



*EDUS 39 - 800 - F8*

**R-410A**

# Engineering Data

BSVQ-P  
BS Units



**DAIKIN AC (AMERICAS), INC.**

# **BSVQ-P BS Units**

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# 1. Specifications

## BS Units

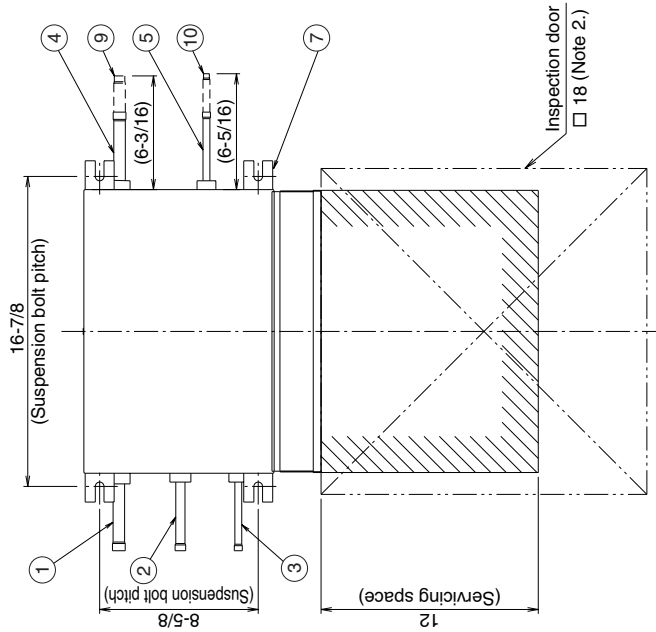
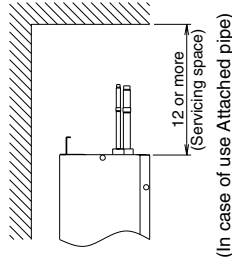
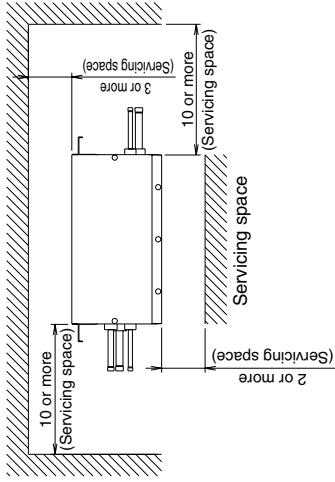
Model		BSVQ36PVJU		BSVQ60PVJU	
Power Supply		1 Phase 60Hz 208~230V		1 Phase 60Hz 208~230V	
Total Capacity Index of Connectable Indoor Unit		Less than 36		Less than 60	
No. of Connectable Indoor Units		Max. 5		Max. 8	
Casing		Galvanized Steel Plate		Galvanized Steel Plate	
Dimensions: (HxWxD)		in 8-1/8 x 15-1/4 x 12-13/16		8-1/8 x 15-1/4 x 12-13/16	
Sound Absorbing Thermal Insulation Material		Foamed Polyurethane, Frame Resisting Needle Felt		Foamed Polyurethane, Frame Resisting Needle Felt	
Piping Connection	Indoor Unit	Liquid Pipes	φ 3/8 C1220T (Brazing Connection) ★1	φ 3/8 C1220T (Brazing Connection)	
		Gas Pipes	φ 5/8 C1220T (Brazing Connection) ★1	φ 5/8 C1220T (Brazing Connection) ★2	
	Outdoor Unit	Liquid Pipes	φ 3/8 C1220T (Brazing Connection)	φ 3/8 C1220T (Brazing Connection)	
		Suction Gas Pipes	φ 5/8 C1220T (Brazing Connection)	φ 5/8 C1220T (Brazing Connection) ★2	
		Discharge Gas Pipes	φ 1/2 C1220T (Brazing Connection)	φ 1/2 C1220T (Brazing Connection) ★2	
Mass	Lbs	26		26	
Standard Accessories		Installation Manual, Attached Pipe, Insulation Pipe Cover, Clamps		Installation Manual, Attached Pipe, Insulation Pipe Cover, Clamps	
Drawing No.		4D058233A		4D058234A	

### Note:

- ★1 In case of connecting with a 07~18 type indoor unit, match to the size of field pipe using the attached pipe.  
(Connection between the attached pipe and the field pipe must be brazed.)
- ★2 In case of connecting with indoor unit capacity index 54 or more and 60 or less, match to the size of the field pipe using the attached pipe.  
(Connection between the attached pipe and the field pipe must be brazed.)

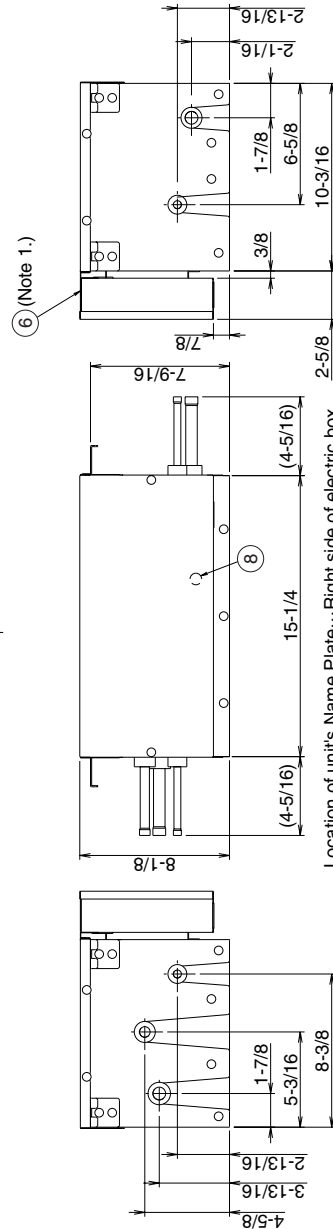
## 2. Dimensions

### BSVQ36PVJU



- Notes) 1. Electric box can also be fixed on the other side of the unit.  
 2. Be sure to install a inspection door at electric box side.  
 3. Attached pipe is only used in case of connecting with a 07~18 class indoor unit.  
 4. Small sound of refrigerant will be made, which may be disturbing.  
 Do not install it at the place such as bedroom under roof.

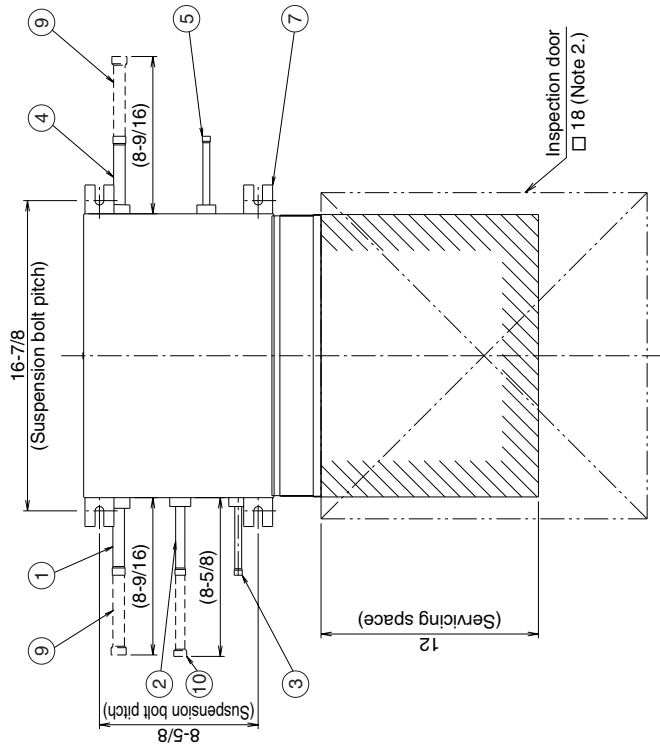
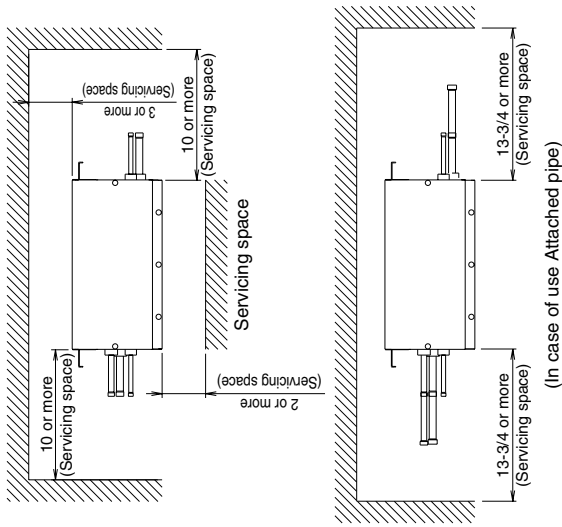
Number	Part name	Description
10	Attached pipe (2) (Note. 3)	φ 1/4 brazing connection
9	Attached pipe (1) (Note. 3)	φ 1/2 brazing connection
8	Grounding terminal	M4
7	Suspension brackets	M8-M10
6	Electric box (Note 1.)	
5	Liquid pipe connection port	φ 3/8 brazing connection
4	Gas pipe connection port	φ 5/8 brazing connection
3	Liquid pipe connection port	φ 3/8 brazing connection
2	HP/LP gas pipe connection port	φ 1/2 brazing connection
1	Suction gas pipe connection port	φ 5/8 brazing connection



Location of unit's Name Plate...Right side of electric box

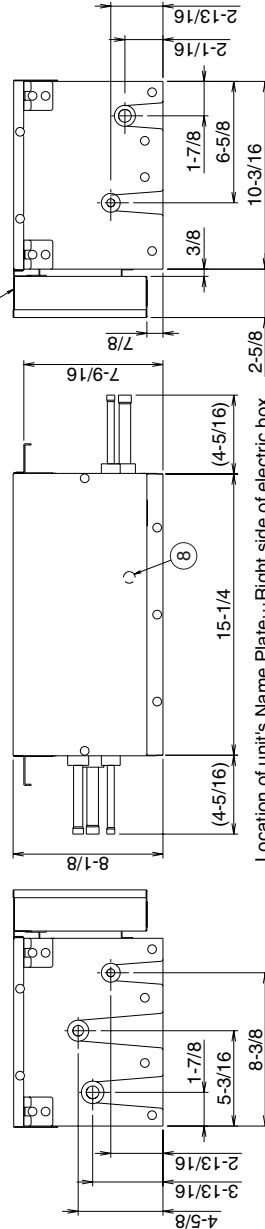
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BSVQ60PVJU



- Notes) 1. Electric box can also be fixed on the other side of the unit.  
 2. Be sure to install a inspection door at electric box side.  
 3. Attached pipe is only used in case of connecting with indoor unit capacity index 54 or more and 60 or less.  
 4. Small sound of refrigerant will be made, which may be disturbing.  
 Do not install it at the place such as bedroom under roof.

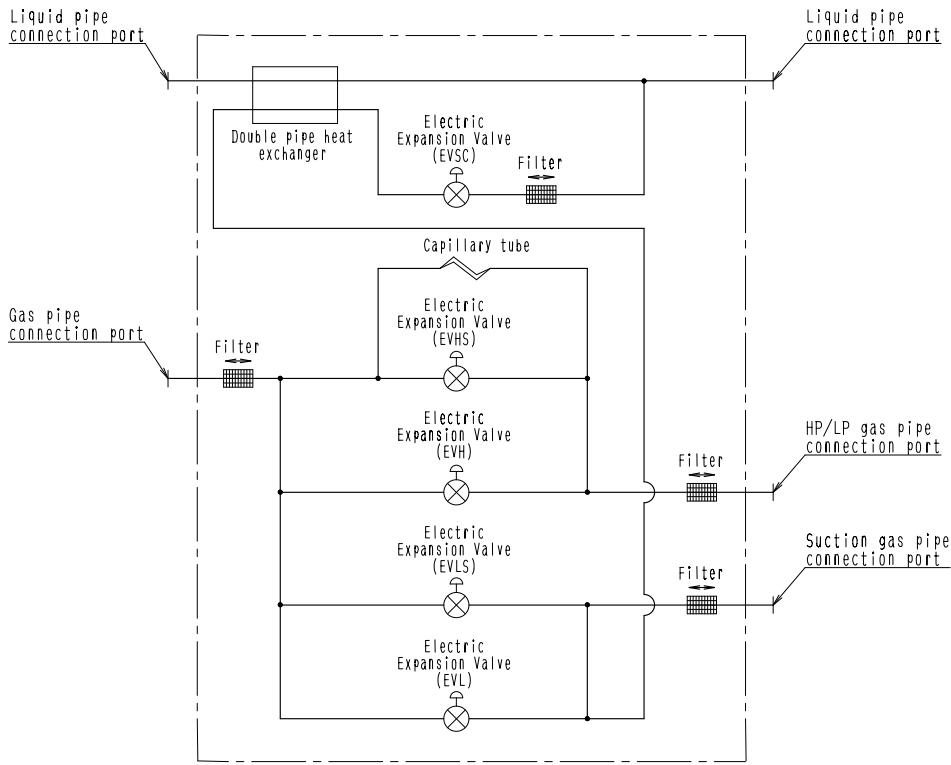
Number	Part name	Description
10	Attached pipe (2)	φ 5/8 brazing connection
9	Attached pipe (1)	φ 3/4 brazing connection
8	Grounding terminal	M4
7	Suspension brackets	M8-M10
6	Electric box (Note 1.)	
5	Liquid pipe connection port	φ 3/8 brazing connection
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1	Suction gas pipe connection port	φ 5/8 brazing connection



Location of unit's Name Plate...Right side of electric box

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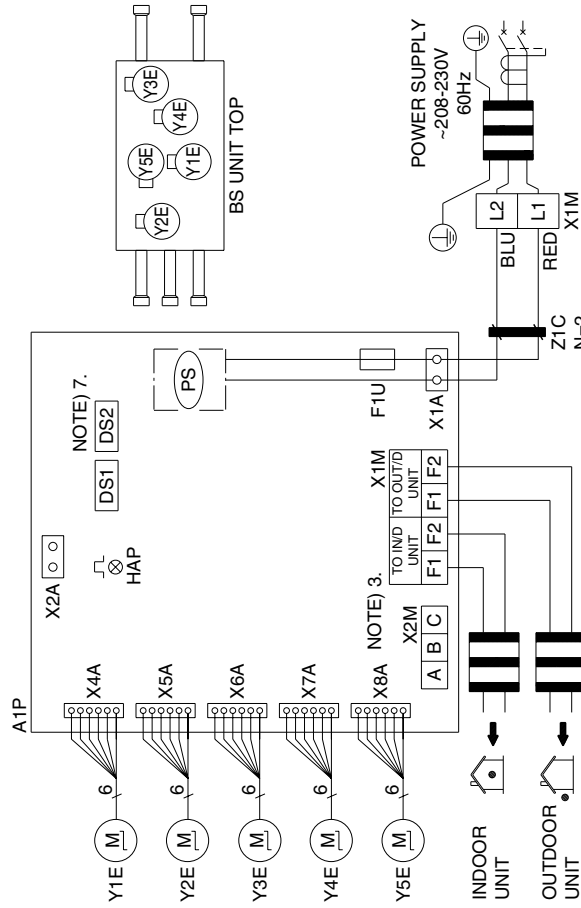
### 3. Piping Diagrams



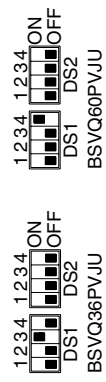
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# 4. Wiring Diagrams

A1P	PRINTED CIRCUIT BOARD	Y2E	ELECTRIC EXPANSION VALVE (SUB DISCHARGE)
DS1, DS2	DIP SWITCH	Y3E	ELECTRIC EXPANSION VALVE (SUB SUCTION)
F1U	FUSE (T, 3.15A, 250V)	Y4E	ELECTRIC EXPANSION VALVE (MAIN DISCHARGE)
HAP	FLASHING LAMP (SERVICE MONITOR-GREEN)	Y5E	ELECTRIC EXPANSION VALVE (MAIN SUCTION)
PS	SWITCHING POWER SUPPLY (A1P)	Z1C	NOISE FILTER (FERRITE CORE)
X1M	TERMINAL STRIP (POWER)	X2A	CONNECTOR FOR OPTIONAL PARTS
X1M (A1P)	TERMINAL STRIP (CONTROL)		CONNECTOR (WIRING EXTERNAL CONTROL ADAPTOR FOR OUTDOOR UNIT)
X2M	TERMINAL STRIP (C/H SELECTOR)		
Y1E	ELECTRIC EXPANSION VALVE (SUB COOL)		



- NOTES)
1. THIS WIRING DIAGRAM APPLIES TO THE BS UNIT ONLY.
  2. □□□□ : TERMINAL STRIP. □□ : CONNECTOR, —○— : TERMINAL  
⊕ : FIELD WIRING, ⊕ : PROTECTIVE EARTH
  3. WHEN USING THE COOL/HEAT SELECTOR (OPTIONAL ACCESSORY), CONNECT IT TO TERMINALS A, B AND C ON X2M.
  4. AS FOR WIRING TO THE IN/D UNIT (F1) · (F2) AND OUT/D UNIT (F1) · (F2) ON X1M (A1P), REFER TO INSTALLATION MANUAL.
  5. SYMBOLS SHOW AS FOLLOWS. (BLU : BLUE RED : RED)
  6. USE COPPER CONDUCTORS ONLY.
  7. DIP SWITCH (DS1 · 2) INITIAL SETTINGS ARE AS FOLLOWS.



FOR USING DIP SWITCH (DS1 · 2), REFER TO INSTALLATION MANUAL OR "SERVICE PRECAUTION" LABEL ON EL. COMPO. BOX COVER.

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## 5. Electric Characteristics

Model	Units			Power supply		IFM		Input(W)	
	Hz	Volts	Voltage range	MCA	MFA	KW	FLA	Cooling	Heating
BSVQ36PVJU	60	208-230	MAX. 253	0.1	15	—	—	5	5
BSVQ60PVJU			Min. 187	0.1	15	—	—	5	5

### Symbols :

MCA : Min. Circuit Amps (A)  
 MFA : Max. Fuse Amps (A) (See note 5)  
 KW : Fan Motor Rated Output(KW)  
 FLA : Full Load Amps(A)  
 IFM : Indoor Fan Motor

### Note :

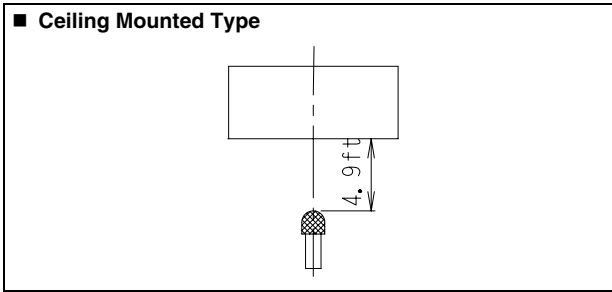
- Voltage range  
Units are suitable for use on electrical systems where voltage supplied to unit terminals is not below or above listed range limits.
- Maximum allowable voltage unbalance between phases is 2%.
- MCA/MFA  
 $MCA = 1.25 \times FLA$   
 $MFA \leq 4 \times FLA$   
 (Next lower standard fuse rating, Min. 15A)
- Select wire size based on the MCA.
- Instead of fuse, use Circuit Breaker.

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# 6. Sound Levels

## Overall



**Notes:**

Operation noise differs with operation and ambient conditions.

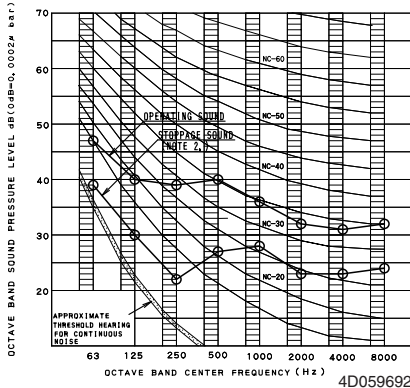
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Model	208~230V, 60Hz	
	Operating Sound	Stoppage Sound
BSVQ36PVJU	42	32
BSVQ60PVJU	43	32

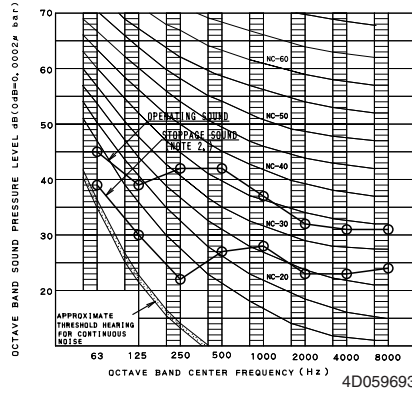
## Octave Band Level

○ — ○ 208V~230V

### BSVQ36P

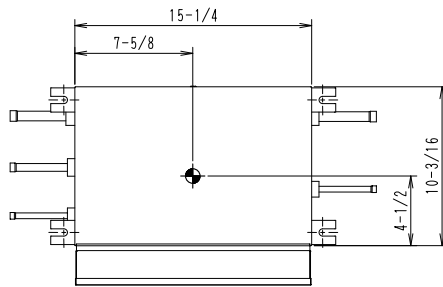


### BSVQ60P

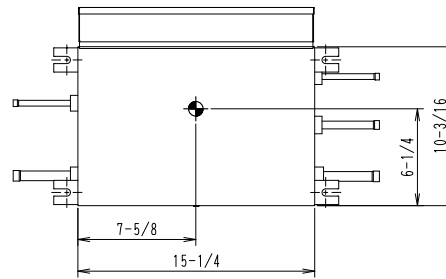


## 7. Installation

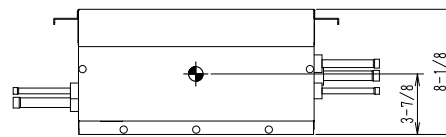
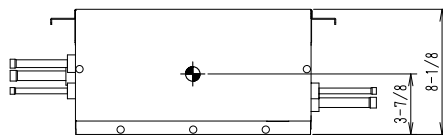
### Center of Gravity



IN CASE OF THE ELECTRICAL BOX ON THE STANDARD SIDE OF THE UNIT



IN CASE OF THE ELECTRICAL BOX ON THE OTHER SIDE OF THE UNIT



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### 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 for future reference.

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

Meaning of danger, warning, caution and note symbols.

**!** **DANGER** ..... Indicates an imminently hazardous situation which, if not avoided, will result in death or serious injury.

**!** **WARNING** ..... Indicates a potentially hazardous situation which, if not avoided, could result in death or serious injury.

**!** **CAUTION** ..... Indicates a potentially hazardous situation which, if not avoided, may result in minor or moderate injury. It may also be used to alert against unsafe practices.

**!** **NOTE** ..... Indicates situation that may result in equipment or property-damage-only accidents.

**!** **DANGER** -----

- **Refrigerant gas is heavier than air and replaces oxygen. A massive leak could lead to oxygen depletion, especially in basements, and an asphyxiation hazard could occur leading to serious injury or death.**
- **Do not install unit in an area where flammable materials are present due to the risk of explosion resulting in serious injury or death.**
- **If the refrigerant gas leaks during installation, ventilate the area immediately.**  
Refrigerant gas may produce toxic gas if it comes into contact with fire such as from a fan, heater, stove or cooking device. Exposure to this gas could cause severe injury or death.
- **After completing the installation work, check that the refrigerant gas does not leak.**  
Refrigerant gas may produce toxic gas if it comes into contact with fire such as from a fan, heater, stove or cooking device. Exposure to this gas could cause severe injury or death.

- **Do not ground units to water pipes, telephone wires or lightning rods because incomplete grounding could cause a severe shock hazard resulting in severe injury or death, and to gas pipes because a gas leak could result in an explosion which could lead to severe injury or death.**
- **Safely dispose of the packing materials.**

Packing materials, such as nails and other metal or wooden parts, may cause stabs or other injuries.

Tear apart and throw away plastic packaging bags so that children will not play with them. Children playing with plastic bags face the danger of death by suffocation.

### **WARNING**

- **Ask your dealer or qualified personnel to carry out installation work. Do not try to install the machine by 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.
- **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 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 electric parts box lid can be securely fastened.**  
Improper positioning of the electric parts box lid may result in electric shocks, fire or the terminals overheating.
- **Before touching electrical parts, turn off the unit.**
- **Be sure to establish an earth.**  
Do not earth the unit to a utility pipe, arrester, or telephone earth.  
Incomplete earth may cause electrical shock, or fire.  
A high surge current from lightning or other sources may cause damage to the air conditioner.
- **Do not touch the switch with wet fingers.**  
Touching a switch with wet fingers can cause electric shock.
- **Be sure to install an earth leakage breaker.**  
Failure to install an earth leakage breaker may result in electric shocks, or fire.
- **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.

### **CAUTION**

- **While following the instructions in this installation manual, insulate piping in order to prevent condensation.**  
Improper piping insulation may result in water leakage and property damage.

- **Be very careful about product transportation.**  
Some products use PP bands for packaging. Do not use any PP bands for a means of transportation. It is dangerous.
  - **Make sure to provide for adequate measures in order to prevent that the outside 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.
- 

 **NOTE**

- **Install the indoor and outside units, power supply wiring and connecting wires at least 3.5ft. away from televisions or radios in order to prevent image interference or noise.**  
(Depending on the radio waves, a distance of 3.5ft. 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.
  - **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.
  - **Dismantling of the unit, treatment of the refrigerant, oil and eventual other parts, should be done in accordance with the relevant local and national regulations.**
- 

 **NOTE**

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 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/outside unit is for R410A. See the catalog for indoor/outside unit models which can be connected. (Normal operation is not possible when connected to other units.)

### 2-2 PRECAUTIONS

- Hold the unit by the Hanging brackets (4 points) when opening the box and moving it, and do not lift it holding on to any other part especially the refrigerant piping.
- About installation of outside and indoor unit, refer to the installation manual provided with the outside and the indoor unit.
- This unit, both indoor and outside, 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.

**NOTE** 

- Do not throw away any of the accessories until installation is complete.

**<BSVQ36 · 60PVJU>**

Name	1) Accessory pipes (BSVQ36 only)		1) Accessory pipes (BSVQ60 only)		2) Clamp	3) Insulation tube			Explanation Document
	1 pc.	1 pc.	1 pc.	2 pcs.		2 pcs.	1 pc.	2 pcs.	
Quantity	1 pc.	1 pc.	1 pc.	2 pcs.	16 pcs.	2 pcs.	1 pc.	2 pcs.	1 copy
Shape	1)-1  φ3/8	1)-2  φ5/8	1)-1  φ1/2	1)-2  φ5/8		3)-1  (Small)	3)-2  (Medium)	3)-3  (Large)	Installation manual

### 2-4 COMBINATION

- This BS unit is only for systems for Models REYQ-P. It cannot be connected to systems for Models REYQ-M.
- For series of applicable indoor units, refer to the catalog or other literature.
- Select the BS unit to fit the total capacity (sum of unit's capacity) and max. number of the indoor units to be connected downstream. About indoor unit's capacity, refer to the Table 2.

Table 1

Model	Total capacity of all downstream indoor units	Max. number of all downstream indoor units
BSVQ36PVJU	A ≤ 36	5
BSVQ60PVJU	36 < A ≤ 60	8

Table 2

Capacity expressed as indoor unit's model No.	07	09	12	18	24	30	36	48
Indoor unit's capacity (for use in computation)	7.5	9.5	12	18	24	30	36	48

<Example>

In case of the BS unit which connect two FXFQ12M and two FXSQ18M.

Total capacity = 12×2+18×2 = 60 → **Select BSVQ60PVJU**

### 2-5 CHECK ITEM

- For the following items, take special care during construction and check after installation is finished.

**Completion check items**

Check items	Problems	Check
Are the BS units installed securely?	Falling, vibration, and operating noise	
Have you performed a gas leak test?	Does not cool or heat	
Is the insulation complete? (Refrigerant piping and pipe connection part)	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	

**Hand-over check items**

Check items	Check
Did you close the EL. COMPO. BOX lid?	
Did you hand the operating manual and warranty card to the customer?	

### 3. SELECTING INSTALLATION SITE

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.
- Locations where the wall is not significantly tilted.
- Where sufficient clearance for maintenance and service can be ensured. (Refer to Fig. 1)
- Locations where an inspection hole (Refer to Fig. 2) can be installed to EL. COMPO. BOX side (See Note).
- Where the total piping length involving indoor unit and outside unit is below the allowable piping length. (See installation manual attached to outside unit.)

Note: The EL. COMPO. BOX mounting surface can be changed.

For information on how to change the mounting surface, refer to “5. BS UNIT INSTALLATION”.

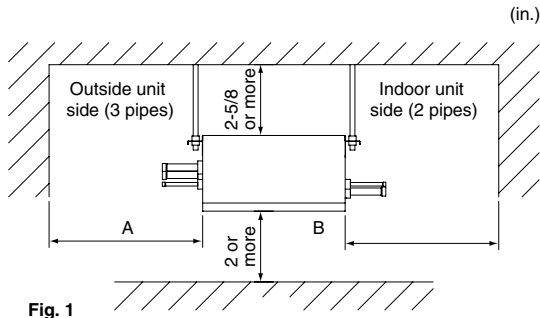


Fig. 1

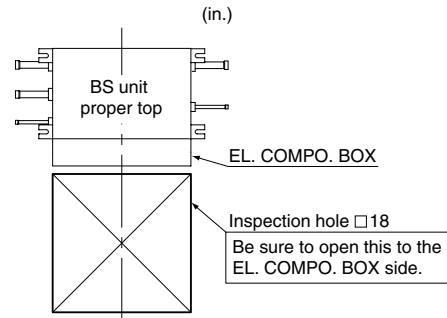


Fig. 2

BS Unit Name	A	B
BSVQ36P	10 or more	10 or more (*1)
BSVQ60P	10 or more (*2)	10 or more (*2)

- (\*1) When using accessory pipes 1)-1, 2 (Refer to 6-5 PIPING CONNECTION), provide a service space of at least 12 in..
- (\*2) When using accessory pipes 1)-1, 2 (Refer to 6-5 PIPING CONNECTION), provide a service space of at least 14 in..
- (\*3) When using accessory pipes 1)-1, 2 (Refer to 6-5 PIPING CONNECTION), provide a service space of at least 16 in..

#### NOTE

- Study if the installation location is strong enough to hold the weight of the unit, and if necessary reinforce the area with a beam or other member and then install suspension bolts. Use the suspension bolts to install the unit. (Refer to “4. PREPARATIONS BEFORE INSTALLATION”)
- Install the BS unit and its power supply wiring and transmission wiring at least 40 in. away from televisions and radios to prevent image distortion and noise in those devices. Noise may still be introduced at this distance depending on the electromagnetic wave conditions.

### 4. PREPARATIONS BEFORE INSTALLATION

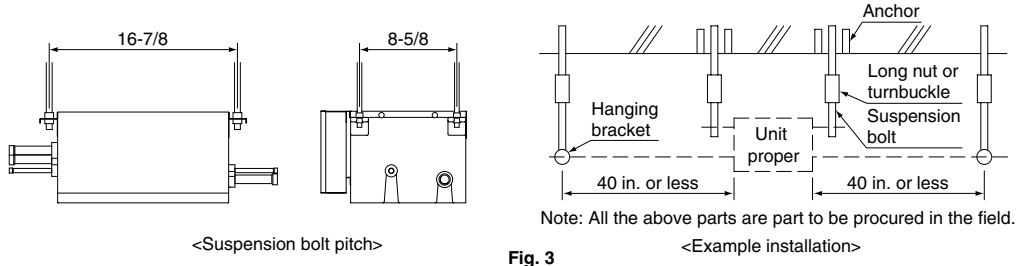
Refer the figure 3 and install the suspension bolts and hanging brackets.

#### <Suspension bolts: For supporting the product>

- Use M8-M10 suspension bolts.
- When holes are to be made anew, used embedded inserts and embedded foundation bolts. When holes are already provided, use hole-in-anchors or the like. Install the BS unit so that its weight can be withstood.

#### <Hanging bracket: For supporting the connection pipe>

- Be sure to support the connection piping around the unit using hanging brackets that are kept within 40 in. of the body side surface. Hanging excessive weight on the BS unit hanging bracket could cause the unit to fall and injure someone.



### 5. BS UNIT INSTALLATION

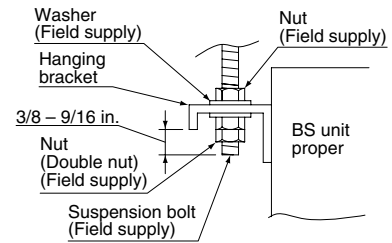
Use only accessories and parts which are of the designated specification when installing.

- (1) When necessary, use the following procedure to change the EL. COMPO. BOX mounting surface.
 

**(Refer to Fig. 4)**

  - 1) Remove the EL. COMPO. BOX lid. (2 screws)
  - 2) Remove the EL. COMPO. BOX. (2 screws)
  - 3) Remove the top panel. (4 screws)
  - 4) Remove the coil cover. (1 screw)
  - 5) Change the pull out direction of the wire (motorized valve coil) between the body and the EL. COMPO. BOX.
  - 6) Rotate the coil cover 180° and attach it.
  - 7) Turn the top panel around 180° and attach it.
  - 8) Attach the EL. COMPO. BOX.
  - 9) Attach the EL. COMPO. BOX lid.
- (2) Attach the hooks to the suspension bolts.
 

Be sure to use the nuts (M8 or M10: 3 pcs, 4 locations) and washers (field supply) from both the top and bottom sides of the hanging bracket and make sure they are tightened correctly.



**NOTES**

- The BS unit has a top and a bottom, so install it so that the diagonal lines in the figure 4 are where the top is. (Failing to do so may prevent the unit from operating properly and increase the volume of the operating noise.)

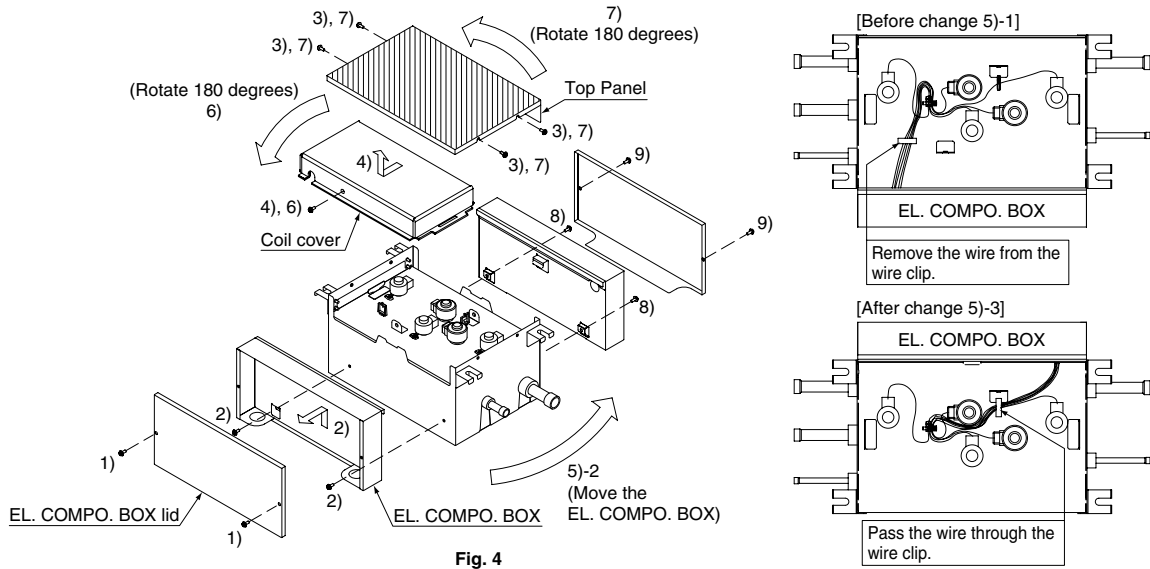


Fig. 4

## 6. REFRIGERANT PIPING WORK

- For instruction for installing piping between the outside unit and BS unit, selecting a refrigerant branch kit, and installing piping between the refrigerant branch kit and the indoor unit, refer to the installation manual and equipment design materials included with the outside unit.
- Before beginning the work, always check to make sure the type of refrigerant used is R410A. (The unit will not operate correctly with a different type of refrigerant.)
- Insulate all of the piping including the liquid pipes, HP/LP gas pipes, suction gas pipes, gas pipes, equalizer pipes (piping between outside units when an outside multi-unit system), and the pipe connections for these. Not insulating these pipes could result in water leaks or burns. In particular, suction gas flows in the HP/LP gas piping during full cooling operation, so the same amount of insulation as used for the suction gas piping is required. In addition, high-pressure gas flows in the HP/LP gas piping and gas piping, so use insulation designed for HVAC systems.
- Reinforce the insulation material when necessary for the installation environment. Refer to the following as a guideline.
  - For 86°F, RH75% to 80%: Thickness at least 5/8 in.
  - For 86°F, over RH80%: Thickness at least 13/16 in.
 If not reinforced, condensation could form on the surface of the insulation. For details, refer to the Engineering data book.

### NOTES

- This product only uses the new refrigerant (R410A). Be sure to use the special pipe cutters for R410A, during installation.
- Make sure that nothing besides the specified refrigerant, such as air, gets into the refrigerant piping.
- If refrigerant gas leaks during the work, ventilate the area. (The outside units are filled with refrigerant.)

### 6-1 PIPING MATERIAL SELECTION

- Use only pipes which are clean inside and outside and which do not accumulate harmful sulfur, oxidants, dirt, cutting oils, moisture, or other contamination. (Foreign materials inside pipes including oils for fabrication must be 9 mg/10 ft or less.)



- Use the following items for the refrigerant piping.
  - Material:** Jointless phosphor-deoxidized copper pipe
  - Size:** See “Example of connection” to determine the correct size.
  - Thickness:** Select a thickness for the refrigerant piping which complies with national and local laws. For R410A, the design pressure is 478 psi.
- For information regarding the piping allowable maximum length, allowable height difference, and allowable length after a branch, refer to the installation manual that came with the outside unit or Engineering data book.
- The refrigerant branch kit (sold separately) is required for piping branches. For information on how to select a refrigerant branch kit, refer to the Installation Manual that came with the outside unit or Engineering data book.

**6-2 PROTECTION AGAINST CONTAMINATION WHEN INSTALLING PIPES**

Protect the piping to prevent moisture, dirt, dust, etc. from entering the piping.

Place	Installation period	Protection method
Outdoor	More than a month	Pinch the pipe
	Less than a month	Pinch or tape the pipe
Indoor	Regardless of the period	

**NOTE**

Exercise special caution to prevent dirt or dust when passing piping through holes in walls and when passing pipe edges to the exterior.

**6-3 PIPING CONNECTION WORK PRECAUTIONS**

- When brazing refrigerant piping, begin working after replacing the nitrogen (\*1) or perform brazing while nitrogen is flowing in the refrigerant piping (\*2) (Refer to Fig. 5), and at the end made the indoor unit and BS unit flare or flange connections.
  - (\*1) For details on nitrogen replacement, see the “VRV Installation Manual” (available at any Daikin dealer).
  - (\*2) The pressure regulator for the nitrogen released when doing the brazing should be set to about 2.9 psi (Enough to feel a slight breeze on your cheek).

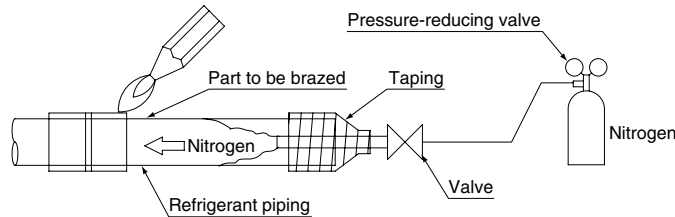


Fig. 5

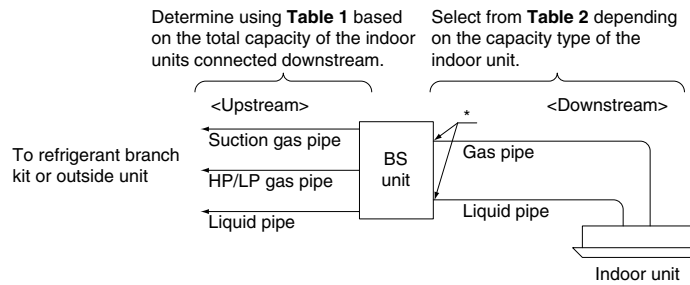
**NOTES**

- Do not use an anti-oxidizing agent when brazing the piping. Residual debris could clog the piping or cause parts to malfunction.
- Do not use a flux when brazing the refrigerant pipe joints.
  - 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.
  - Use phosphor copper brazing (B-Cu93P-710/795: ISO 3677) which does not require flux.

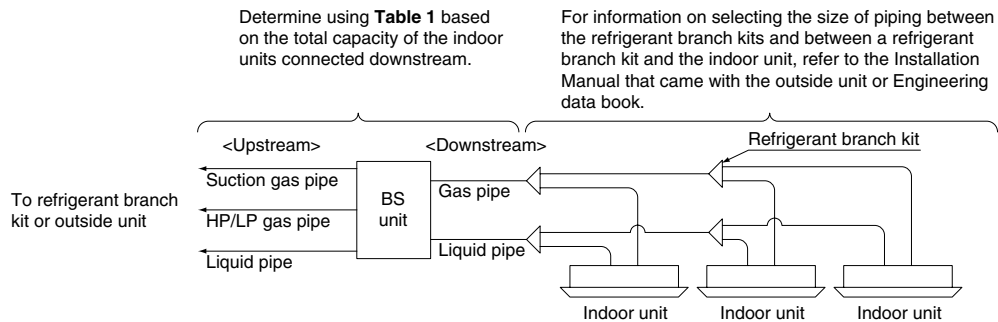
**6-4 PIPING SIZE SELECTION**

From **Example of connection 1** and **2** below and **Table 1, 2**, select the piping size between the outside unit (refrigerant branch kit) and BS unit, and between the BS unit and the indoor unit (refrigerant branch kit).

**Example of connection 1: When 1 indoor unit is connected downstream from the BS unit**



**Example of connection 2: When there is a branch downstream from the BS unit**



**Table 1 Indoor unit total capacity and pipe size**

(in.)

Total capacity of indoor units (Q)	Piping size (outer diameter)				
	Upstream			Downstream	
	Suction gas pipe	HP/LP gas pipe	Liquid pipe	Gas pipe	Liquid pipe
Q < 54	φ5/8	φ1/2	φ3/8	φ5/8	φ3/8
54 ≤ Q < 60	φ3/4	φ5/8		φ3/4	

**Table 2 Indoor unit connection pipe size**

(in.)

Capacity type of indoor units	Piping size (outer diameter)	
	Gas pipe	Liquid pipe
07 · 09 · 12 · 18	φ1/2	φ1/4
24 · 30 · 36 · 48	φ5/8	φ3/8

\* The BS unit downstream connection pipe sizes are shown below. If the pipe diameter differs from that of the indoor unit connection pipe size selected from **Table 2**, follow the instructions in “6-5 PIPING CONNECTION” and use the included pipe to make the connection.

**Table 3 BS unit connection pipe size**

(in.)

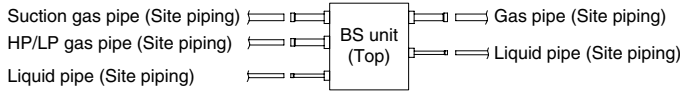
BS unit	Piping size (outer diameter)	
	Gas pipe	Liquid pipe
BSVQ36P	φ5/8	φ3/8
BSVQ60P		

### 6-5 PIPING CONNECTION

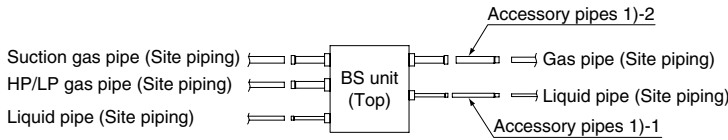
Follow the connection example below and connect the site piping.

#### BSVQ36P type

When the downstream indoor unit total capacity is 36 or less and when one indoor unit with a capacity of 24 to 36 is connected downstream.

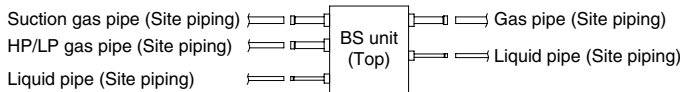


When one indoor unit with a capacity of 07 to 18 is connected downstream

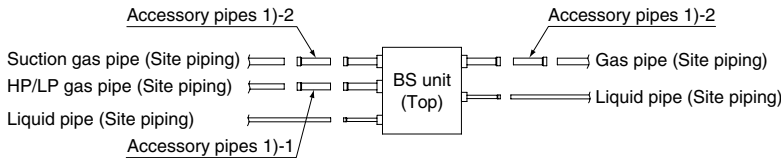


#### BSVQ60P type

When the downstream indoor unit total capacity is more than 36 but less than 54 and when one indoor unit with a capacity of 48 is connected downstream.



When the downstream indoor unit total capacity is 54 or more but 60 or less

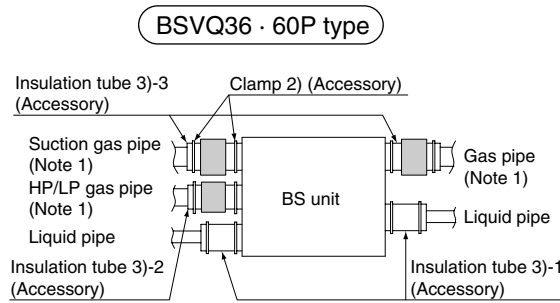


### 6-6 PIPING INSULATION

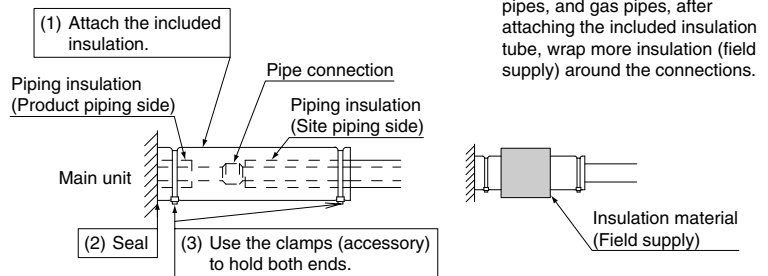
- After the gas leak inspection is completed, refer to the following figures and use the included insulation tube 3) and clamps 2) to apply the insulation.

#### NOTES

- Insulate all of the piping including the liquid pipes, HP/LP gas pipes, suction gas pipes, gas pipes, and the pipe connections for these. Not insulating these pipes could result in water leaks or burns. In particular, suction gas flows in the HP/LP gas pipes during full cooling operation, so the same amount of insulation as used for the suction gas pipes is required. In addition, high-pressure gas flows in the HP/LP gas pipes and gas pipes, so use insulation designed for HVAC systems.
- When reinforcing the insulation material for the installation environment, also reinforce the insulation on the piping protruding from the unit and on the pipe connections. Locally purchase the insulation required for the reinforcement work.

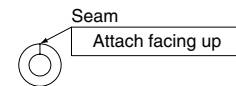


#### Insulation Attachment Instructions



#### — Insulation Installation Precautions —

1. Seal so that air cannot be in and out of the end.
2. Do not over tighten the clamp so as to maintain the insulation thickness.
3. Be sure to attach the insulation (field supply) with the seams facing up.  
(See figure at right.)

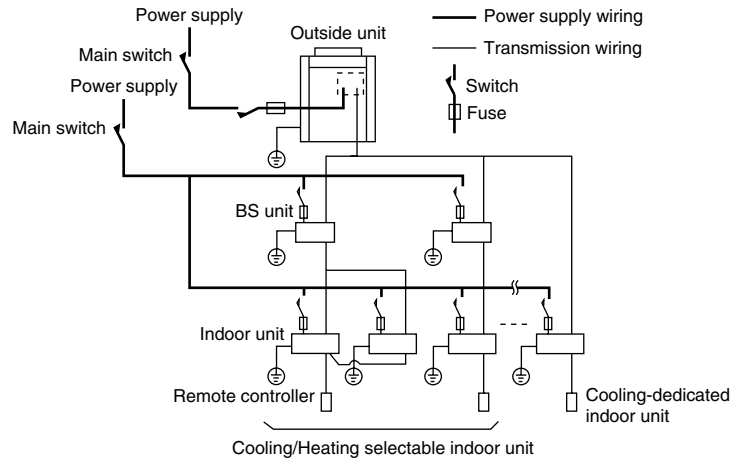


## 7. ELECTRIC WIRING WORK

### 7-1 GENERAL INSTRUCTIONS

- All wiring must be performed by an authorized electrician.
- All field supplied parts and materials, electric works must conform to local codes.
- Always ground wires. (In accordance with national regulations of the pertinent country.)
- Always turn off the power before performing the electric wire installation work.
- Follow the "WIRING DIAGRAM" attached to the unit body to wire the outside unit and indoor units.
- Properly connect wire of the specified wire type and copper thickness. Also use the included clamp to avoid applying excessive force to the terminal (field wire, ground wire).
- 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.
- A circuit breaker capable of shutting down the power supply to the entire system must be installed.
- 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 outside unit and indoor unit are properly matched. If wiring and piping between the outside unit, BS unit and an indoor unit are mismatched, the system may cause a malfunction.
- Do not turn on the power supply (branch switches, overload interrupters) until all other work is done.

**7-2 EXAMPLE FOR THE WHOLE SYSTEM**



**7-3 POWER CIRCUIT, SAFETY DEVICE AND CABLE REQUIREMENTS**

- A power circuit (Refer to Table 3) must be provided for connection of the unit. This circuit must be protected with the required safety devices, i.e. a main switch, a slow blow fuse on each phase and an earth leakage circuit breaker.
- When using residual current operated circuit breakers, be sure to use a high-speed type (0.1 second or less) 30mA rated residual operating current.
- Use copper conductors only.
- Use insulated wire for the power cord.
- Select the power supply cable type and size in accordance with relevant local and national regulations.
- Use vinyl cord with sheath or cable (2 wire) of AWG 18-16 for transmission wiring.

Table 3

Model	Type	Hz	Units			Power supply	
			Voltage	Min.	Max.	MCA	MFA
BSVQ36P BSVQ60P	VJ	60	208~230	187	253	0.1	15

MCA: Min. Circuit Amps (A);

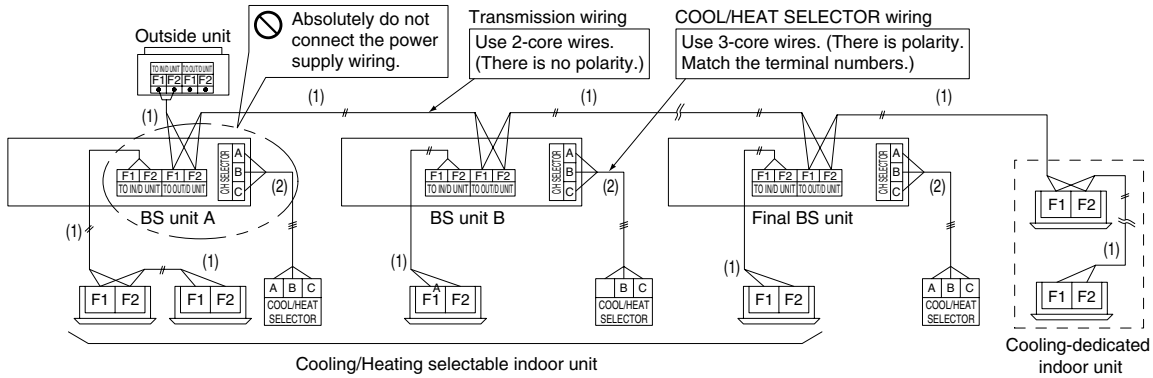
MFA: Max. Fuse Amps (A)

**NOTES**

- The above Table 3 of Electrical Characteristics refers to one BS unit.
- See the Engineering data book for other details.

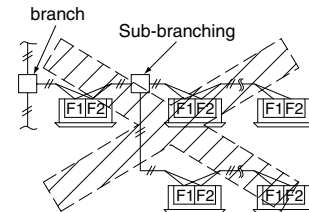
**7-4 WIRING EXAMPLE**

- Here is shown a wiring example for one system transmission wiring.
- Connect terminals F1 and F2 (TO IN/D UNIT) on the control PCB (A1P) in the outside unit EL. COMPO. BOX and terminals F1 and F2 (TO OUT/D UNIT) of the control PCB (A1P) of the first BS unit A.



**NOTE**

1. Connect cooling-dedicated air conditioners to terminals F1 and F2 (TO OUT/D UNIT) of the final BS unit.
2. Use 2-core wire for the transmission wiring. Using a multi-core wire with 3 or more cores when two or more indoor units are used at once could cause abnormal stoppage. (Only use 3-core wire in the COOL/HEAT SELECTOR.)
3. Absolutely do not connect the power supply wiring to the transmission wiring terminal block. Doing so could damage the entire system.
4. For the transmission wiring, use wire that is within the following ranges. Exceeding these limits could cause a transmission error.
  - (1) Between an outside unit and BS unit,  
Between a BS unit and indoor unit, and  
Between a BS unit and BS unit  
Maximum wiring length: 3280 ft or less  
Total wiring length: 6560 ft or less  
Branch point max: 16 branch points
  - (2) Between a BS unit and COOL/HEAT SELECTOR  
Maximum wiring length: 1640 ft or less



**7-5 WIRING CONNECTIONS**

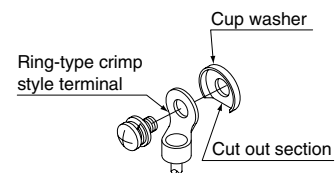
Remove the EL. COMPO. BOX lid on the side and follow the directions to connect the wires.

**<Transmission wiring>**

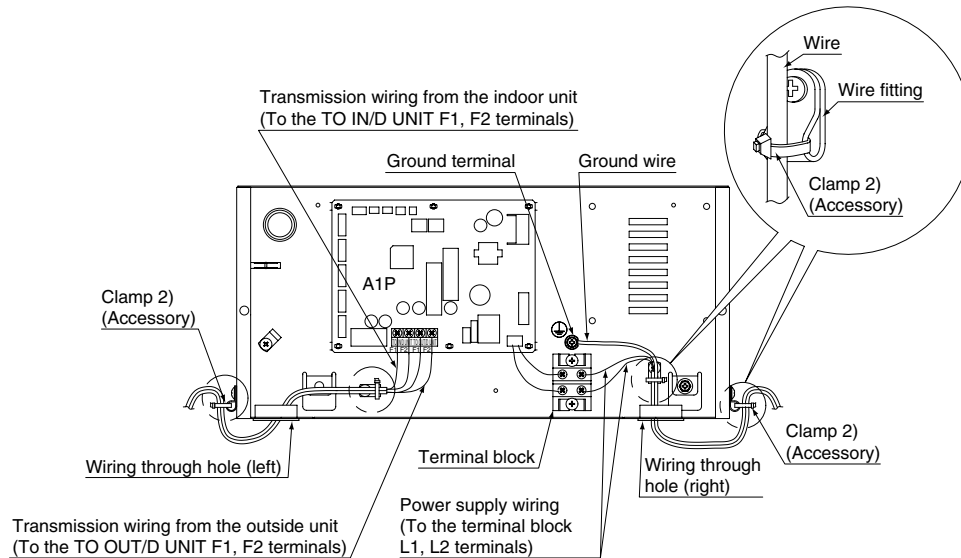
Remove the EL. COMPO. BOX lid and connect the wires to F1 and F2 (TO IN/D UNIT) and F1 and F2 (TO OUT/D UNIT) transmission wiring terminals (control PCB (A1P)). At this time, pass the wiring into the unit through the wiring through hole (left) and use the included clamps 2) to securely hold the wires (in 2 places).

**<Power supply wiring and ground wire>**

Remove the EL. COMPO. BOX lid and connect the power supply wiring to the power terminal block (X1M). Also connect the ground wire to the ground wire terminal. Pass both the power supply wire and the ground wire together through the wire through hole (right) and into the EL. COMPO. BOX and use the included clamps 2) to securely hold the wires (in 2 places).



Be sure to wire the ground wire so that comes out of the slit in the cup washer. (Not doing so could cause insufficient ground wire contact and causing the wire not to function as a ground.)



**NOTES**

- Use ring-type crimp style terminal for connections to the power terminal block. (Refer to Fig. 6)  
Also, insulate the crimped area by attaching an insulation sleeve, etc.  
If these are not available, see the following section.
  - (a) Wiring of different thicknesses cannot be connected to the power terminal block.  
(A loose connection could cause abnormal heating.)
  - (b) When connecting wire of the same diameter, make the connection as shown in the figure 7.

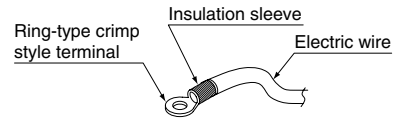


Fig. 6

- Use an appropriate screwdriver for tightening the terminal screw.  
Using a screwdriver that is too small could damage the screw head and prevent proper tightening.
- Over tightening the terminal screw could damage the screw.  
Refer to the Table 4 for the terminal screw tightening torque.
- When fastening the wire, use the included clamp 2) so as not to apply tensile force to the wire connection and then securely fasten the wire. Also, after wiring is completed, organize the wiring so that the EL. COMPO. BOX lid does not pop up and then properly replace the EL. COMPO. BOX lid.  
Make sure no wires are pinched when replacing the EL. COMPO. BOX lid.  
Always use the wire through hole to protect the wires.
- Do not pass the transmission wiring and power supply wiring through the same locations and outside of the unit keep them separated by at least 2 in..  
Not doing so could cause the transmission wiring to pick up electric noise (external noise) and result in a malfunction or breakdown.
- After the wiring working is complete, use sealer (field supply) to seal closed the wire through hole.  
(Entry by small animals, etc., could cause a malfunction.)

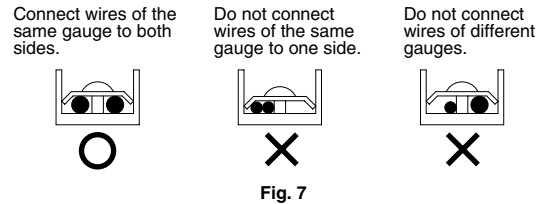


Fig. 7

Table 4

Terminal screw size	Tightening torque (ft · lbf)
M3.5 (COOL/HEAT SELECTOR/transmission wiring terminal block (A1P))	0.58-0.72
M4 (Power supply terminal block)	0.87-1.06
M4 (Ground terminal)	1.12-1.37

## 8. INITIAL SETTING

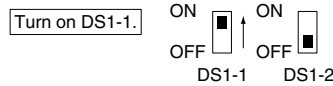
- When the refrigerant piping and wire installation work is completed, make the following settings as required.
- Setting for when connecting the COOL/HEAT SELECTOR to the BS unit.**

### <Setting description>

Set the input signal from the COOL/HEAT SELECTOR (sold separately) to ON/OFF.

### <Setting method>

Set the dip switches (DS1-1) on PCB (A1P) as shown at left before turning on the power to the BS unit.



### NOTES

This setting is read by the microcomputer when the BS unit power is turned on.

- Be sure to make the setting before turning on the power.
- Always close the EL. COMPO. BOX lid after making the setting.

- Setting when changing the “Automatic mode differential” in the Cooling/Heating Automatic Operation Mode.**

### <Setting description>

- The “Automatic mode differential” can be changed within the range of 0°F to 12.6°F (0°F at factory shipment).
- For details regarding the “Automatic mode differential” and indoor unit operation, refer to the “Engineering data book”.

### <Setting method>

The setting is made using the “Local Setting Mode” by the remote controller of indoor unit connected to the BS unit. For information regarding the setting method, refer to “Engineering data book”.

The following table gives a list of the “MODE NO.,” “FIRST CODE NO.,” and “SECOND CODE NO.”

### NOTES

This setting is operated by the operation remote controller while the indoor unit power is turned on.

- When the indoor unit, outside unit, and BS unit installation work is completed, confirm that it is safe even with the power turned on before proceeding with the work.

MODE NO.	FIRST CODE NO.	SECOND CODE NO.	Automatic mode differential (°F)
12 (22)	4	1	0
		2	1.8
		3	3.6
		4	5.4
		5	7.2
		6	9.0
		7	10.8
		8	12.6

← At factory shipment.

## 9. TEST OPERATION





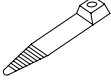



- Check to make sure the EL. COMPO. BOX lid is closed.
- Refer to the Installation Manual included with the outside unit and conduct a test run.
  - Clicking or humming sounds will continue for about 20 sec immediately after the power is turned on due to the start of automatic initialization operation (closing) of the solenoid valve, but this is not a problem.



## 8. Accessories

### Standard Accessories

Check the following accessories are included with your unit.

Name	1) Accessory pipes (BSVQ36 only)		1) Accessory pipes (BSVQ60 only)		2) Clamp	3) Insulation tube			Explanation Document
	1 pc.	1 pc.	1 pc.	2 pcs.		2 pcs.	1 pc.	2 pcs.	
Quantity	1 pc.	1 pc.	1 pc.	2 pcs.	16 pcs.	2 pcs.	1 pc.	2 pcs.	1 copy
Shape	1)-1  φ3/8	1)-2  φ5/8	1)-1  φ1/2	1)-2  φ5/8		3)-1  (Small)	3)-2  (Medium)	3)-3  (Large)	Installation manual

### Optional Accessories (For Unit)

No.	Name of Options	BSVQ36PVJU	BSVQ60PVJU
1	Cool / Heat Selector		KRC19-26A
1-1	Fixing Box		KJB111A



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- Use only those parts and accessories supplied or specified by Daikin. Ask a qualified installer or contractor to install those parts and accessories. Use of unauthorized parts and accessories or improper installation of parts and accessories can result in water or refrigerant leakage, electrical shock, fire or explosion.
- Read the User's Manual carefully before using this product. The User's Manual provides important safety instructions and warnings. Be sure to follow these instructions and warnings.

If you have any inquiries, please contact your local importer, distributor and/or retailer.



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JMI-0107



JQA-1452

**About ISO9001**

ISO 9001 is a plant certification system defined by the International Organization for Standardization (ISO) relating to quality assurance. ISO 9001 certification covers quality assurance aspects related to the "design, development, manufacture, installation, and supplementary service" of products manufactured at the plant.



EC99J2044



JQA-E-90108

**About ISO 14001**

ISO 14001 is the standard defined by the International Organization for Standardization (ISO) relating to environmental management systems. Our group has been acknowledged by an internationally accredited compliance organisation as having an appropriate programme of environmental protection procedures and activities to meet the requirements of ISO 14001.

Dealer

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