referring to chapter “SELECTION OF PIPE CONNECTION SIZE”
 - (3) The wall thickness of the refrigerant piping should comply with relevant local and national regulatoins.
For R410A the design pressure is 3.8 MPa.
 - (4) Flaring cannot be done on pipes $\phi 19.1$ and higher because of the 1/2H material is required.
Use the included piping and connect to local branch piping by brazing. **(Refer to Fig. 6)**
 - Ventilate if refrigerant gas leaks while performing work.
 - Finally make sure there is no refrigerant gas leak. A toxic gas may be released by the refrigerant gas leaking indoor and being exposed to flames from an area heater, cooking stove, etc.

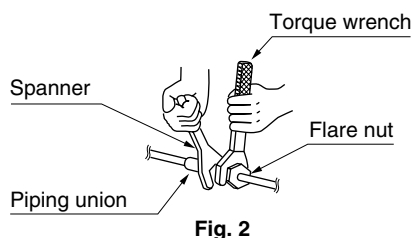


Fig. 2

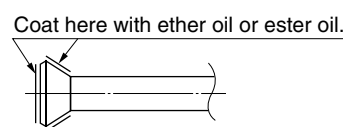


Fig. 3

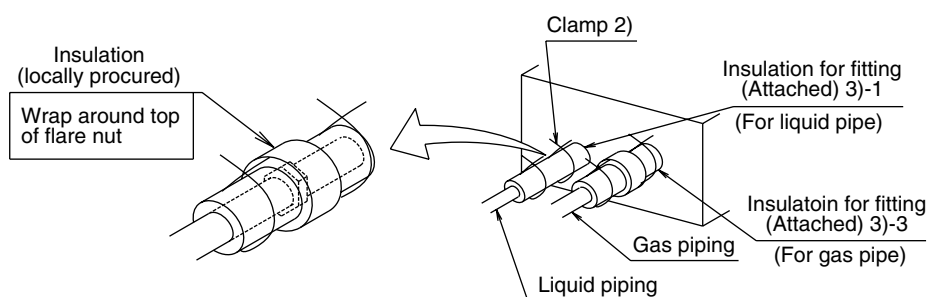


Fig. 4

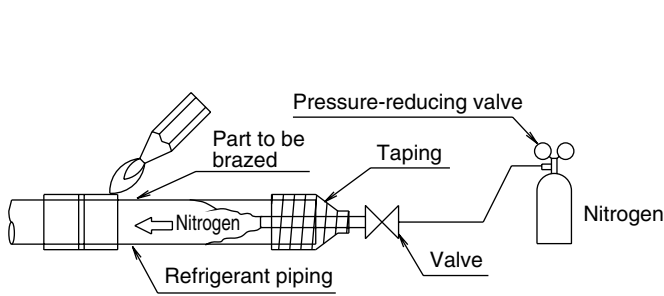


Fig. 5

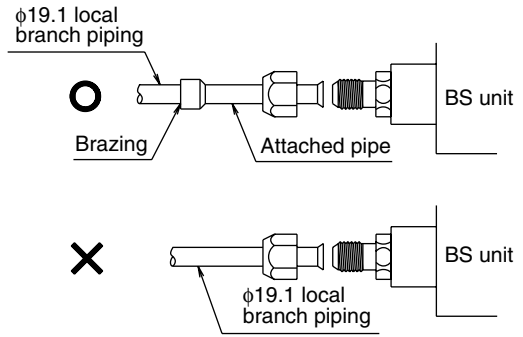


Fig. 6

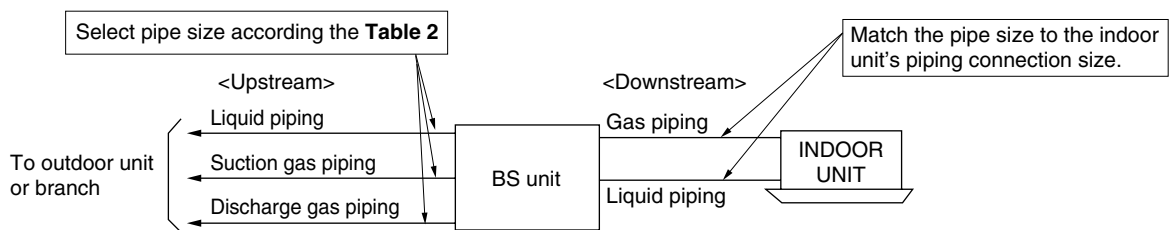
Table 1

Pipe gauge	Tightening torque	Flare dimension A (mm)	Flare shape
φ 6.4	14.2 – 17.2N·m (144 – 176 kgf·cm)	8.7 – 9.1	
φ 9.5	32.7 – 39.9N·m (333 – 407 kgf·cm)	12.8 – 13.2	
φ 12.7	49.5 – 60.3N·m (504 – 616 kgf·cm)	16.2 – 16.6	
φ 15.9	61.8 – 75.4N·m (630 – 770 kgf·cm)	19.3 – 19.7	
φ 19.1	97.2 – 118.6N·m (990 – 1210 kgf·cm)	Cannot be performed	

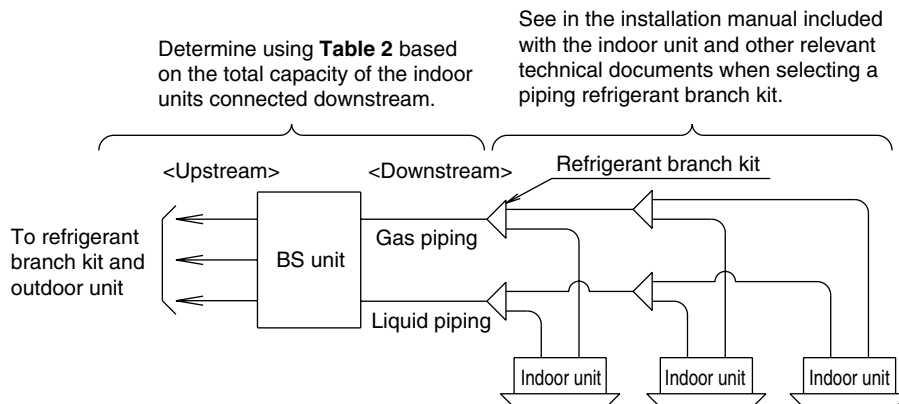
Table 2

Pipe size	Further tightening angle	Recommended arm length of tool
φ6.4	60 to 90 degrees	Approx. 150 mm
φ9.5	60 to 90 degrees	Approx. 200 mm
φ12.7	30 to 60 degrees	Approx. 250 mm
φ15.9	30 to 60 degrees	Approx. 300 mm
φ19.1	20 to 35 degrees	Approx. 450 mm

7-1 IN CASE OF CONNECTING ONLY ONE INDOOR UNIT



7-2 WHEN CONNECTING MULTIPLE INDOOR UNITS



7-3 SELECTOIN OF PIPE CONNECTION SIZE

Table 1 <Indoor and BS Unit Connection Piping Sizes>

Target unit		Piping size (outer diameter × minimum thickness) (mm)	
		Gas pipe	Liquid pipe
Indoor unit's model No.	20, 25, 32, 40, 50	12.7 × 0.8	6.4 × 0.8
	63, 80, 100, 125	15.9 × 1.0	9.5 × 0.8
	200	19.1 × 1.0	
	250	22.2 × 1.0	
BS unit	BSVQ100MV1	15.9 × 1.0	9.5 × 0.8
	BSVQ160MV1		
	BSVQ250MV1	22.2 × 1.0	

Note: The piping size for the BS unit indicates the size of the connection side with the indoor unit.

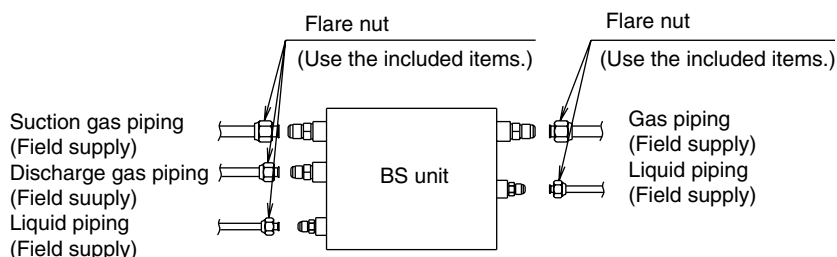
Table 2 < Selection of Piping Size Based on Total Capacity of Indoor Unit >

Total capacity of indoor units [kw]	Piping size (outer diameter × minimum thickness) (mm)				
	Upstream			Downstream	
	Suction gas pipe	Discharge gas pipe	Liquid pipe	Gas pipe	Liquid pipe
Up to 62.5	12.7 × 0.8	9.5 × 0.8	6.4 × 0.8	12.7 × 0.8	6.4 × 0.8
62.5 or more and less than 200	15.9 × 1.0	12.7 × 1.0	9.5 × 0.8	15.9 × 1.0	9.5 × 0.8
200 or more and less than 290	22.2 × 1.0	19.1 × 1.0		19.1 × 1.0	
290 and up				22.2 × 1.0	

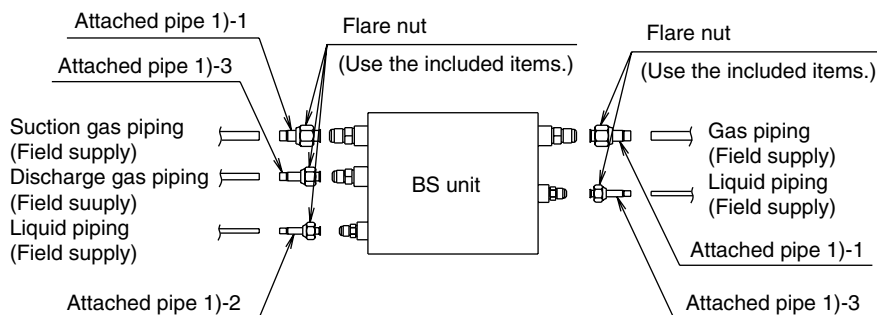
See the section on “2-4 COMBINATION” at page 4 for details on indoor unit capacity.

7-4 PIPING CONNECTION

Connecting Q100/160 type

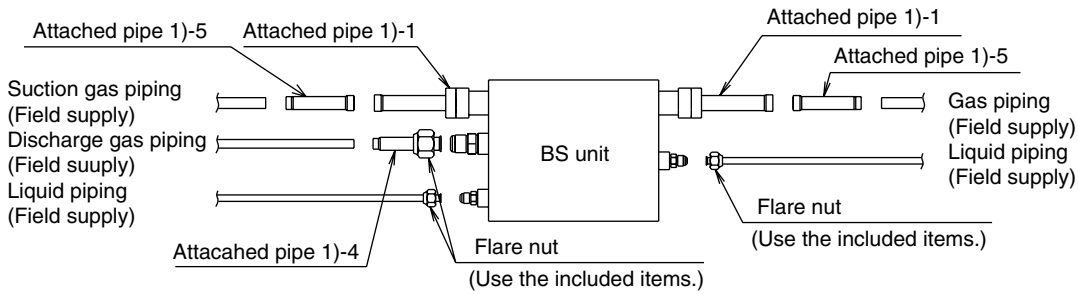


If the total capacity of the Q100-type indoor units downstream is less than 62.5

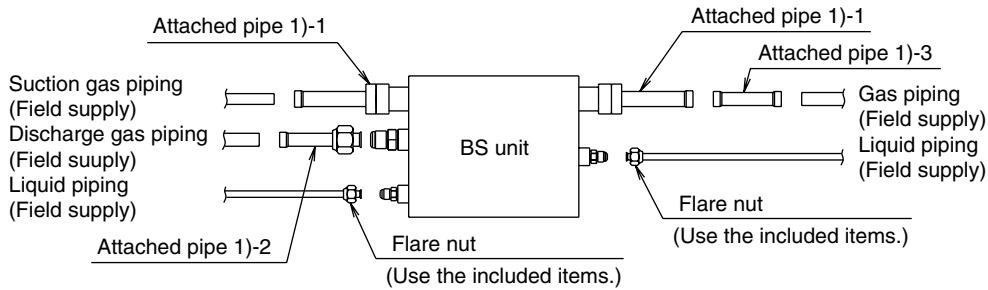


Connecting Q250 type

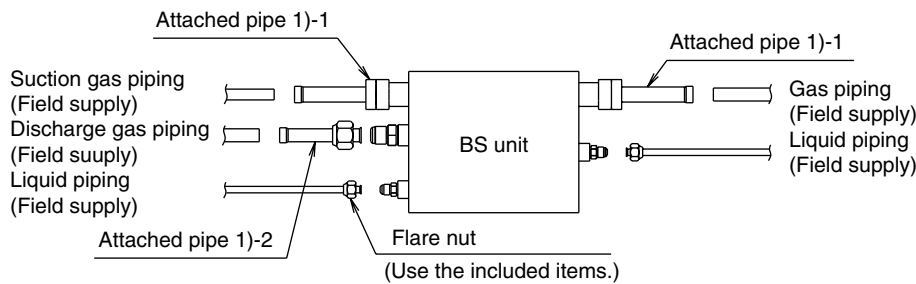
If the total capacity of the indoor units downstream is 160 or more and less than 200



If the total capacity of the indoor units downstream is 200 or more and less than 250



When one Q250-type indoor unit is connected downstream

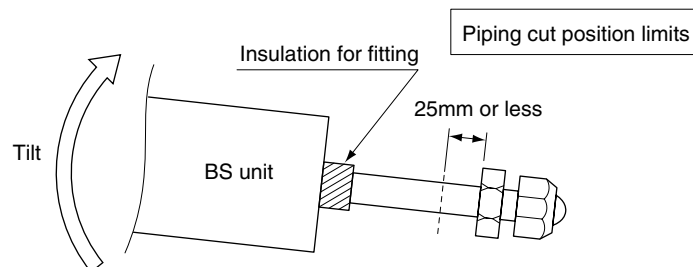


CAUTION

- Following the "PIPING CONNECTION" listed above for connecting the piping.
- If it is necessary to cut the BS unit piping and then use a brazed connection, follow the instructions below.

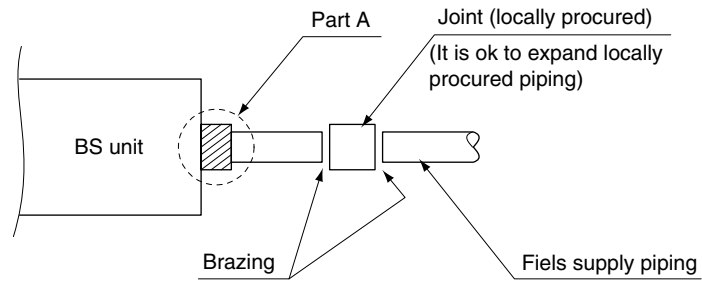
1. Cutting

- When cutting, tilt the unit as shown in the figure below to prevent cuttings and other foreign matter from entering the BS unit piping.
- Only cut within the limits shown in the figure below.



2. Piping connection

- For using a brazed connection, use a wet rag to prevent Part A in the figure below from exceeding 80°C.



8. TEST OPERATION

Refer to the installation manual of the outdoor unit.

- The operation lamp of the remote controller connect to the indoor unit will flash when an error occurs. Check the error code on the liquid crystal display to identify the point of trouble. An explanation of error codes and the corresponding trouble is provided in "CAUTION FOR SERVICING" of the indoor unit.

