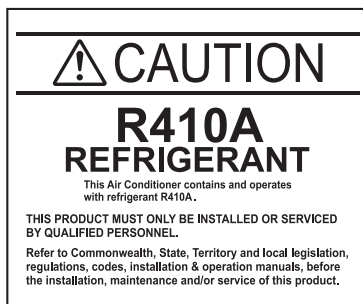


## UTP-VX30A UTP-VX60A UTP-VX90A

- This installation manual explains the EEV unit for the DX-Kit.
- Diese Installationsanleitung erklärt die EEV-Einheit für das DX-Kit.
- Ce manuel d'installation décrit l'unité EEV pour le DX-Kit.
- Este manual de instalación explica la unidad EEV para el DX-Kit.
- Il presente manuale di installazione fornisce spiegazioni per l'unità EEV per il DX-Kit.
- Το παρόν εγχειρίδιο εγκατάστασης εξηγεί την μονάδα HEB για το DX-Kit.
- Este manual de instalação descreve a unidade EEV do DX-Kit.
- Данное руководство объясняет установку модуля EEV для DX-Kit.
- Bu montaj kılavuzu, DX-Kit için EEV ünitesini açıklar.



FUJITSU GENERAL LIMITED

## INSTALLATION MANUAL

DX-kit

For authorized service personnel only.

English

## INSTALLATIONSANLEITUNG

DX-Kit

Nur für autorisiertes Fachpersonal.

Deutsch

## MANUEL D'INSTALLATION

Kit interface batterie

Pour le personnel agréé uniquement.

Français

## MANUAL DE INSTALACIÓN

Kit conexión UTA

Únicamente para personal de servicio autorizado.

Español

## MANUALE DI INSTALLAZIONE

Kit DX

A uso esclusivo del personale tecnico autorizzato.

Italiano

## ΕΓΧΕΙΡΙΔΙΟ ΕΓΚΑΤΑΣΤΑΣΗΣ

DX-Kit

Μόνο για εξουσιοδοτημένο τεχνικό προσωπικό.

Ελληνικά

## MANUAL DE INSTALAÇÃO

DX-Kit

Apenas para técnicos autorizados.

Português

## РУКОВОДСТВО ПО УСТАНОВКЕ

Комплекта подключения

Только для авторизованного обслуживающего персонала.

Русский

## MONTAJ KILAVUZU

DX-Kit

Yalnızca yetkili servis personeli için.

Türkçe

[Original instructions]

PART NO. 9381279012

# INSTALLATION MANUAL

PART NO. 9381279012


VRF system DX-kit


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## 1. SAFETY PRECAUTIONS

- Be sure to read this Manual thoroughly before installation.
- The warnings and precautions indicated in this Manual contain important information pertaining to your safety. Be sure to observe them.
- Hand this Manual, to the customer. Request the customer to keep them on hand for future use, such as for relocating or repairing the unit.
- For installation of the air handling unit (heat exchanger), refer to the installation manual for the air handling unit.


 <b>WARNING</b>	This mark indicates procedures which, if improperly performed, might lead to the death or serious injury of the user.
Request your dealer or a professional installer to install the DX-kit in accordance with this Installation Manual. An improperly installed unit can cause serious accidents such as water leakage, electric shock, or fire. If the DX-kit is installed in disregard of the instructions in the Installation Manual, it will void the manufacturer's warranty.	
Do not turn ON the power until all work has been completed. Turning ON the power before the work is completed can cause serious accidents such as electric shock or fire.	
If refrigerant leaks while work is being carried out, ventilate the area. If the refrigerant comes in contact with a flame, it produces a toxic gas.	
Installation work must be performed in accordance with national wiring standards by authorized personnel only.	
Except for EMERGENCY, never turn off main as well as sub breaker of the DX-kits during operation. It will cause compressor failure as well as water leakage. First, stop the DX-kit by operating the control unit, converter or external input device and then cut the breaker. Make sure to operate through the control unit, converter or external input device. When the breaker is designed, locate it at a place where the users cannot start and stop in the daily work.	

 <b>CAUTION</b>	This mark indicates procedures which, if improperly performed, might possibly result in personal harm to the user, or damage to property.
Read carefully all security information before use or install the DX-kit.	
Do not attempt to install the DX-kit or a part of the DX-kit by yourself.	
This unit must be installed by qualified personnel with a capacity certificate for handling refrigerant fluids. Refer to regulation and laws in use on installation place.	
The installation must be carried out in compliance with regulations in force in the place of installation and the installation instructions of the manufacturer.	
This unit is part of a set constituting the DX-kit. It must not be installed alone or with non-authorized by the manufacturer.	


Always use a separate power supply line protected by a circuit breaker operating on all wires with a distance between contact of 3mm for this unit.
The unit must be correctly earthed (grounded) and the supply line must be equipped with a differential breaker in order to protect the persons.
The units are not explosion proof and therefore should not be installed in explosive atmosphere.
Never touch electrical components immediately after the power supply has been turned off. Electric shock may occur. After turning off the power, always wait 5 minutes before touching electrical components.
This unit contains no user-serviceable parts. Always consult authorized service personnel to repairs.
When moving, consult authorized service personnel for disconnection and installation of the unit.

## 2. ABOUT THIS PRODUCT

### 2.1. Precautions for using R410A refrigerant

 <b>WARNING</b>
Do not introduce any substance other than the prescribed refrigerant into the refrigeration cycle. If air enters the refrigeration cycle, the pressure in the refrigeration cycle will become abnormally high and cause the piping to rupture.
If there is a refrigerant leak, make sure that it does not exceed the concentration limit. If a refrigerant leak exceeds the concentration limit, it can lead to accidents such as oxygen starvation.
Do not touch refrigerant that has leaked from the refrigerant pipe connections or other area. Touching the refrigerant directly can cause frostbite.
If a refrigerant leak occurs during operation, immediately vacate the premises and thoroughly ventilate the area. If the refrigerant comes in contact with a flame, it produces a toxic gas.

### 2.2. Special tool for R410A

 <b>WARNING</b>
To install a unit that uses R410A refrigerant, use dedicated tools and piping materials that have been manufactured specifically for R410A use. Because the pressure of R410A refrigerant is approximately 1.6 times higher than the R22, failure to use dedicated piping material or improper installation can cause rupture or injury. Furthermore, it can cause serious accidents such as water leakage, electric shock, or fire.

Tool name	Changes
Gauge manifold	The pressure in the refrigerant system is extremely high and cannot be measured with a conventional gauge. To prevent erroneous mixing of other refrigerants, the diameter of each port has been changed. It is recommended to use a gauge manifold with a high pressure display range of -0.1 to 5.3 MPa and a low pressure display range of -0.1 to 3.8 MPa.
Charging hose	To increase pressure resistance, the hose material and base size were changed. (The charging port thread diameter for R410A is 1/2 UNF 20 threads per inch.)
Vacuum pump	A conventional vacuum pump can be used by installing a vacuum pump adapter. Be sure that the pump oil does not backflow into the system. Use one capable for vacuum suction of -100.7 kPa (5 Torr, -755 mmHg).
Gas leakage detector	Special gas leakage detector for R410A refrigerant.


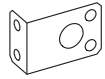


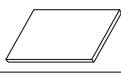
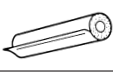

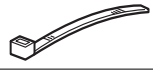
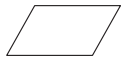
## 2.3. Accessories

### ⚠ WARNING

For installation purposes, be sure to use the parts supplied by the manufacturer or other prescribed parts. The use of non-prescribed parts can cause serious accidents such as the unit falling, water leakage, electric shock, or fire.

The following installation parts are furnished. Use them as required.

Keep the Installation Manual in a safe place and do not discard any other accessories until the installation work has been completed.

Name and Shape	Q'ty	Application
Installation Manual 	1	—
Secure fitting 	4	For mounting the EEV unit to the wall, or stacking multiple EEV units
Tapping Screw L (M4×L16) 	8	For mounting the EEV unit to the wall
Tapping Screw S (M4×L10) 	8	For stacking multiple EEV unit
Rubber sheet 	2	For mounting pipe joints
Pipe heat insulations 	2	For mounting pipe joints
cable tie (Large) 	4	For securing heat insulations
cable tie (Medium) 	1	For securing cables
Seal 	2	For pasting unused piping holes

## 3. PRODUCT SELECTION

- Failure to observe the selection conditions described below will affect the outdoor unit service life and operational reliability.
- When selecting air handling unit, it must be designed for R410A refrigeration.

### 3.1. Product Lineup

#### (1) Product Lineup

Unit Name	Model Name	Environment specifications
Control unit	UTY-VDGX	<ul style="list-style-type: none"> <li>• Temperature: -20 to 46 °C</li> <li>• Humidity: 10 to 90% RH (No condensation)</li> </ul>
EEV unit	UTP-VX30A	
	UTP-VX60A	
	UTP-VX90A	

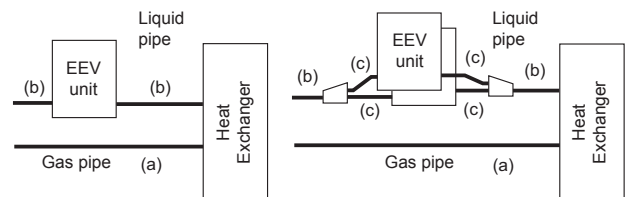
#### (2) EEV unit Selection

- The EEV unit is selected according to the capacity class conditions.
- If the capacity class is 40 kW or 50 kW, 2 EEV units are connected (in parallel).

Capacity Class (kW)	5.0	6.3	8.0	10.0	12.5	
EEV unit model No.	30	30	30	60	60	
Cooling capacity (kW)	5.6	6.3	8	10	12.5	
Heating capacity (kW)	6.3	7.1	9	11.2	14	
Heat exchanger capacity	Refer to the Design & Technical manual.					
Airflow rate (Reference) (m <sup>3</sup> /h)	1,060	1,200	1,520	1,600	2,000	
Capacity range	Cool (kW)	5.1~5.9	6.0~7.1	7.2~9.0	9.1~11.1	11.2~13.2
	Heat (kW)	5.7~6.7	6.8~8.0	8.1~10.0	10.1~12.4	12.5~15.0
Evaporation temperature	Refer to the Design & Technical manual.					
Condensation temperature	Refer to the Design & Technical manual.					

Capacity Class (kW)	14.0	20.0	25.0	40.0	50.0	
EEV unit model No.	60	90	90	90+90	90+90	
Cooling capacity (kW)	14	22.4	25	40	50.4	
Heating capacity (kW)	16	25	28	45	56.5	
Heat exchanger capacity	Refer to the Design & Technical manual.					
Airflow rate (Reference) (m <sup>3</sup> /h)	2,240	3,560	4,000	6,400	8,000	
Capacity range	Cool (kW)	13.3~18.0	18.1~23.7	23.8~28.0	28.1~44.7	44.8~50.4
	Heat (kW)	15.1~20.0	20.1~26.5	26.6~31.5	31.6~49.9	50.0~56.5
Evaporation temperature	Refer to the Design & Technical manual.					
Condensation temperature	Refer to the Design & Technical manual.					

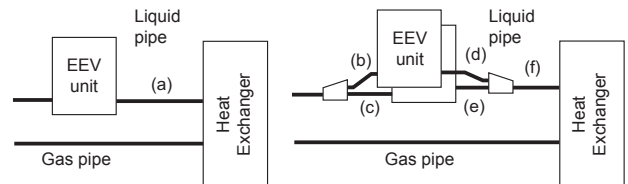
#### Pipe size



Capacity Class (kW)	5.0	6.3	8.0	10.0	12.5	
Pipe size	Gas (a) (mm)	15.88	15.88	15.88	15.88	19.05
	Liquid (b) (mm)	9.52	9.52	9.52	9.52	9.52
	Liquid (c) (mm)	—	—	—	—	—

Capacity Class (kW)	14.0	20.0	25.0	40.0	50.0	
Pipe size	Gas (a) (mm)	19.05	22.2	22.2	28.58	28.58
	Liquid (b) (mm)	9.52	12.7	12.7	12.7	15.88
	Liquid (c) (mm)	—	—	—	12.7	12.7

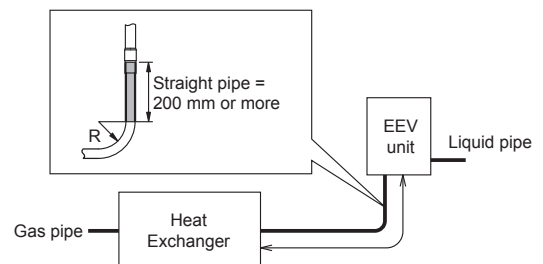
#### Pipe length



(a) ≤ 5 m

(b) ≤ 2 m , (c) ≤ 2 m , (d) ≤ 2 m , (e) ≤ 2 m  
(d) + (f) ≤ 5 m , (e) + (f) ≤ 5 m

#### 3.1.1. Pipe Conditions



## 4. INSTALLATION WORK

Correct initial installation location is important because it is difficult to move unit after it is installed.

### 4.1. Selecting an installation location

Decide the mounting position together with the customer as follows.

#### ⚠ WARNING

Select installation locations that can properly support the weight of the DX-kit. Install the units securely so that they do not topple or fall.

#### ⚠ CAUTION

Do not install the DX-kit in the following areas:

- Area with high salt content, such as at the seaside. It will deteriorate metal parts, causing the parts to fail or the unit to leak water.
- Area filled with mineral oil or containing a large amount of splashed oil or steam, such as a kitchen. It will deteriorate plastic parts, causing the parts to fail or the unit to leak water.
- Area that generates substances that adversely affect the equipment, such as sulfuric gas, chlorine gas, acid, or alkali. It will cause the copper pipes and brazed joints to corrode, which can cause refrigerant leakage.
- Area that can cause combustible gas to leak, contains suspended carbon fibers or flammable dust, or volatile inflammables such as paint thinner or gasoline. If gas leaks and settles around the unit, it can cause a fire.
- Area where animals may urinate on the unit or ammonia may be generated.

Do not use the unit for special purposes, such as storing food, raising animals, growing plants, or preserving precision devices or art objects. It can degrade the quality of the preserved or stored objects.

Do not install where there is the danger of combustible gas leakage.

Do not install the unit near a source of heat, steam, or flammable gas.

Install the DX-kit, power supply cable, transmission cable, and remote controller cable at least 1 m away from a television or radio receivers. The purpose of this is to prevent TV reception interference or radio noise. (Even if they are installed more than 1 m apart, you could still receive noise under some signal conditions.)

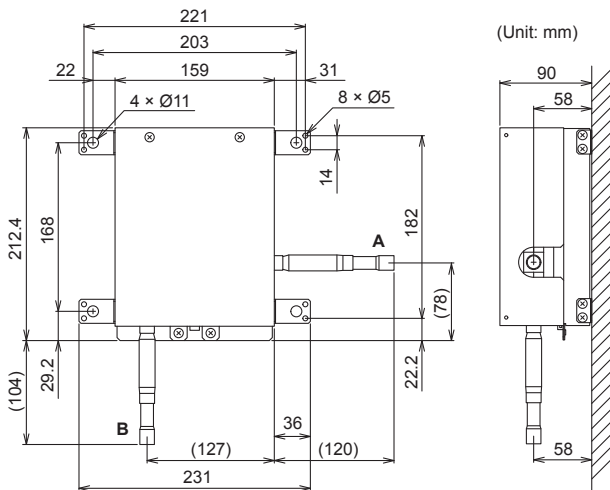
If children under 10 years old may approach the unit, take preventive measures so that they cannot reach the unit.

Take precautions to prevent the unit from falling.

- (1) Install the DX-kit on a place having a sufficient strength so that it withstands against the weight of the DX-kit.
- (2) Leave the space required to service the DX-kit.
- (3) Install the unit where connection to the outdoor unit (or RB unit) is easy.
- (4) Install the unit where the connection pipe can be easily installed.
- (5) Install the unit where noise and vibrations are not amplified.
- (6) Take servicing, etc., into consideration and leave the spaces.
- (7) Do not install the unit where it will be exposed to direct sunlight.

### 4.2. Installation dimensions

EEV unit Dimensions



Connection pipe diameter (mm)		
Model	A	B
UTP-VX30A	9.52	9.52
UTP-VX60A	9.52	9.52
UTP-VX90A	12.7	12.7

Weight of the EEV unit (kg)	
UTP-VX30A	2
UTP-VX60A	2
UTP-VX90A	2

### 4.3. Installing the unit

#### ⚠ WARNING

Install the DX-kit in a location which can withstand a load of at least 5 times the weight of the main unit and which will not amplify sound or vibration. If the installation location is not strong enough, the DX-kit may fall and cause injuries.

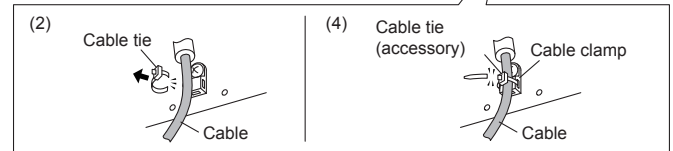
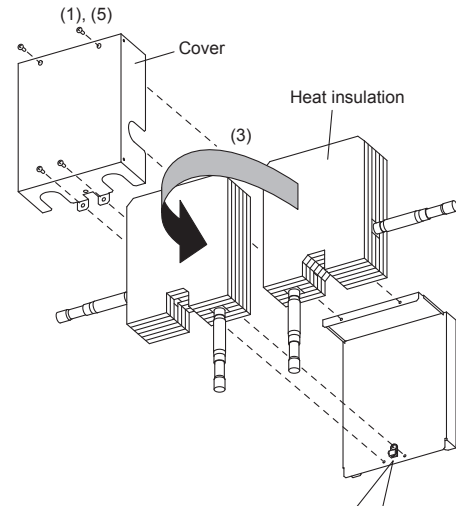
If the job is done with the panel frame only, there is a risk that the unit will come loose. Please take care.

Carrying in and installation of the unit should be performed by a sufficient number of people and with sufficient equipment that is adequate for the weight of the unit. Performing such work by an insufficient number of people or with inadequate equipment could result in dropping of the unit or personal injury.

#### 4.3.1. Installing the EEV unit

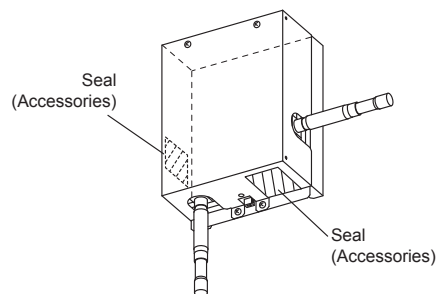
##### 4.3.1.1. Changing Pipe Orientation

- EEV unit pipe orientation can be changed according to the installation conditions.
- (1) Remove the 4 screws and remove the cover.
  - (2) Cut the cable tie fixing the cable.
  - (3) Invert both the pipes and heat insulation.
  - (4) Pass the cable tie (accessory) through the cable clamp, and firmly secure the cable, and then cut any unnecessary part of cable tie.
  - (5) Use the 4 screws to mount the cover.



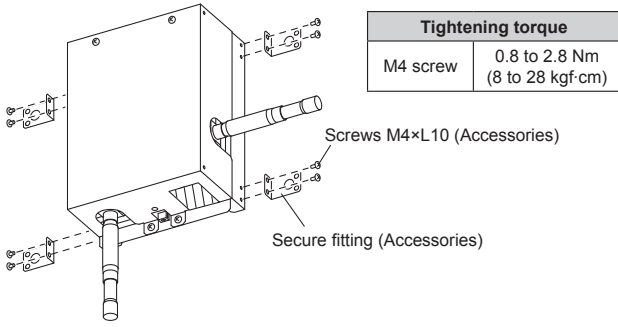
##### 4.3.1.2. Pasting Seals to the piping holes

Use the seals (accessories) to cover any unused piping holes.



### 4.3.1.3. Mounting Secure Fittings (If Using 1 EEV unit)

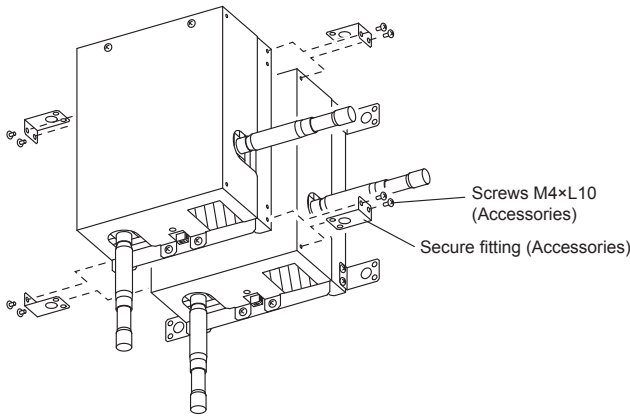
(1) Use the 8 screws (accessories) to secure the secure fittings (accessories).



### 4.3.1.4. Mounting Secure Fittings (If Using 2 EEV units)

(1) If using 2 EEV units, stacking the 2 kits is recommended.

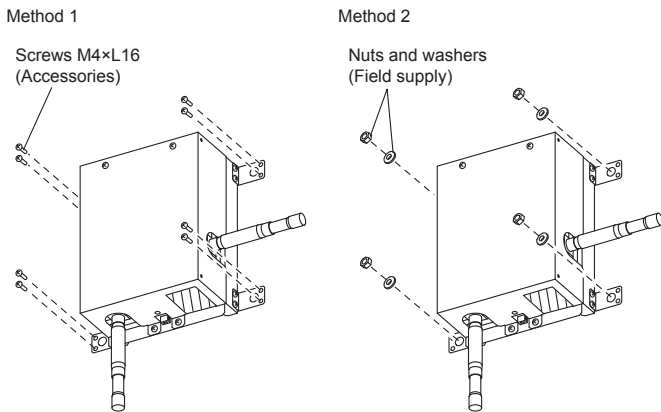
If stacking 2 EEV units, secure using the secure fittings (accessories) and screws (accessories).



### 4.3.1.5. Installing EEV units

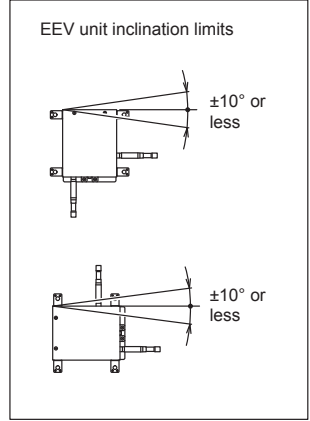
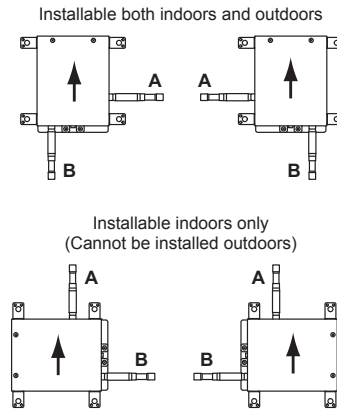
Mount the EEV unit to the wall.  
Select the securing method according to the installation environment.

Method 1: Use the 8 screws (accessories) to secure the unit.  
Method 2: Mount the 4 anchor bolts (field supply) to the wall, and then secure the unit.

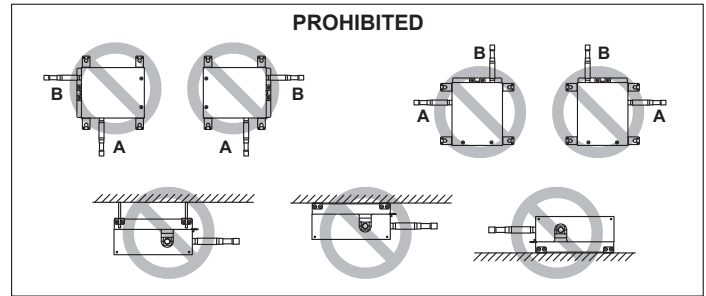


### Installable EEV unit orientations

↑ Orient the arrow upwards



### Prohibited EEV unit orientations



## 5. PIPE INSTALLATION

### CAUTION

Be more careful that foreign matter (oil, water, etc.) does not enter the piping than with refrigerant R410A models. Also, when storing the piping, securely seal the openings by pinching, taping, etc.

While welding the pipes, be sure to blow dry nitrogen gas through them.

### 5.1. Selecting the pipe material

### CAUTION

Do not use existing pipes from another refrigeration system or refrigerant.

Use pipes that have clean external and internal sides without any contamination which may cause trouble during use, such as sulfur, oxide, dust, cutting waste, oil, or water.

It is necessary to use seamless copper pipes.  
Material : Phosphor deoxidized seamless copper pipes  
It is desirable that the amount of residual oil is less than 40 mg/10 m.

Do not use copper pipes that have a collapsed, deformed, or discolored portion (especially on the interior surface). Otherwise, the expansion valve or capillary tube may become blocked with contaminants.

Improper pipe selection will degrade performance. As an air conditioner using R410A incurs pressure higher than when using conventional (R22) refrigerant, it is necessary to choose adequate materials.

- Thicknesses of copper pipes used with R410A are as shown in the table.
- Never use copper pipes thinner than those indicated in the table even if they are available on the market.

#### Thicknesses of Annealed Copper Pipes (R410A)

Pipe outside diameter [mm (in.)]	Thickness [mm]	Material
6.35 (1/4)	0.80	COPPER JIS H3300 C1220T-O or equivalent
9.52 (3/8)	0.80	
12.70 (1/2)	0.80	
15.88 (5/8)	1.00	
19.05 (3/4)	1.20	
22.22 (7/8)	1.00	COPPER JIS H3300 C1220T-H or equivalent
28.58 (1-1/8)	1.00	

## 5.2. Pipe requirement

### CAUTION

Refer to the Installation Manual of the outdoor unit for description of the length of connecting pipe or for difference of its elevation.

- Use pipe with water-resistant heat insulation.

### CAUTION

Install heat insulation around both the gas and liquid pipes. Failure to do so may cause water leaks.

Use heat insulation with heat resistance above 120 °C. (Reverse cycle model only)  
In addition, if the humidity level at the installation location of the refrigerant piping is expected to exceed 70 %, install heat insulation around the refrigerant piping. If the expected humidity level is 70 to 80 %, use heat insulation that is 15 mm or thicker and if the expected humidity exceeds 80 %, use heat insulation that is 20 mm or thicker. If heat insulation is used that is not as thick as specified, condensation may form on the surface of the insulation. In addition, use heat insulation with heat conductivity of 0.045 W/(m·K) or less (at 20 °C).

## 5.3. Bending pipes

- The pipes are shaped by your hands or pipe bender. Be careful not to collapse them.
- Do not bend the pipes in an angle more than 90°.
- When pipes are repeatedly bend or stretched, the material will harden, making it difficult to bend or stretch them any more. Do not bend or stretch the pipes more than 3 times.

### CAUTION

To prevent breaking of the pipe, avoid sharp bends.

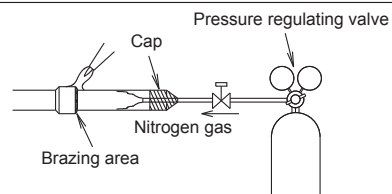
If the pipe is bent repeatedly at the same place, it will break.

## 5.4. Pipe connection

### CAUTION

If air or another type of refrigerant enters the refrigeration cycle, the internal pressure in the refrigeration cycle will become abnormally high and prevent the unit from exerting its full performance.

Apply nitrogen gas while brazing the pipes. Nitrogen gas pressure:  
0.02 MPa (= pressure felt sufficiently on the back of your hand)



If a pipe is brazed without applying nitrogen gas, it will create an oxidation film. This can degrade performance or damage the parts in the unit (such as the compressor or valves).

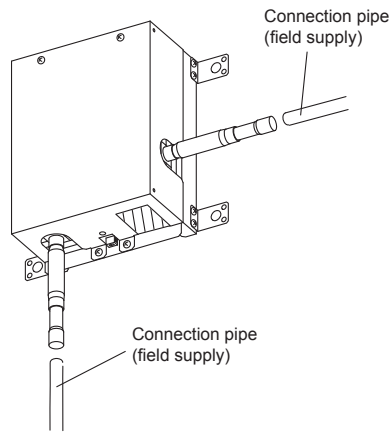
Do not use flux to braze pipes. If the flux is the chlorine type, it will cause the pipes to corrode. Furthermore, if the flux contains fluoride, it will adversely affect the refrigerant pipe system such as by degrading the refrigerant oil.

For brazing material, use phosphor copper that does not require flux.

	Outer diameter of pipe
Connection Pipe (Liquid)	12.70 mm

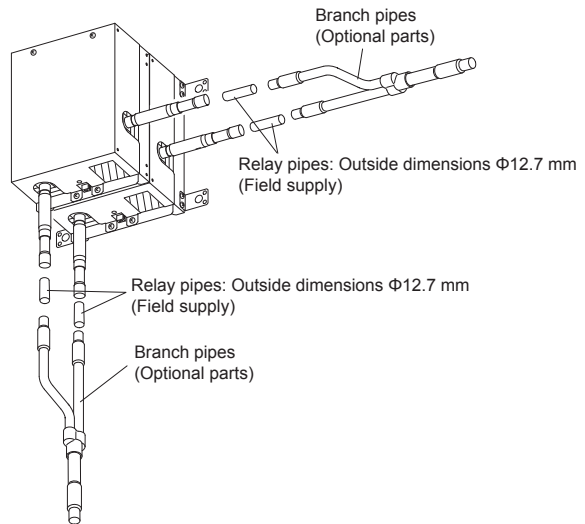
Connect the EEV unit pipe to the connection pipe. Braze the connectors.

(a) Connecting 1 EEV unit



(b) Connecting 2 EEV units

If connecting 2 stacked EEV units, connect the special branch pipe (optional part).



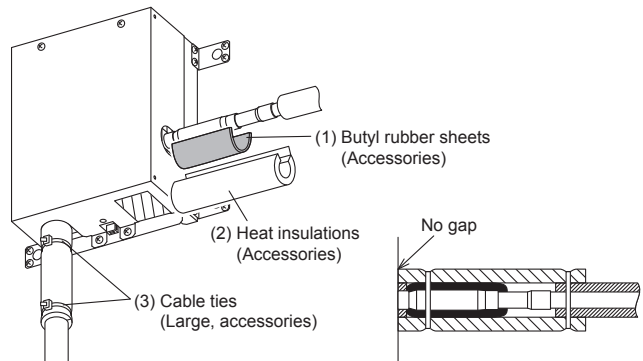
## 5.5. Installing heat insulation

### CAUTION

After checking for gas leaks (refer to the Installation Manual of the outdoor unit), perform this section. Failure to do so may cause water leaks.

Implement heat insulation as shown in the diagram below.

- Mount the rubber sheets (accessories).
- Mount the heat insulations (accessories). There should be no gaps between the insulation and the product.
- Secure to a pipe using 2 cable ties.



- Perform the work in (1), (2) and (3) for the 2 pipes.
- For the heat insulation on the separation tube (Optional parts) used to connect 2 EEV units, refer to the installation manual of the separation tube.

For construction other than mounting the EEV unit (e.g., mounting thermistors, electrical wiring, and field settings, etc.), see the construction manual enclosed with the control unit.

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