technical data

Heat Recovery Ventilation

Product introduction

1. Product introduction

1

1.1 HRV (Heat Recovery Ventilation)

Background

To maintain the comfortable environment in a building, the fresh air intake is essential the same as an appropriate room temperature control.
The heating / cooling efficiency of conventional standard ventilating systems drops during cooling / heating operation and it is waste of energy.
The Heat Recovery Ventilation was developed to solve those problems.

What is HRV (Heat Recovery Ventilation) ?

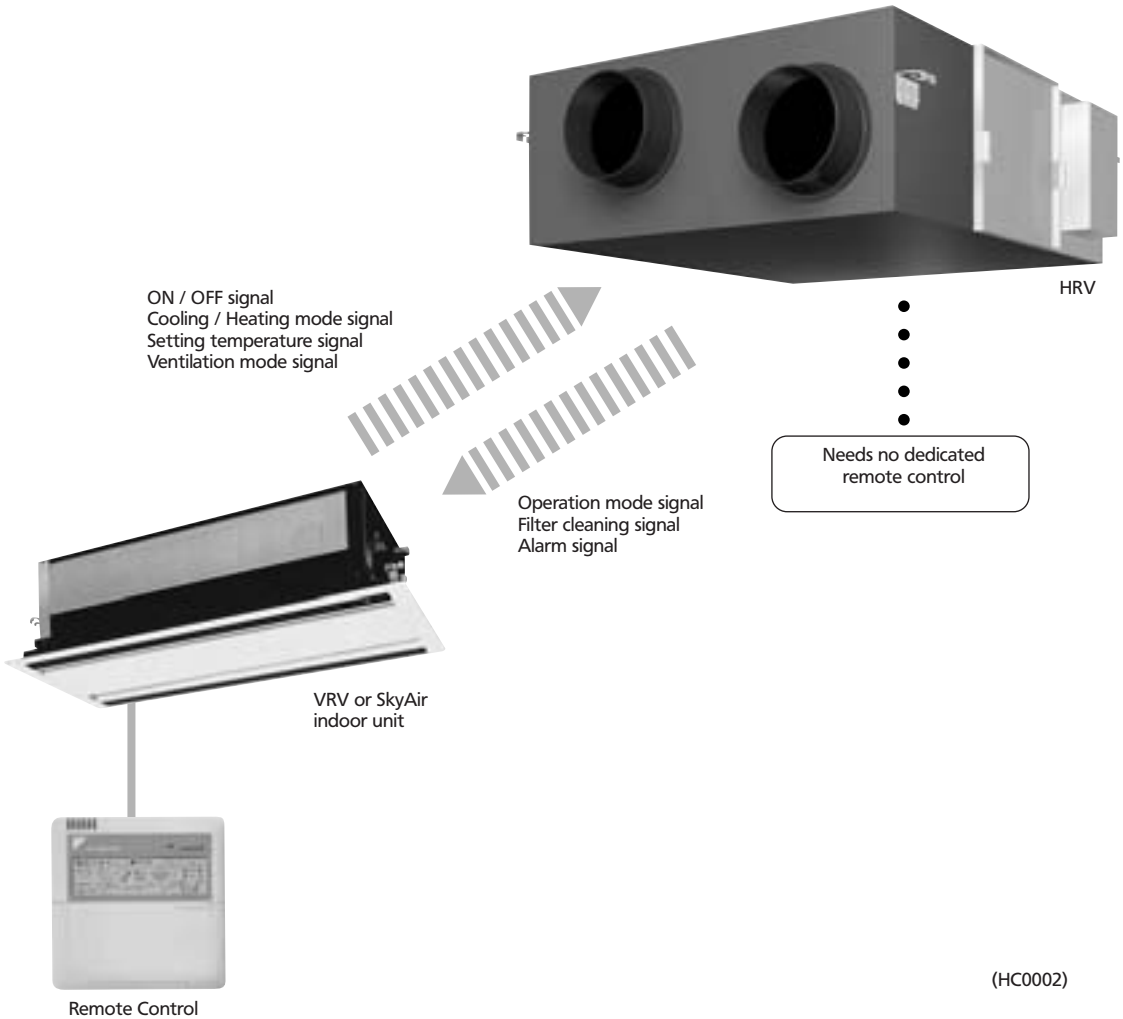
HRV is a system which recovers the thermal energy of exhaust air and reuses it for heating or cooling of supply air.
It exchanges heat between the exhaust and the supply air.

Daikin's HRV

Daikin's HRV greatly reduces the total power consumption by operation interlocked with air conditioner such as VRV or SkyAir.
The total heat exchange mode and the ventilation mode can be automatically selected by setting to the automatic ventilation mode

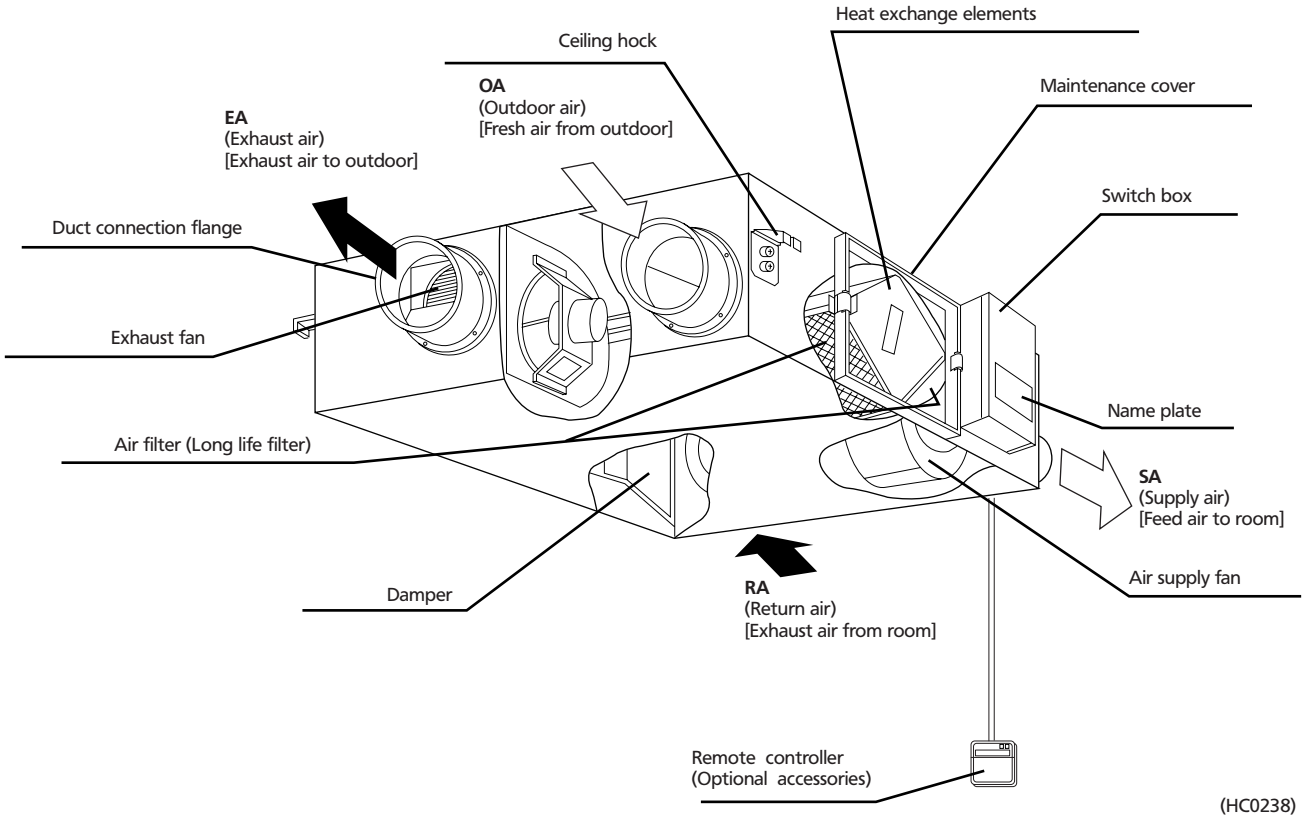
Main Features

1. Interlocked operation with VRV (SkyAir)
2. Automatic ventilation mode changeover
3. Energy Saving
4. FRESH-UP operation
5. Downsized compared with EJ Series
6. Quiet operation
7. Easy installation
8. Easy maintenance
9. Wide variety of optional accessories

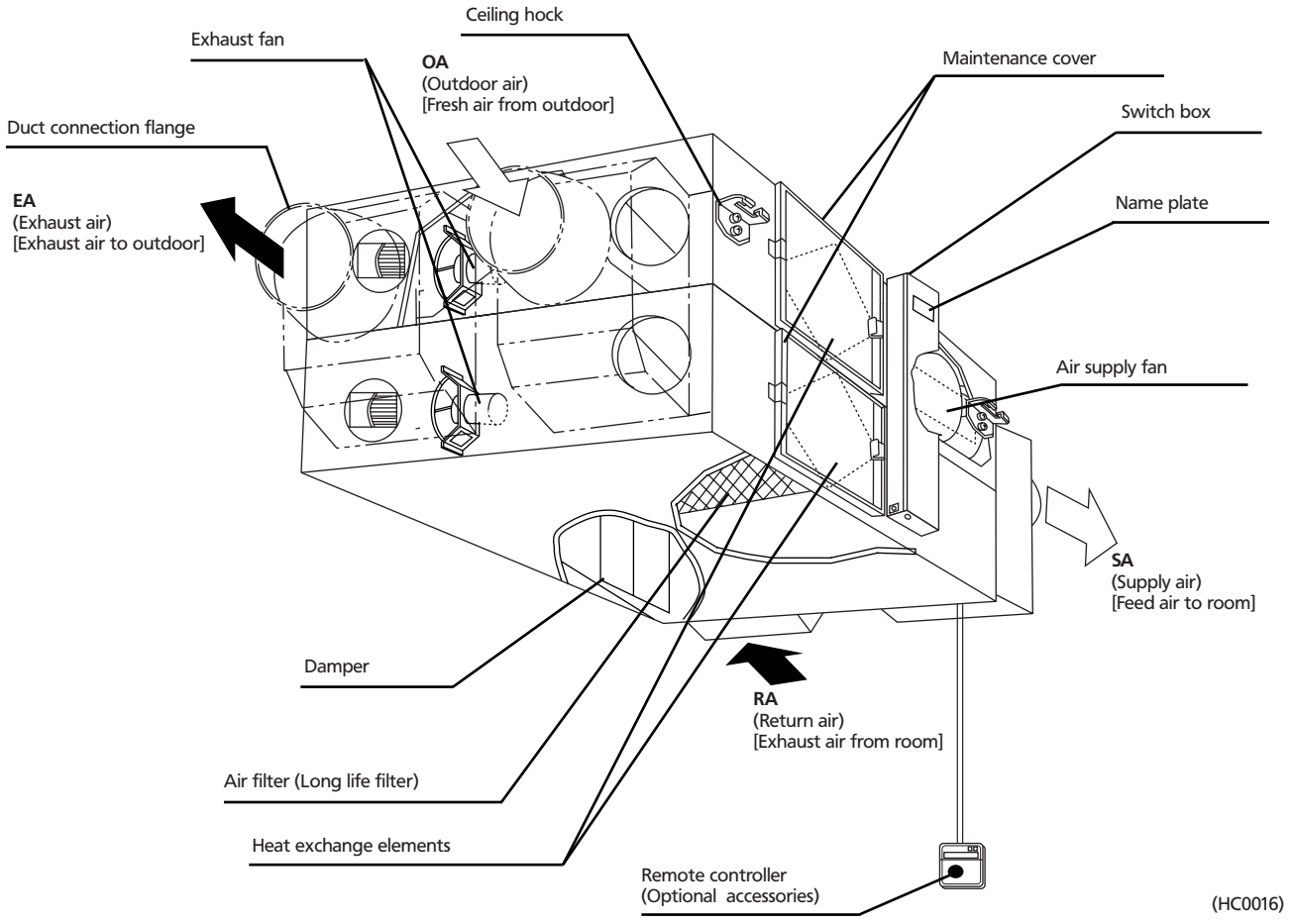


1.2 Structure

VAM150,250,350,500FA7VE
VAM650,800,1000FA5/7VE



VAM1500,2000FA5/7VE



1.3 Features

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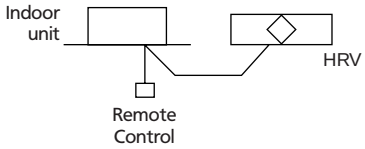
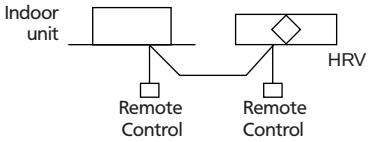
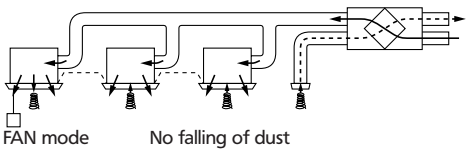
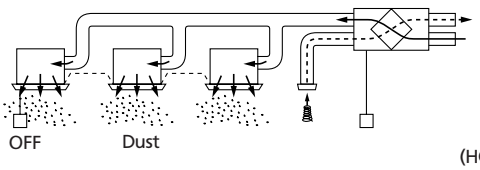
1.3.1 Interlocked operation with VRV (SkyAir)

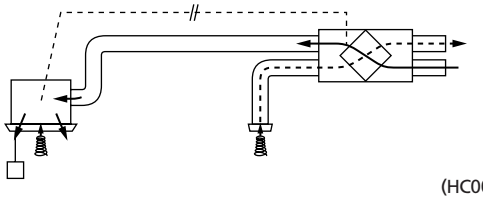
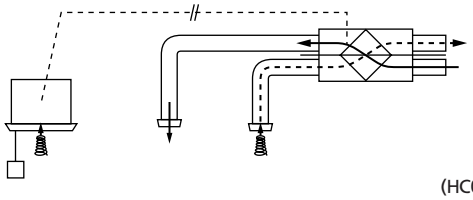
1. Simultaneous ON / OFF with the indoor unit by the indoor unit remote control.
2. HRV independent operation during air conditioning off season by the indoor unit remote control.
3. Automatic ventilation mode changeover: Auto / Heat Recovery / Bypass
4. Fan speed changeover by the indoor unit remote control: High / Low, Ultra-High / High, Ultra-High / Low
5. Precooling / heating control function setting to delay the start of ventilation during air conditioner start-up to realize the high energy saving efficiency.
6. FRESH-UP operation setting
7. Filter sign display notifies the time for cleaning the filter
8. No need to purchase or install the HRV exclusive remote control
9. Advantage to IAQ (Internal Air Quality.)

Note:
5-7 can be set at the initial setting only.

Type	Interlocked operation with air conditioner	HRV independent operation
Structure	 (HC0228)	 (HC0229)
Features	• Simultaneous operation by air conditioner's remote control is available • Fan speed can be set at the initial setting.	• Both simultaneous operation by air conditioner's remote control and independent operation by HRV exclusive remote control are available • Fan speed can be changed by switch of HRV (High / Low, High / Ultra-high, Low / Ultra-high)
Connectable Indoor unit	VRV (all indoor unit), SkyAir (Optional connecting PCB is required.)	

Daikin's HRV	Other types
 (HC0006)	 (HC0005)
Dust does not fall off from the air filter because the air supply fan of the interlocked indoor unit remains activated even when the HRV is operated independently.	If conventional HRV, with exclusive remote control, is directly connected to indoor unit of air conditioner, dust may fall off from air filter when air conditioner is OFF.

Installation Examples

Direct duct connection system	Independent duct system
 (HC0007)	 (HC0008)

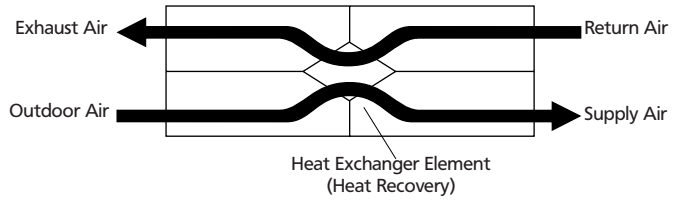
1.3.2 Energy Saving

By heat recovery operation

Approx. **20%** reduction of heating / cooling load

+

HRV unit recovers the thermal energy during cooling / heating operation of air conditioner. HRV reduces the cooling / heating load drastically and enhances the heating / cooling efficiency.



By setting to automatic ventilation mode

Approx. **6%** reduction of heating / cooling load

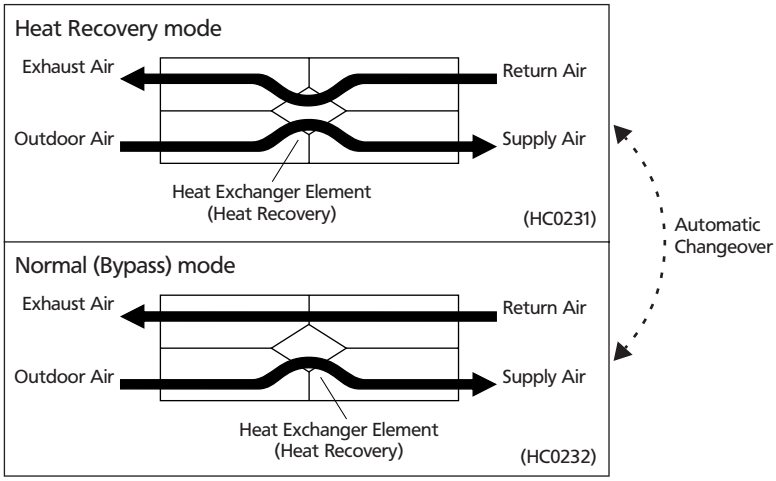
+

Proper use of Heat recovery ventilation and normal ventilation saves energy.
When the cooling operation is required in winter, use of heat recovery ventilation is not efficient because the outdoor air temperature is normally lower than that of the indoor.
Thus, the proper use of ventilation mode enhances the heating / cooling efficiency.

Automatic Ventilation mode changeover

Operation	Sensor of ventilation	Decision of mode (Which is more energy efficient?)
	Difference between indoor / outdoor temp.	
Cooling	Indoor temp. > Outdoor temp Indoor temp. < Outdoor temp.	Normal ventilation (Bypass) Heat recovery ventilation
Heating	Indoor temp. > Outdoor temp. Indoor temp. < Outdoor temp.	Heat recovery ventilation Normal ventilation (Bypass)

Refer to the CONTROL for the mode changeover.



By Precooling / heating operation

Approx. **2%** reduction of heating / cooling load

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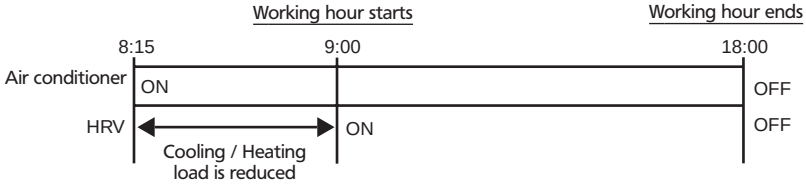
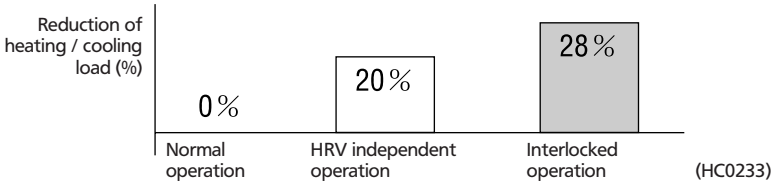
The load is reduced at startup of the air conditioner by the following control.
Before the working hour, the room air is clean.
Therefore, the startup of HRV can be delayed.



Total **28%** reduction of heating / cooling load

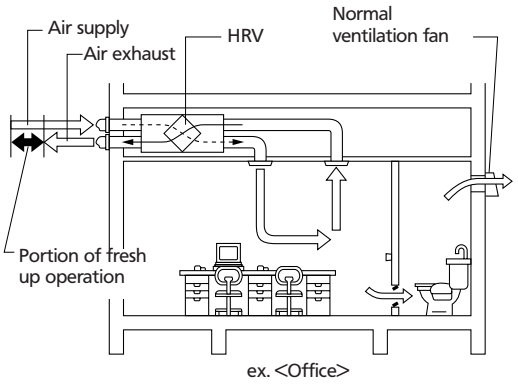
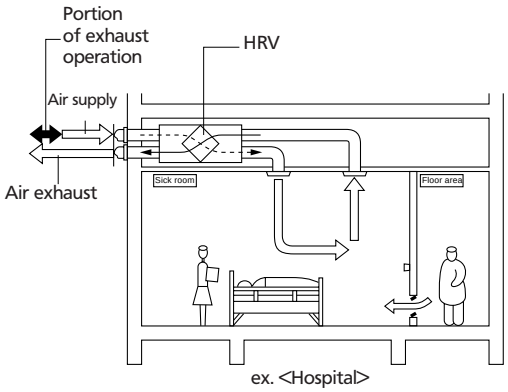


Note:
The total heating / cooling load may vary depending on the climate or the other environmental conditions.

1.3.3 FRESH-UP operation

Both the excessive supply mode and the excessive exhaust mode are selectable.
This function creates a more comfortable air environment.

3

	Supply Fresh-up (Excessive outdoor air supply)	Exhaust Fresh-up (Excessive Exhaust air supply)
Detail	Supply air volume can be set at a higher level than the exhaust air by the remote control.	Exhaust air volume can be set at a higher level than the supply air by the remote control.
Major effects	• Prevents inflow of toilet odor • Prevents inflow of outdoor air in winter	• Prevents outflow of airborne bacteria from rooms in a hospital • Prevents outflow of odors from rooms in a nursing home
Application	Offices, etc.	Hospitals, Nursing homes, etc.
Example	 (HC0009)	 (HC0010)

1.3.4 Element (HEP element)

Material

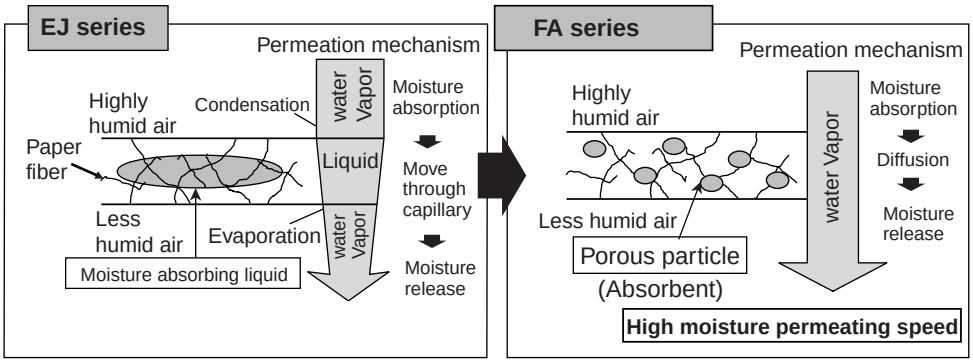
The heat exchanger element adopts a new paper of high permeability. The material recovers exhaust humidity at a speed of 2 times of the previous model.

The material is flame-retardant for safety.
The fungiproof design also keeps the air clean.

Structure

The heat exchanger element is designed without moving parts for higher durability and reliability.
The supply air passage and the exhaust air passage are arranged in right angle to prevent the supply and exhaust air from getting mixed.

(HC0013)



1.3.5 Easy Installation and service maintenance

Downsized

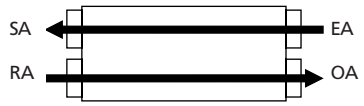
Total volume is reduced to 68% of EJ series and the unit fits into a small space.

(Comparison with FJ and previous EJ series)

Model name	Height		Height Difference (mm)	Volume compared with EJ series
	FJ	EJ		
VAM 500FA7VE	**285**	310	**–25**	**68%**
VAM 800FA5/7VE	**348**	388	**–40**	**70%**
VAM1000FA5/7VE	**348**	388	**–40**	**78%**
VAM2000FA5/7VE	**710**	790	**–80**	**82%**

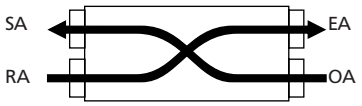
Parallel air flow system (Daikin)

This system prevents misconnection and simplify the installation work.



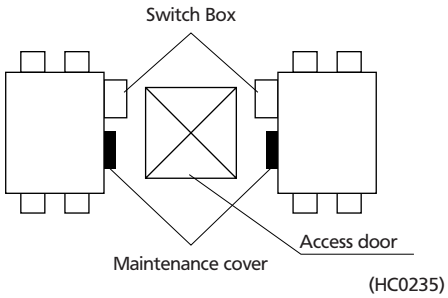
(HC0234)

Cross air flow system



(HC0235)

Service Maintenance



(HC0235)

Upside-down installation is available.
It allows the common use of the access door and reduces the space and installation work.
For 2 units closely installed, only one inspection hole of 450 ¥ 450 mm will do for maintenance or replacement of the heat exchanger element etc.

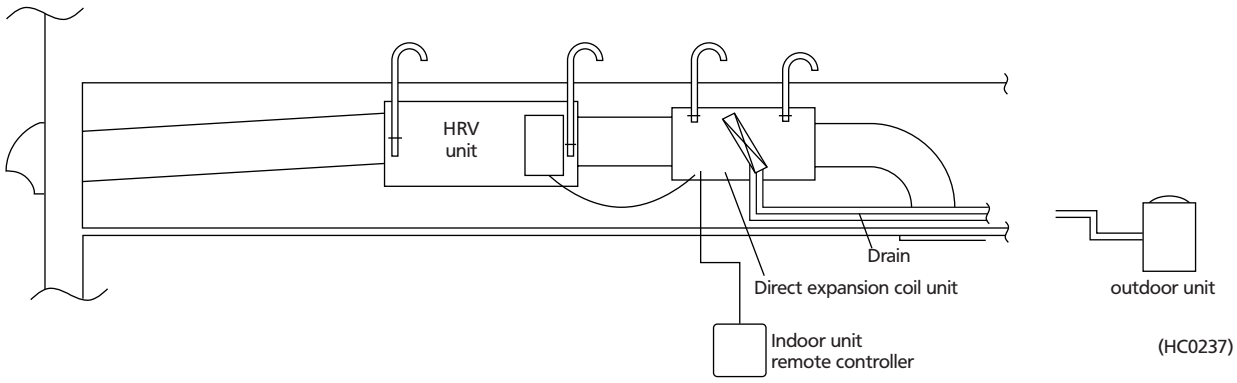
Long life filter is equipped.

1.3.6 Additional Optional accessories compared with EJ Series

Built-in optional high efficiency filter

It greatly reduces the installation space.
The installation of access doors and the unit can be reduced.

Direct expansion coil



(HC0237)

The direct expansion coil helps to recover approx. 100% of exhaust air heat and prevents unpleasant draft. It can also operate as an air conditioner.
Connectable unit: VRV and HRV.

BRP4A50

Refer to 6.16 Heater control kit (page 145) for the detail.

1.4 Selection Procedures

Various methods are used to calculate the required ventilating airflow rate according to CO_2 generated by inhabitants in a room, waste gas generated by use of fire, and other conditions of a room.
Here are 2 patterns of calculating methods.

4

1.4.1 Based on inhabitants

$$\text{Required ventilating air flow rate } (m^3/h) = \frac{20 \times A}{B}$$

A: 20 ¥ Living room floor space (m^2)
B: Area occupied per person (m^2)

The above equation conforms to article 20, 2 No.2 of the Building Standards Act in Japan.

Notes:

1. 20 (in the above equation) means "20(m^3 / h / person)", which is the required ventilating air flow rate based on the CO_2 exhausted by an adult sitting still in a room. If smoking is allowed, other calculation method should be used.
2. Use 10 (m^2) if the area occupied per person exceeds 10 (m^2).

<Table 1>

Type of building	Area occupied per person (N)	Remarks
Eating houses, restaurants, coffee-shops	3 m^2	Floor space of a part used for business purposes.
Cabarets, beer halls	2 m^2	Floor space of a part used for business purposes.
Japanese-style restaurants, hall for hire	3 m^2	Floor space of a part used for business purposes.
Store market	3 m^2	Floor space of a part used for business purposes.
Pool rooms, Ping-pong rooms, dance halls, bowling alleys	2 m^2	Floor space of a part used for business purposes.
Pin-ball parlors, Go club houses, mahjong parlors	2 m^2	Floor space of a part used for business purposes.
Inns, hotels, and motels	10 m^2	Floor space of a part used for business purposes.
Massage parlors	5 m^2	Floor space of a part used for business purposes.
Meeting places, public halls	0.5 – 1 m^2	Persons accommodated simultaneously with the number of persons calculated per unit.
Offices	5 m^2	Floor space of an office.

*: Values set by the Metropolitan Maintenance Bureau in Japan.

Notes:

1. Table indicates the required ventilating air flow rate calculated as 20 m^3 / h.
2. The area occupied per person by type of business is calculated in reference to Application Standards for building administration in compliance with Building Standards Act in Japan.

1.4.2 Based on Room size

$$\text{Required ventilating air flow rate } (m^3/h) = C \times D \times E$$

C: Number of ventilation required per hour (ventilation / h)
D: Area of room (m^2) (See Table 3 of the following page)
E: Height of Ceiling (m) (See table 2)

Calculation is based on the experiences of hygienic laboratory, etc. to find out the number of hourly ventilation of the room air.

(Selection example)
Place: Living room of common household
Required ventilation: 6 times / h (See table 2)
Area of room: Approx. 9.9 (m^2)
Height of ceiling: 2.4 m
Required ventilating air flow rate =
$6 \times 9.9 \times 2.4 \fallingdotseq 143\ (m^3/h)$

Required ventilating air flow rate and the unit size such as 150, 250, 350 .....2000 are almost equal.
So select the close size of the unit.
In this case, select VAM150FJVE.

<Table 2>

Groups	Type of room	Ventilation required
Common household	Living room,	6
	bathroom,	6
	drawing room,	6
	toilet,	10
	kitchen	15
Eating places	Restaurant, sushi restaurant,	6
		6
	banquet hall,	10
	tempura restaurant,	20
	cooking room	20
Inns and hotels	Guest room,	5
	corridor,	5
	dance hall,	8
	large dining hall,	8
	washroom,	10
	toilet,	15
	cooking room,	15
	laundry room,	20
	engine room,	20
	boiler room	
Hospitals	Consultation office,	6
	sick room,	6
	office room,	6
	corridor,	10
	waiting room,	10
	bathroom,	10
	dining room, toilet,	10
	respiratory disease room,	10
	laundry room,	15
	cooking room,	15
	surgery room,	15
	sterilizing room,	15
	engine room,	20
	boiler room	20
Schools	Class room, library,	6
	auditorium,	6
	experimental chemistry room,	6
	gymnasium,	8
	toilet,	12
	cooking room	15

Groups	Type of room	Ventilation required
Playhouses and movie theaters	Audience room,	6
	corridor,	6
	smoking room,	12
	toilet,	12
	projector room	20
Plants	Office room,	6
	general work room,	6
	telephone room,	6
	spinning plant,	10
	printing plant,	10
	battery room,	10
	machinery plant,	10
	generator room,	15
	substation room,	15
	painting shop,	15
	welding plant,	15
	chemical plant,	15
	food plant,	20
	wood working plant,	20
	casting plant	50
General buildings	Office room,	6
	waiting room,	10
	show room, toilet,	10
	conference room	12
Comfort stations		20
Dark rooms	Dark rooms for photo	16
Guest rooms of ship		6
Room of potential noxious gas or combustible gas		20 or more

Note:
Refer to the following pages for the tables.

<Table 3> Criteria for Model Selection

Required ventilating AFR per person (m^3 / h / person)	Area per person (m^2 / person)	Model Name	Frequency	Air Flow Rate		Application area (m^2)
			Hz	L	H	
20	3	VAM 150FA7VE	50	110	150	16.5 – 22.5
			60	110	150	16.5 – 22.5
		VAM 250FA7VE	50	155	250	23.3 – 37.5
			60	145	250	21.8 – 37.5
		VAM 350FA7VE	50	230	350	34.5 – 52.5
			60	210	350	31.5 – 52.5
		VAM 500FA7VE	50	350	500	52.5 – 75.0
			60	300	500	45.0 – 75.0
		VAM 650FA5/7VE	50	500	650	75.0 – 97.5
			60	440	650	66.0 – 97.5
		VAM 800FA5/7VE	50	670	800	100.5 – 120.0
			60	660	800	99.0 – 120.0
		VAM1000FA5/7VE	50	870	1000	130.5 – 150.0
			60	800	1000	120.0 – 150.0
		VAM1500FA5/7VE	50	1200	1500	180.0 – 225.0
			60	1200	1500	180.0 – 225.0
		VAM2000FA5/7VE	50	1400	2000	210.0 – 300.0
			60	1400	2000	210.0 – 300.0
	5	VAM 150FA7VE	50	110	150	27.5 – 37.5
			60	110	150	27.5 – 37.5
		VAM 250FA7VE	50	155	250	38.8 – 62.5
			60	145	250	36.3 – 62.5
		VAM 350FA7VE	50	230	350	57.5 – 87.5
			60	210	350	52.5 – 87.5
		VAM 500FA7VE	50	350	500	87.5 – 125.0
			60	300	500	75.0 – 125.0
		VAM 650FA5/7VE	50	500	650	125.0 – 162.5
			60	440	650	110.0 – 162.5
		VAM 800FA5/7VE	50	670	800	167.5 – 200.0
			60	660	800	165.0 – 200.0
		VAM1000FA5/7VE	50	870	1000	217.5 – 250.0
			60	800	1000	200.0 – 250.0
		VAM1500FA5/7VE	50	1200	1500	300.0 – 375.0
			60	1200	1500	300.0 – 375.0
		VAM2000FA5/7VE	50	1400	2000	350.0 – 500.0
			60	1400	2000	350.0 – 500.0
	10	VAM 150FA7VE	50	110	150	55.0 – 75.0
			60	110	150	55.0 – 75.0
		VAM 250FA7VE	50	155	250	78.0 – 125.0
			60	145	250	72.0 – 125.0
		VAM 350FA7VE	50	230	350	115.0 – 175.0
			60	210	350	105.0 – 175.0
		VAM 500FA7VE	50	350	500	175.0 – 250.0
			60	300	500	150.0 – 250.0
		VAM 650FA5/7VE	50	500	650	250.0 – 325.0
			60	440	650	220.0 – 325.0
		VAM 800FA5/7VE	50	670	800	335.0 – 400.0
			60	660	800	330.0 – 400.0
		VAM1000FA5/7VE	50	870	1000	435.0 – 500.0
			60	800	1000	400.0 – 500.0
		VAM1500FA5/7VE	50	1200	1500	600.0 – 750.0
			60	1200	1500	600.0 – 750.0
		VAM2000FA5/7VE	50	1400	2000	700.0 – 1000.0
			60	1400	2000	700.0 – 1000.0

4

Required ventilating AFR per person (m^3 / h / person)	Area per person (m^2 / person)	Model Name	Frequency	Air Flow Rate		Application area (m^2)
			Hz	L	H	
40	3	VAM 150FA7VE	50	110	150	8.3 – 11.3
			60	110	150	8.3 – 11.3
		VAM 250FA7VE	50	155	250	11.6 – 18.8
			60	145	250	10.9 – 18.8
		VAM 350FA7VE	50	230	350	17.3 – 26.3
			60	210	350	15.8 – 26.3
		VAM 500FA7VE	50	350	500	26.3 – 37.5
			60	300	500	22.5 – 37.5
		VAM 650FA5/7VE	50	500	650	37.5 – 48.8
			60	440	650	33.0 – 48.8
		VAM 800FA5/7VE	50	670	800	50.3 – 60.0
			60	660	800	49.5 – 60.0
		VAM1000FA5/7VE	50	870	1000	65.3 – 75.0
			60	800	1000	60.0 – 75.0
		VAM1500FA5/7VE	50	1200	1500	90.0 – 112.5
			60	1200	1500	90.0 – 112.5
		VAM2000FA5/7VE	50	1400	2000	105.0 – 150.0
			60	1400	2000	105.0 – 150.0
	5	VAM 150FA7VE	50	110	150	13.8 – 18.8
			60	110	150	13.8 – 18.8
		VAM 250FA7VE	50	155	250	19.4 – 31.3
			60	145	250	18.1 – 31.3
		VAM 350FA7VE	50	230	350	28.8 – 43.8
			60	210	350	26.3 – 43.8
		VAM 500FA7VE	50	350	500	43.8 – 62.5
			60	300	500	37.5 – 62.5
		VAM 650FA5/7VE	50	500	650	62.5 – 81.3
			60	440	650	55.0 – 81.3
		VAM 800FA5/7VE	50	670	800	83.8 – 100.0
			60	660	800	82.5 – 100.0
		VAM1000FA5/7VE	50	870	1000	108.8 – 125.0
			60	800	1000	100.0 – 125.0
		VAM1500FA5/7VE	50	1200	1500	150.0 – 187.5
			60	1200	1500	150.0 – 187.5
		VAM2000FA5/7VE	50	1400	2000	175.0 – 250.0
			60	1400	2000	175.0 – 250.0
	10	VAM 150FA7VE	50	110	150	27.5 – 37.5
			60	110	150	27.5 – 37.5
		VAM 250FA7VE	50	155	250	38.8 – 62.5
			60	145	250	36.3 – 62.5
		VAM 350FA7VE	50	230	350	57.5 – 87.5
			60	210	350	52.5 – 87.5
		VAM 500FA7VE	50	350	500	87.5 – 125.0
			60	300	500	75.0 – 125.0
		VAM 650FA5/7VE	50	500	650	125.0 – 162.5
			60	440	650	110.0 – 162.5
		VAM 800FA5/7VE	50	670	800	167.5 – 200.0
			60	660	800	165.0 – 200.0
		VAM1000FA5/7VE	50	870	1000	217.5 – 250.0
			60	800	1000	200.0 – 250.0
		VAM1500FA5/7VE	50	1200	1500	300.0 – 375.0
			60	1200	1500	300.0 – 375.0
		VAM2000FA5/7VE	50	1400	2000	350.0 – 500.0
			60	1400	2000	350.0 – 500.0

Note:
AFR Air Flow Rate

3

Heat Recovery Ventilation

ISO14001 assures an effective environmental management system in order to help protect human health and the environment from the potential impact of our activities, products and services and to assist in maintaining and improving the quality of the environment.

Daikin units comply with the European regulations that guarantee the safety of the product.

Daikin Europe N.V. is approved by LRQA for its Quality Management System in accordance with the ISO9001 standard. ISO9001 pertains to quality assurance regarding design, development, manufacturing as well as to services related to the product.

VRV products are not within the scope of the Eurovent certification programme.

Specifications are subject to change without prior notice

DAIKIN EUROPE N.V.

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EEDE03-3A • 01/2004
Prepared in Belgium by Vanmelle

technical data

Heat Recovery Ventilation

Product Specification

3. Product Specification

3.1 Specification

(50Hz)

Model name				VAM150FA7VE	VAM250FA7VE	VAM350FA7VE
Power supply				Single phase 220 – 240 V / 50Hz		
Temperature exchanging efficiency		Ultra-High	%	74	72	75
		High	%	74	72	75
		Low	%	79	77	80
Enthalpy exchange efficiency	Cooling	Ultra-High	%	58	58	61
		High	%	58	58	61
		Low	%	64	62	67
	Heating	Ultra-High	%	64	64	65
		High	%	64	64	65
		Low	%	69	68	70
Casing				Galvanized steel plate		
Insulating material				Self-extinguishable urethane foam		
Dimensions		H ¥ W ¥ D	mm	269 ¥ 760 ¥ 509	269 ¥ 760 ¥ 509	285 ¥ 812 ¥ 800
Heat exchanging system				Air to air cross flow total heat (sensible heat + latent heat) exchange		
Heat exchanging element				Specially processed nonflammable paper		
Air filter				Multidirectional fibrous fleeces		
Fan	Type			Sirroco fan		
	Fan speed	Ultra-High	m^3 / h	150	250	350
		High	m^3 / h	150	250	350
		Low	m^3 / h	110	155	230
	External static pressure	Ultra-High	Pa	69	64	98
		High	Pa	39	39	70
		Low	Pa	20	20	25
Fan motor			Type	Open type capacitor permanent split-phase induction motor, 4 poles ¥ 2		
Motor output			kW	0.030 ¥ 2	0.030 ¥ 2	0.090 ¥ 2
Sound pressure level	Heat exchange mode	Ultra-High	dBA	27 – 28.5	28 – 29	32 – 34
		High	dBA	26 – 27.5	26 – 27	31.5 – 33
		Low	dBA	20.5 – 21.5	21 – 22	23.5 – 26
	Bypass mode	Ultra-High	dBA	27 – 28.5	28 – 29	32 – 34
		High	dBA	26.5 – 27.5	27 – 28	31 – 32.5
		Low	dBA	20.5 – 21.5	21 – 22	24.5 – 26.5
Operation range (Ambient)				–15 °C to 50 °CDB (80% RH or less)		
Connection duct diameter			mm	f 100	f 150	f 150
Weight			kg	24	24	33
Drawing number				4D036749	4D036750	4D036751

(HC0049)

Test conditions are as follows

Condition	Indoor		Outdoor	
	°CDB	R·H (%)	°CDB	R·H (%)
Cooling condition	27	50	35	60
Heating condition	20	40	7	70

Notes:

1. Operation sound is measured at 1.5 m below the center the body.
2. Fan speed can be changed over to Low mode or High mode.
3. Operating sound is measured in an anechoic chamber.
   Operating sound level generally become greater than this value depending on the operating conditions, reflected sound, and peripheral noise.
4. The sound level at the air discharge port is about 8 dB higher than the unit's operating sound.

(50Hz)

Model name				VAM500FA7VE	VAM650FA5/7VE
Power supply				Single phase 220 – 240 V / 50Hz	
Temperature exchanging efficiency		Ultra-High	%	74	74
		High	%	74	74
		Low	%	77	77
Enthalpy exchange efficiency	Cooling	Ultra-High	%	58	58
		High	%	58	58
		Low	%	63	63
	Heating	Ultra-High	%	62	63
		High	%	62	63
		Low	%	67	66
Casing				Galvanized steel plate	
Insulating material				Self-extinguishable urethane foam	
Dimensions		H ¥ W ¥ D	mm	285 ¥ 812 ¥ 800	348 ¥ 988 ¥ 852
Heat exchanging system				Air to air cross flow total heat (sensible heat + latent heat) exchange	
Heat exchanging element				Specially processed nonflammable paper	
Air filter				Multidirectional fibrous fleeces	
Fan	Type			Sirroco fan	
	Fan speed	Ultra-High	m^3 / h	500	650
		High	m^3 / h	500	650
		Low	m^3 / h	350	500
	External static pressure	Ultra-High	Pa	98	93
		High	Pa	54	39
		Low	Pa	25	25
Fan motor			Type	Open type capacitor permanent split-phase induction motor, 4 poles ¥ 2	
Motor output			kW	0.090 ¥ 2	0.140 ¥ 2
Sound pressure level	Heat exchange mode	Ultra-High	dBA	33 – 34.5	34.5 – 35.5
		High	dBA	31.5 – 33	33 – 34
		Low	dBA	24.5 – 26.5	27 – 28
	Bypass mode	Ultra-High	dBA	33.5 – 34.5	34.5 – 35.5
		High	dBA	32.5 – 33.5	34 – 35
		Low	dBA	25.5 – 27.5	27 – 28.5
Operation range (Ambient)				–15 °C to 50 °CDB (80% RH or less)	
Connection duct diameter			mm	f 200	f 200
Weight			kg	33	48
Drawing number				4D036752	4D036753

(HC0050)

Test conditions are as follows

Condition	Indoor		Outdoor	
	°CDB	R·H (%)	°CDB	R·H (%)
Cooling condition	27	50	35	60
Heating condition	20	40	7	70

Notes:

1. Operation sound is measured at 1.5 m below the center the body.
2. Fan speed can be changed over to Low mode or High mode.
3. Operating sound is measured in an anechoic chamber.
   Operating sound level generally become greater than this value depending on the operating conditions, reflected sound, and peripheral noise.
4. The sound level at the air discharge port is about 8 dB higher than the unit's operating sound.

(50Hz)

Model name				VAM800FA5/7VE	VAM1000FA5/7VE	VAM1500FA5/7VE	VAM2000FA5/7VE
Power supply				Single phase 220 – 240 V / 220 V, 50 / 60 Hz			
Temperature exchanging efficiency		Ultra-High	%	74	75	75	75
		High	%	74	75	75	75
		Low	%	76	76.5	78	78
Enthalpy exchange efficiency	Cooling	Ultra-High	%	60	61	61	61
		High	%	60	61	61	61
		Low	%	62	63	64	66
	Heating	Ultra-High	%	65	66	66	66
		High	%	65	66	66	66
		Low	%	67	68	68	70
Power supply				Single phase 220-240 V, 50Hz / 220V, 60Hz			
Normal Amp.	Heat exchange mode	Ultra-High	A	2.53	2.46	4.97	5.00
		High	A	2.15	2.16	4.12	3.97
		Low	A	1.79	1.74	3.43	3.27
	bypass mode	Ultra-High	A	2.53	2.46	4.97	5.00
		High	A	2.15	2.16	4.12	4.77
		Low	A	1.79	1.74	3.43	3.27
Normal input	Heat exchange mode	Ultra-High	W	451	469	864	953
		High	W	400	432	758	767
		Low	W	346	349	655	653
	bypass mode	Ultra-High	W	451	469	864	953
		High	W	400	432	758	767
		Low	W	346	349	655	653
Casing				Galvanized steel plate			
Insulating material				Self-extinguishable urethane foam			
Dimensions		H ¥ W ¥ D	mm	348 ¥ 988 ¥ 852	348 ¥ 988 ¥ 1140	710 ¥ 1498 ¥ 852	710 ¥ 1498 ¥ 1140
Heat exchanging system				Air to air cross flow total heat (sensible heat + latent heat) exchange			
Heat exchanging element				Specially processed nonflammable paper			
Air filter				Multidirectional fibrous fleeces			
Fan	Type			Sirroco fan			
	Air flow rate	Heat exchange mode	Ultra-High	m^3 / h	800	1000	1500	2000
			High	m^3 / h	800	1000	1500	2000
			Low	m^3 / h	670	870	1200	1400
		Bypass mode	Ultra-High	m^3 / h	800	1000	1500	2000
			High	m^3 / h	800	1000	1500	2000
			Low	m^3 / h	670	870	1200	1400
	External static pressure		Ultra-High	Pa	137	157	137	137
			High	Pa	98	98	98	78
			Low	Pa	49	78	49	59
Motor output				kW	0.230 ¥ 2	0.230 ¥ 2	0.230 ¥ 4	0.230 ¥ 4
Operating sound	Heat exchange mode	Ultra-High		dBA	36 – 37	36 – 37	39.5 – 41.5	40 – 42.5
		High		dBA	34.5 – 36	35 – 36	38 – 39	38 – 41
		Low		dBA	31 – 32	31 – 32	34 – 36	35 – 37
	Byapss mode	Ultra-High		dBA	36 – 37	36 – 37	40.5 – 41.5	40 – 42.5
		High		dBA	34.5 – 36	35.5 – 36	38 – 39	38 – 41
		Low		dBA	31 – 33	31 – 32	33.5 – 36	35 – 37
Operation range (Ambient)				–15 °C to 50 °CDB (80% RH or less)			
Connection duct diameter			mm	f 250	f 250	f 350	f 350
Weight			kg	48	61	132	158
Operation mode				Heat exchange mode, bypass mode, freshup mode			
Accessories				Operation manual, installation manual			
Drawing number				4D036754	4D036755	4D036756	4D036835

(HC0051)

Test conditions are as follows

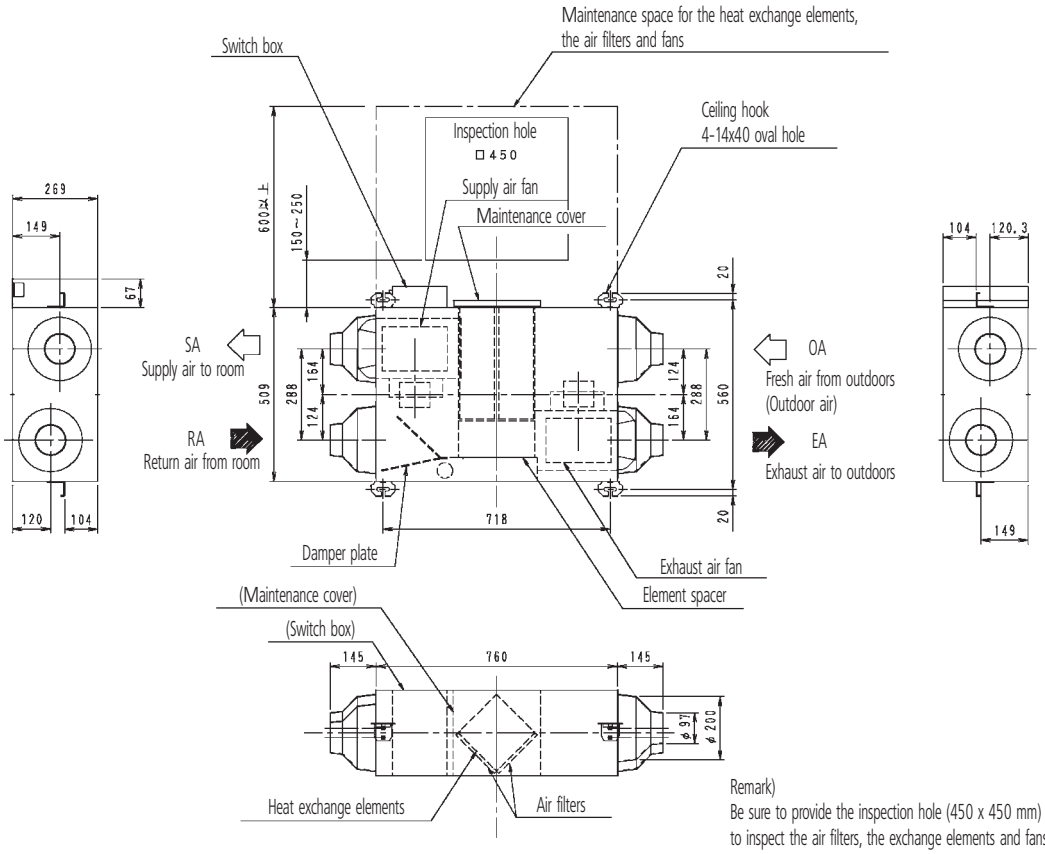
Condition	Indoor unit		Outdoor unit	
	°CDB	R·H (%)	°CDB	R·H (%)
Cooling condition	27	50	35	60
Heating condition	20	40	7	70

Notes:

1. Operation sound is measured at 1.5 m below the center the body.
2. Air flow rate can be changed over to Low mode or High mode.
3. Normal Amp., input, efficiency depend on the other above conditions.
4. Operating sound is measured in an anechoic chamber.
   Operating sound level generally become greater than this value depending on the operating conditions, reflected sound, and peripheral noise.
5. The noise level at the air discharge port is about 8 dBA higher than the unit's operating sound.
6. The specifications, designs and information here are subject to change without notice.

3.2 Dimensions

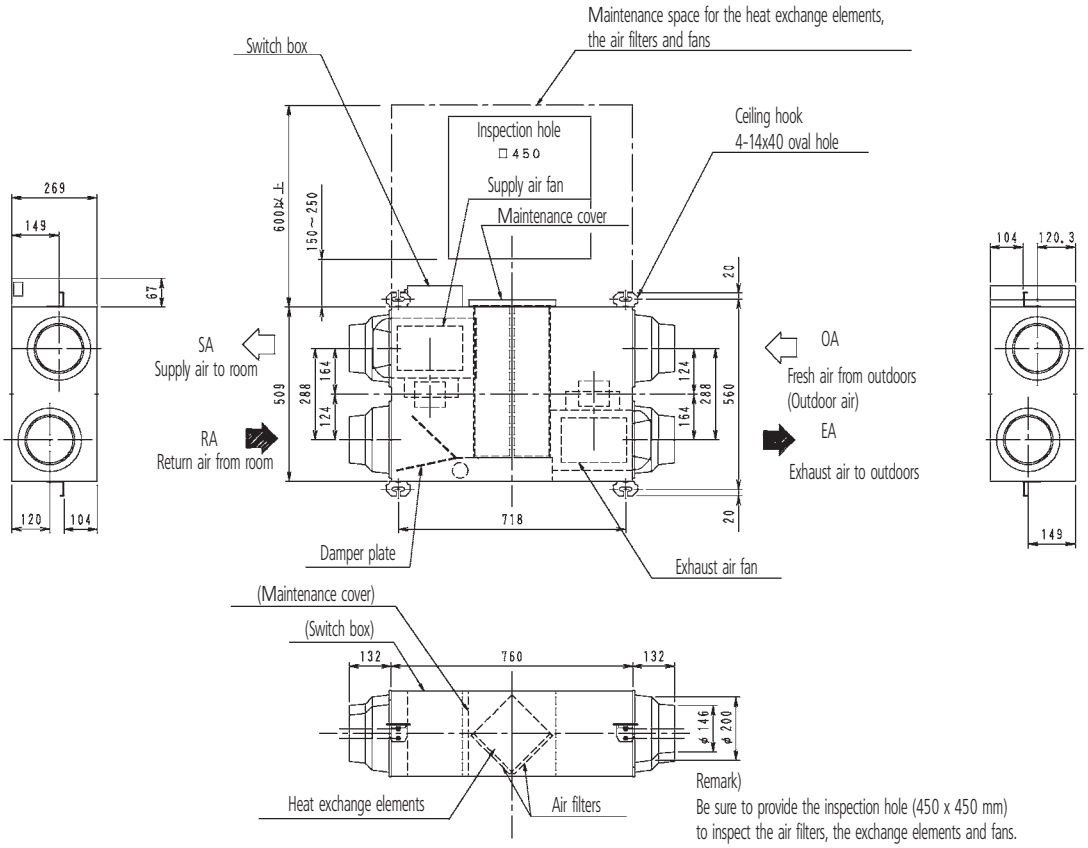
VAM150FA7VE



Remark)
Be sure to provide the inspection hole (450 x 450 mm) to inspect the air filters, the exchange elements and fans.

3D036757

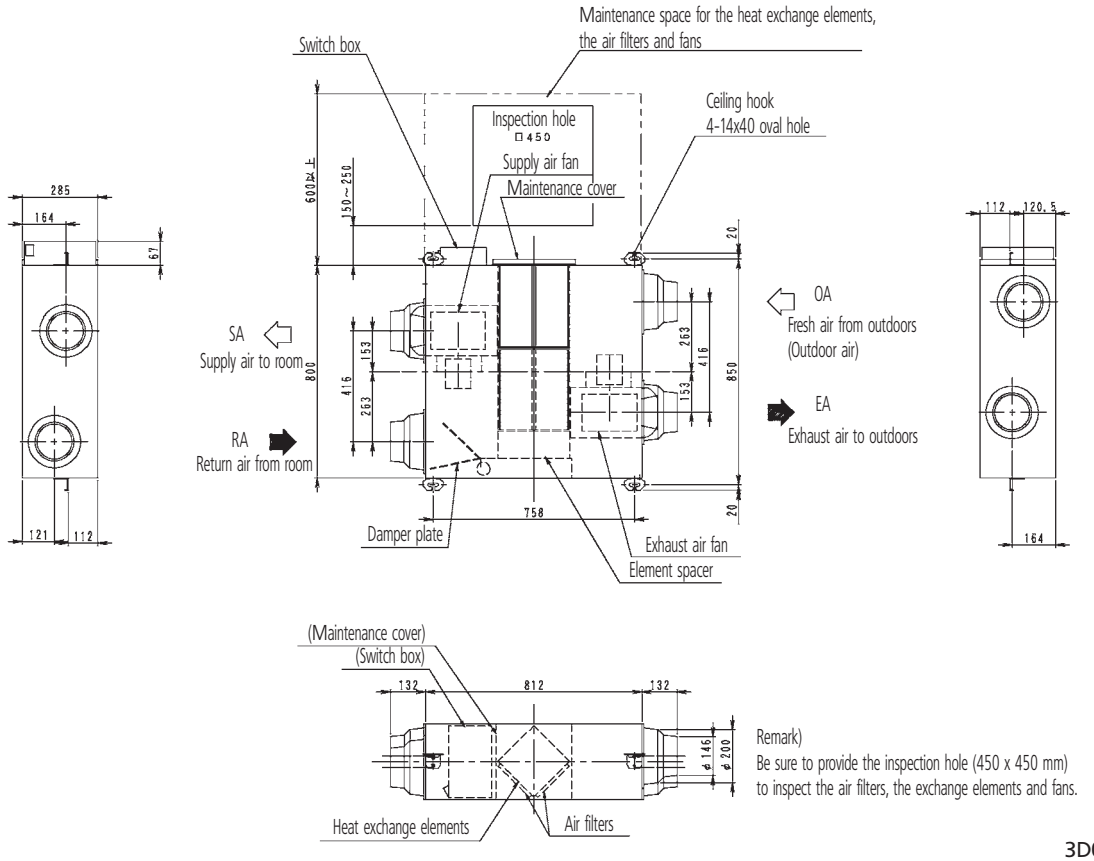
VAM250FA7VE



Remark)
Be sure to provide the inspection hole (450 x 450 mm) to inspect the air filters, the exchange elements and fans.

3D036758

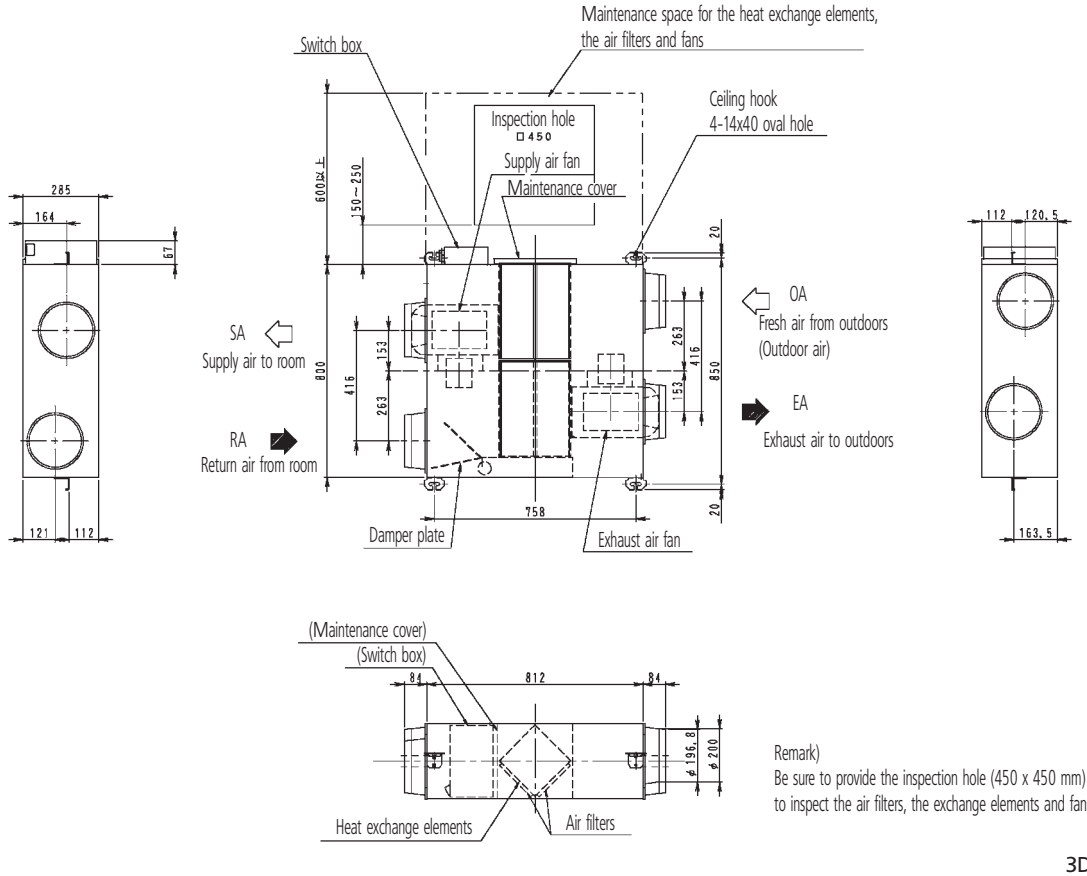
VAM350FA7VE



Remark)
Be sure to provide the inspection hole (450 x 450 mm) to inspect the air filters, the exchange elements and fans.

3D036759

VAM500FA7VE

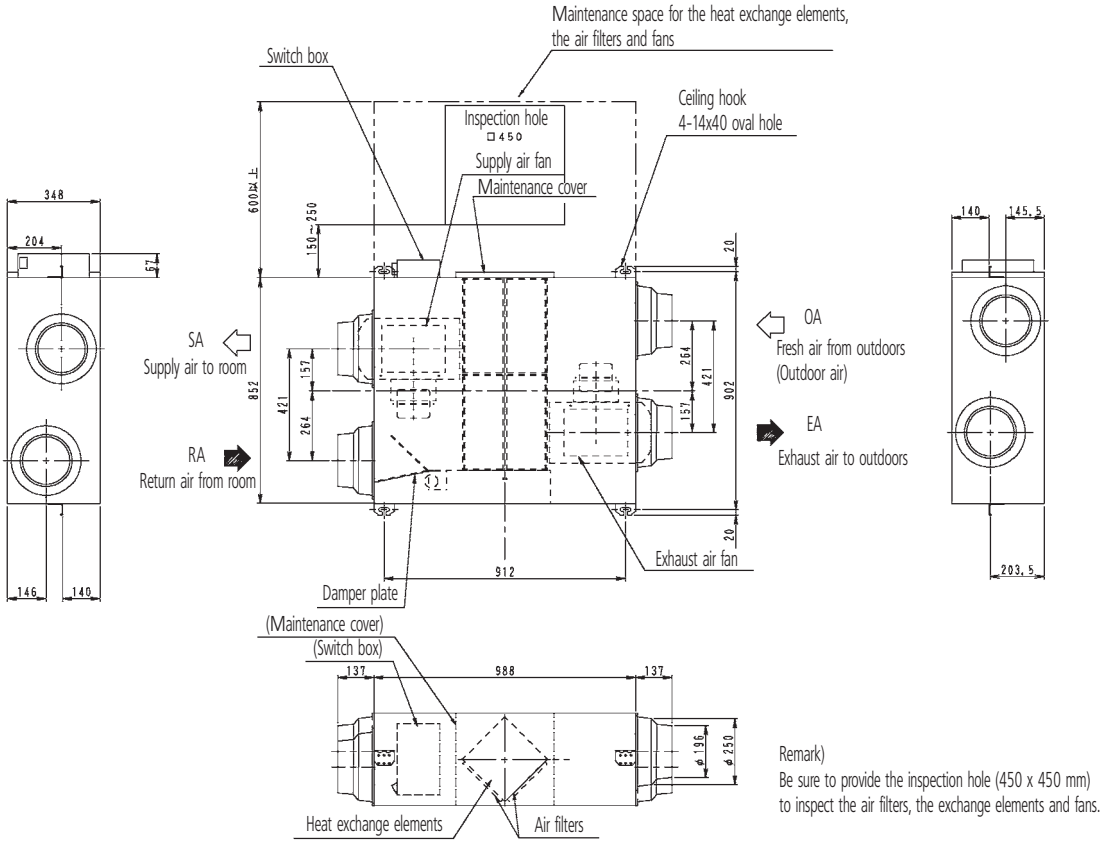


Remark)
Be sure to provide the inspection hole (450 x 450 mm) to inspect the air filters, the exchange elements and fans.

3D036760

2

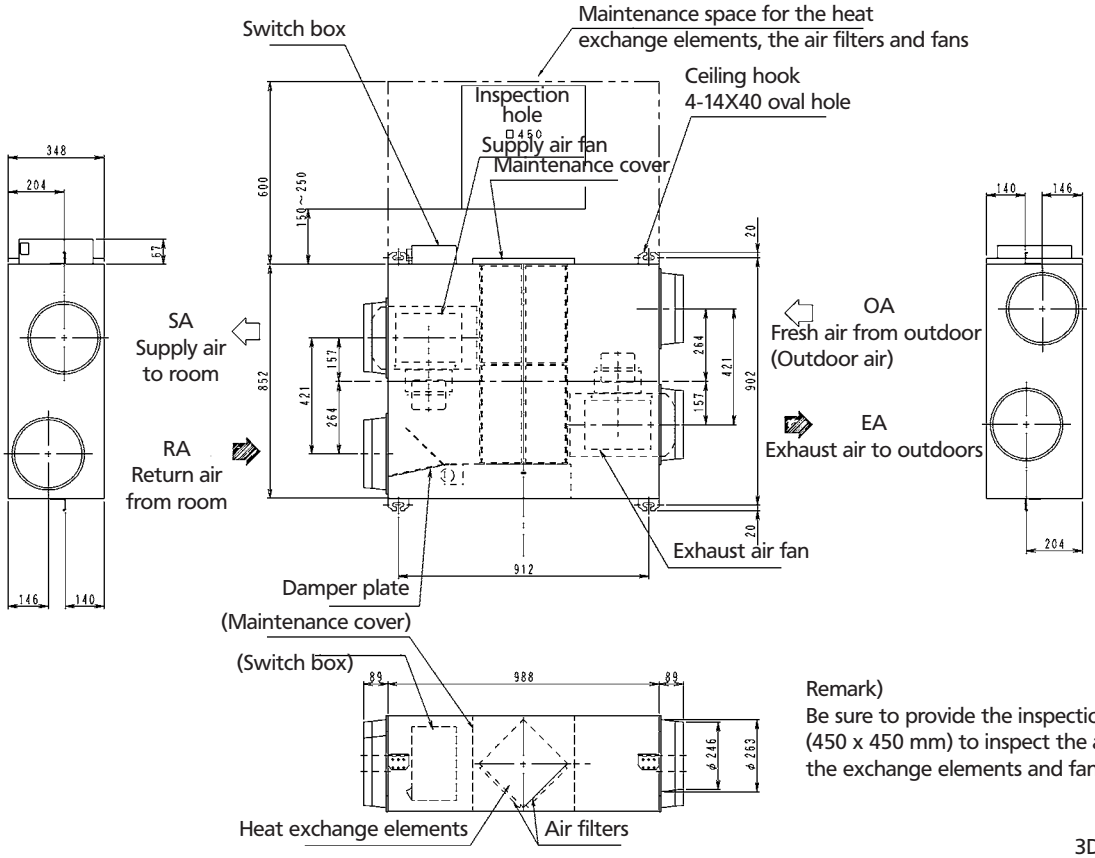
VAM650FA5/7VE



Remark)
Be sure to provide the inspection hole (450 x 450 mm) to inspect the air filters, the exchange elements and fans.

3D036761

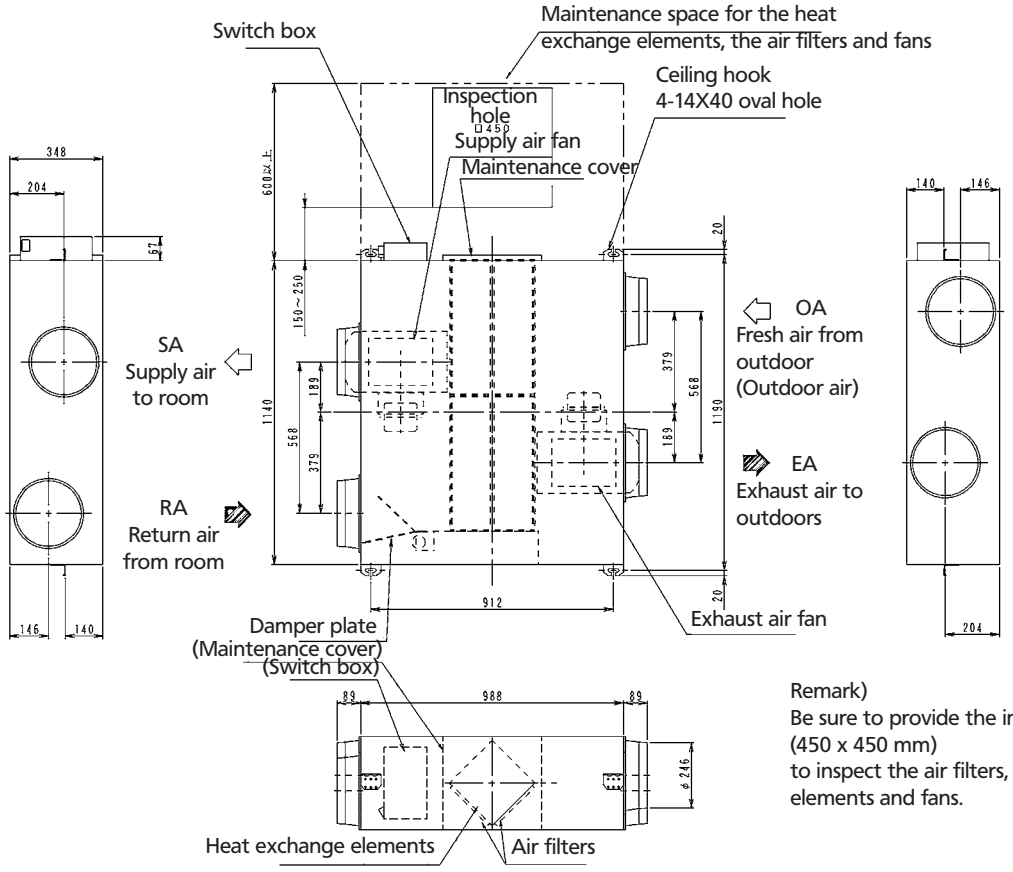
VAM800FA5V/7VE



Remark)
Be sure to provide the inspection hole (450 x 450 mm) to inspect the air filters, the exchange elements and fans.

3D036762

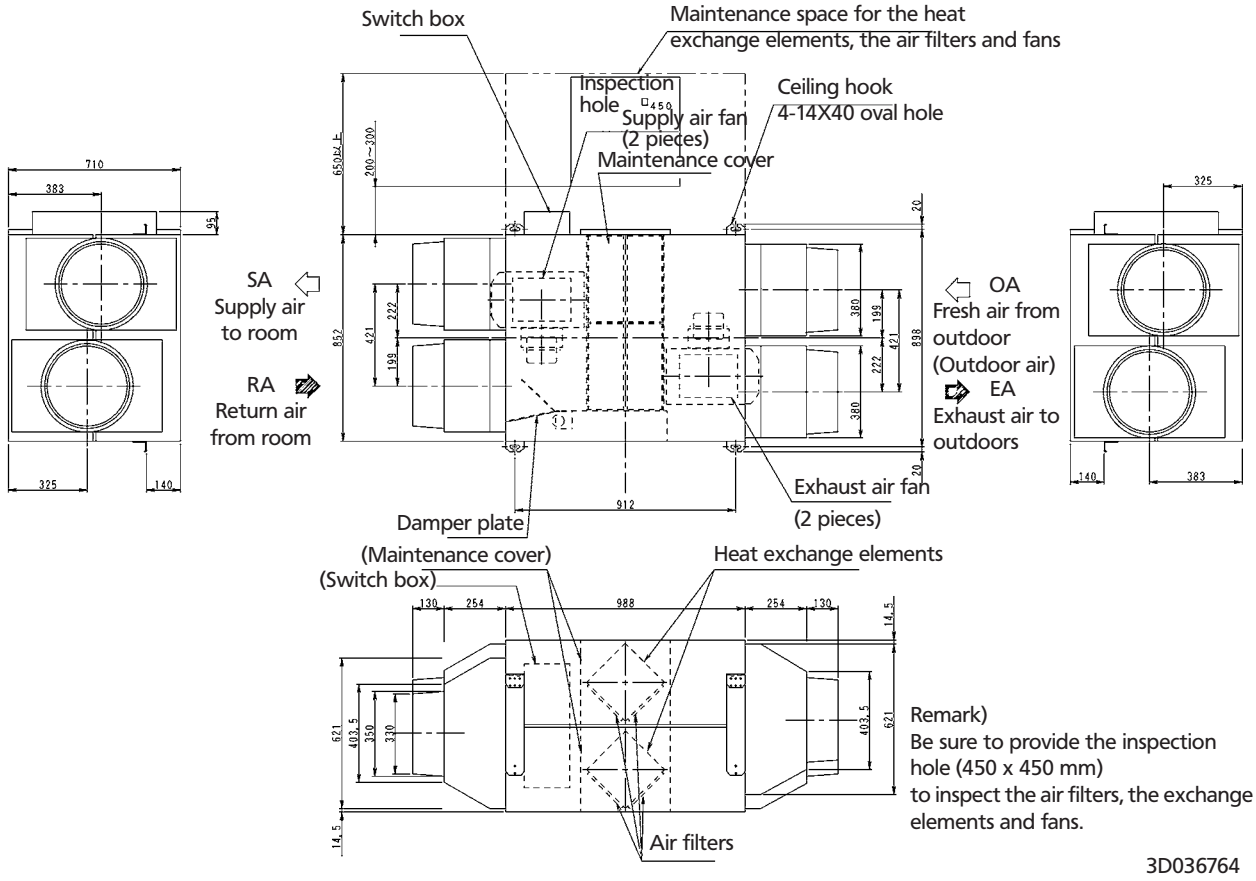
VAM1000FA5/7VE



Remark)
Be sure to provide the inspection hole (450 x 450 mm)
to inspect the air filters, the exchange elements and fans.

3D036763

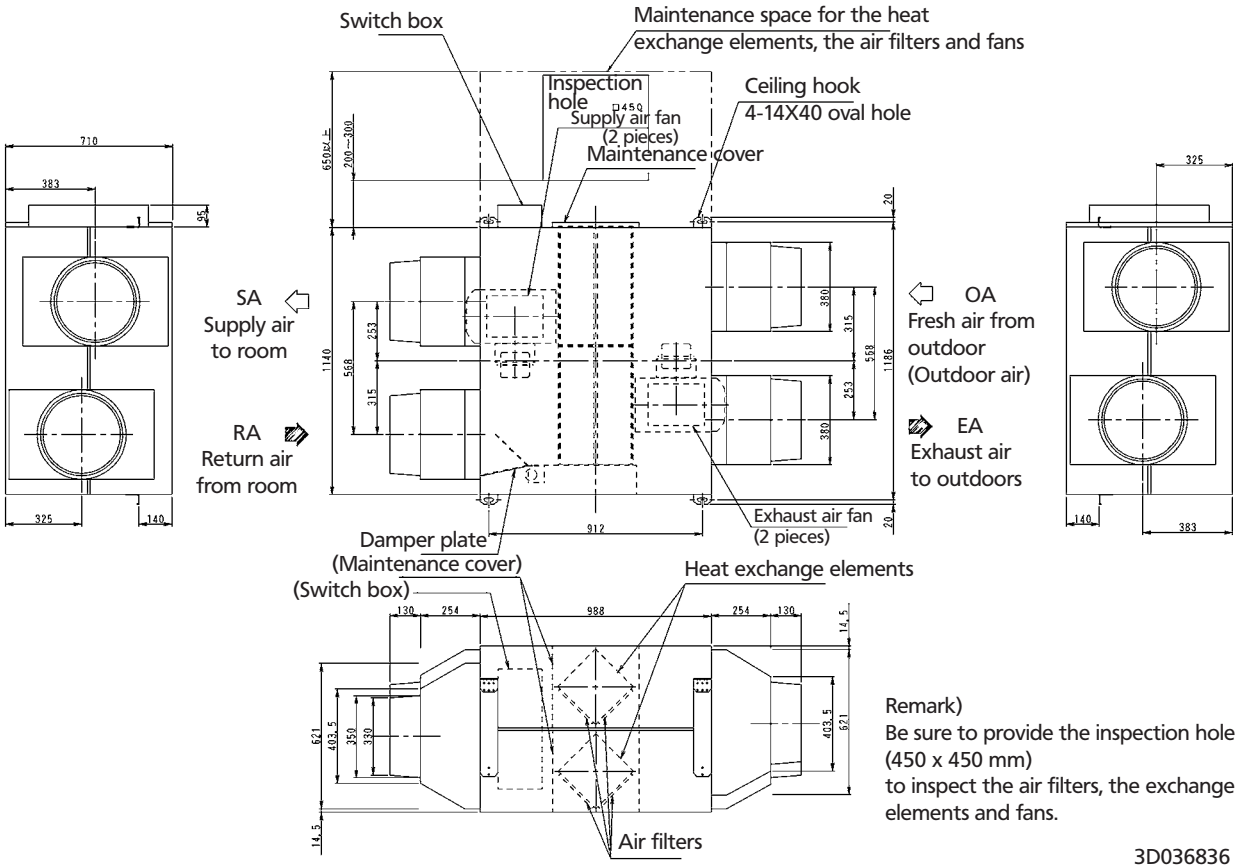
VAM1500FA5/7VE



Remark)
Be sure to provide the inspection hole (450 x 450 mm)
to inspect the air filters, the exchange elements and fans.

3D036764

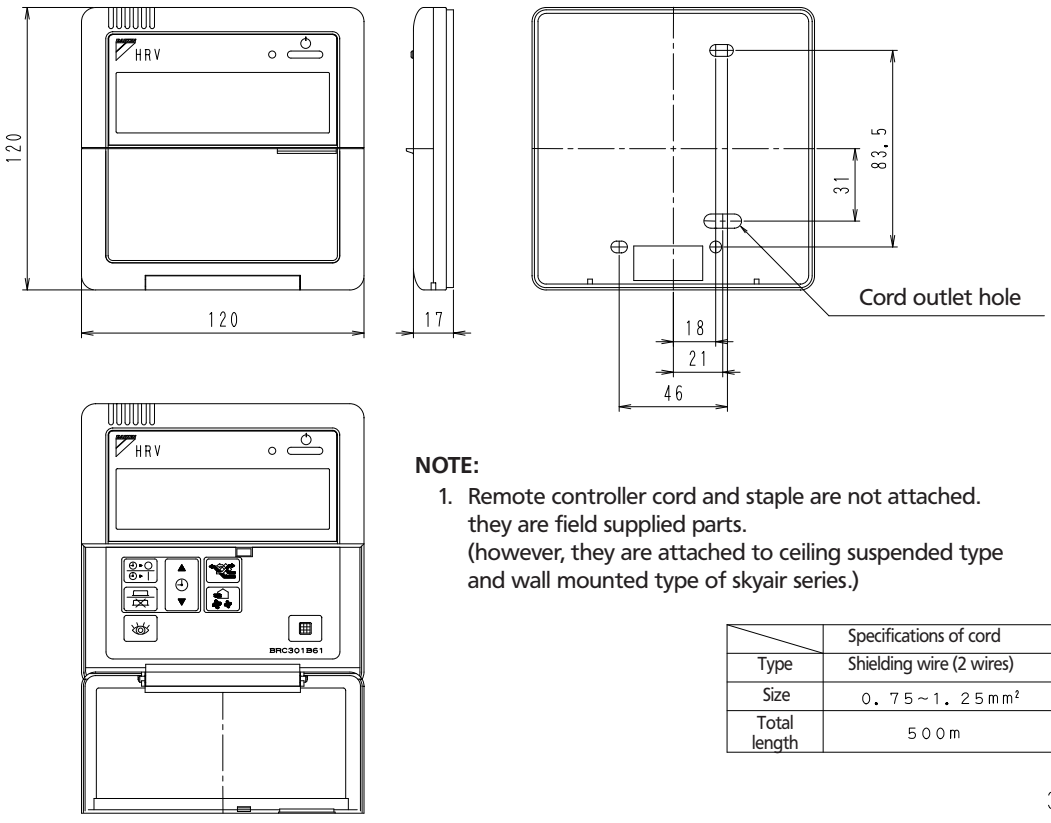
VAM2000FA5/7VE



Remark)
Be sure to provide the inspection hole (450 x 450 mm)
to inspect the air filters, the exchange elements and fans.

3D036836

Remote control (BRC301B61)



NOTE:

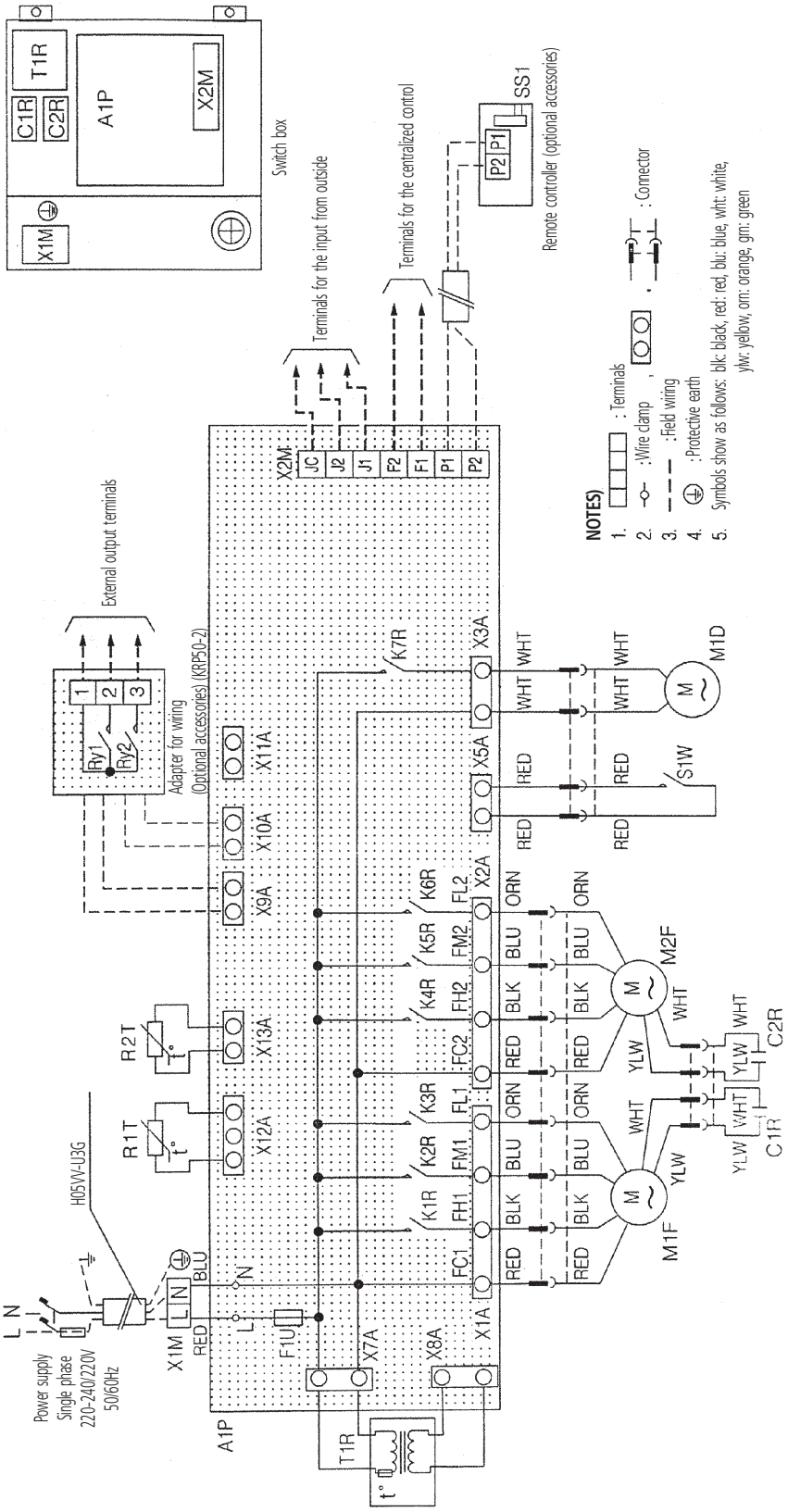
1. Remote controller cord and staple are not attached.
   they are field supplied parts.
   (however, they are attached to ceiling suspended type and wall mounted type of skyair series.)

	Specifications of cord
Type	Shielding wire (2 wires)
Size	0.75~1.25mm²
Total length	500m

3D013155A

3.3 Wiring diagram

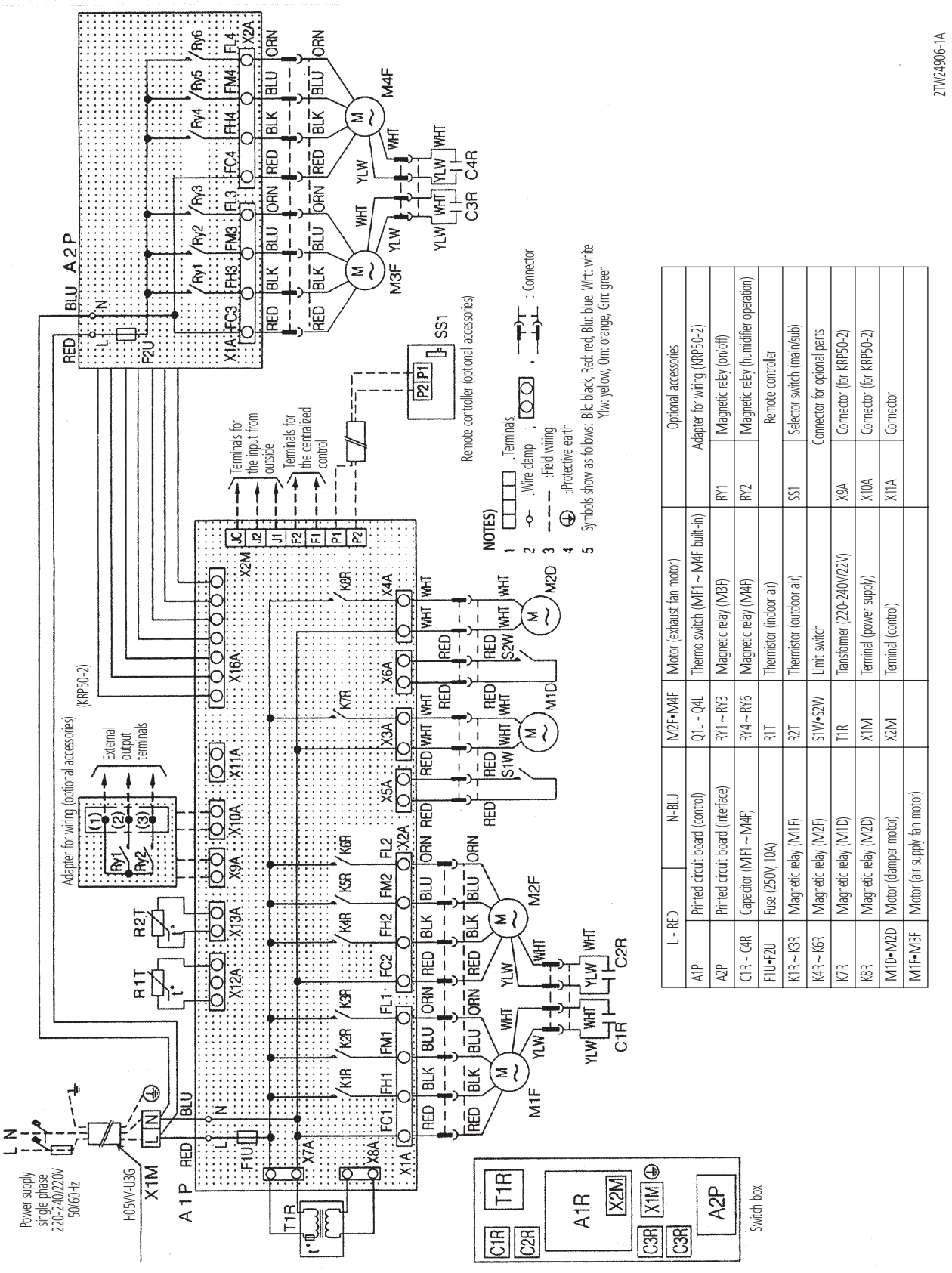
VAM150,250,350,500FA7VE
VAM650,800,1000FA5/7VE



L - RED	N - BLU	M2F	Motor (exhaust fan motor)	Optional accessories	
A1P	Printed circuit board	Q1L • Q2L	Thermo switch (mf1 • 2 built-in)	Adapter for wiring (KRP50-2)	
C1R • C2R	Capacitor (MF1 • M2F)	R1T	Thermistor (indoor air)	RY1	Magnetic relay (on/off)
F1U	Fuse (250V, 10A)	R2T	Thermistor (outdoor air)	RY2	Magnetic relay (humidifier operation)
K1R ~ K3R	Magnetic relay (M1F)	S1W	Limit switch	X9A • 10A	Connector (KRP50-2)
K4R ~ K6R	Magnetic relay (M2F)	T1R	Transformer (supply 220-240V/22V)	Remote controller	
K7R	Magnetic relay (M1D)	X1M	Terminal (power supply)	SS1	Selector switch (main/sub)
M1D	Motor (damper motor)	X2M	Terminal (control)	Optimal connector	
M1F	Motor (air supply fan motor			X11A	Connector (adaptor power supply)

2TW24836-1A

VAM1500,2000FA5/7VE

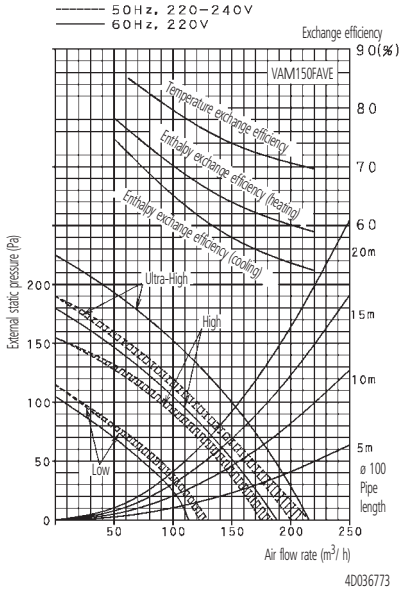


L - RED	N-BLU	M2F•M4F	Motor (exhaust fan motor)
A1P	Printed circuit board (control)	Q1L - Q4L	Thermo switch (MF1 ~ M4F built-in)
A2P	Printed circuit board (interface)	RY1 ~ RY3	Magnetic relay (M3F)
C1R - C4R	Capacitor (MF1 ~ M4F)	RY4 ~ RY6	Magnetic relay (M4F)
F1U•F2U	Fuse (250V, 10A)	R1T	Thermistor (indoor air)
K1R ~ K3R	Magnetic relay (M1F)	R2T	Thermistor (outdoor air)
K4R ~ K6R	Magnetic relay (M2F)	S1W•S2W	Limit switch
K7R	Magnetic relay (M1D)	T1R	Transformer (220-240V/22V)
K8R	Magnetic relay (M2D)	X1M	Terminal (power supply)
M1D•M2D	Motor (damper motor)	X2M	Terminal (control)
M1F•M3F	Motor (air supply fan motor)		

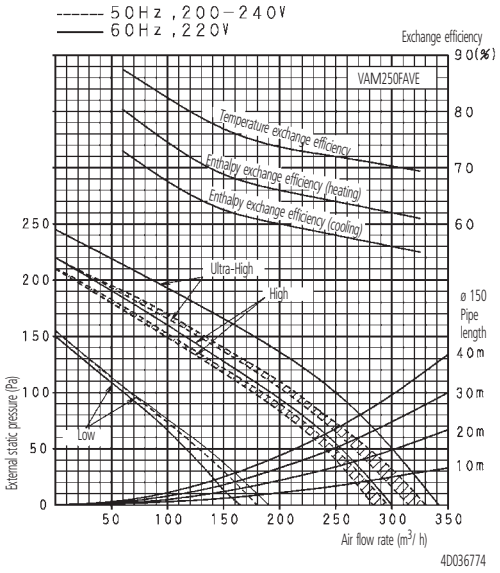
Optional accessories		
Adapter for wiring (KRP50-2)		
RY1	Magnetic relay (on/off)	
RY2	Magnetic relay (humidifier operation)	
Remote controller		
SS1	Selector switch (main/sub)	
Connector for optional parts		
X9A	Connector (for KRP50-2)	
X10A	Connector (for KRP50-2)	
X11A	Connector	

3.4 Fan performance

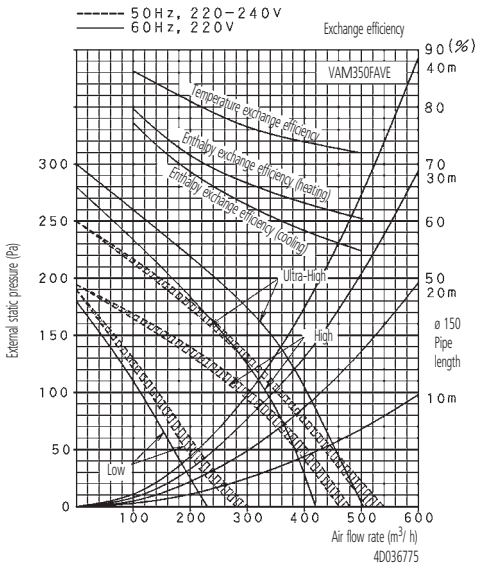
VAM150FA7VE



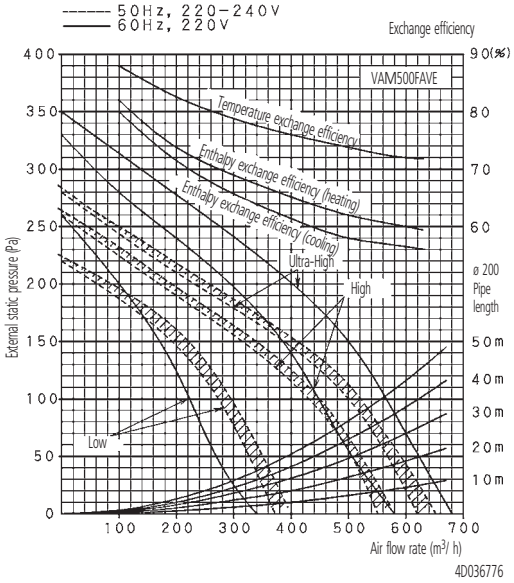
VAM250FA7VE



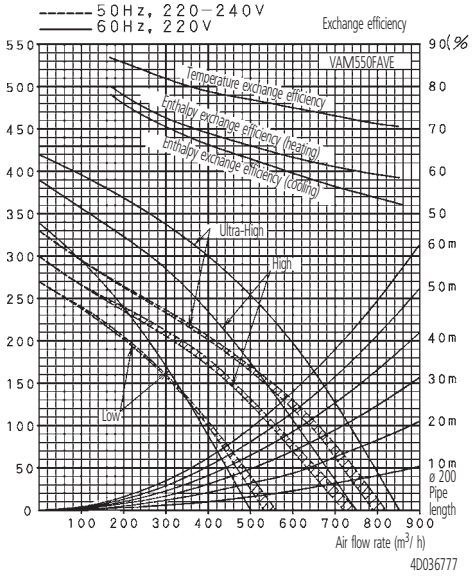
VAM350FA7VE



VAM500FA7VE

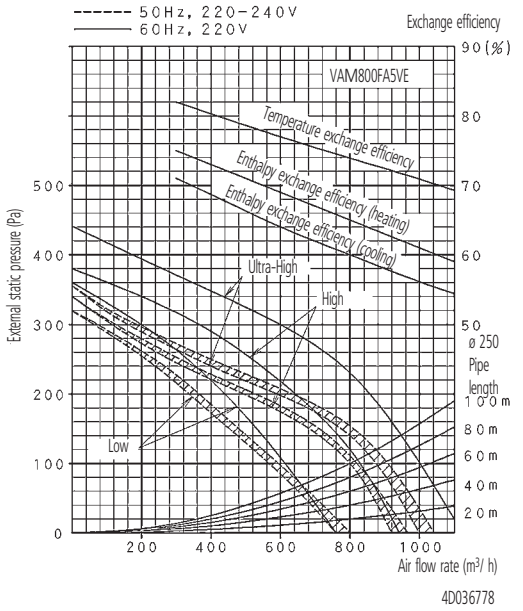


VAM650FA5/7VE

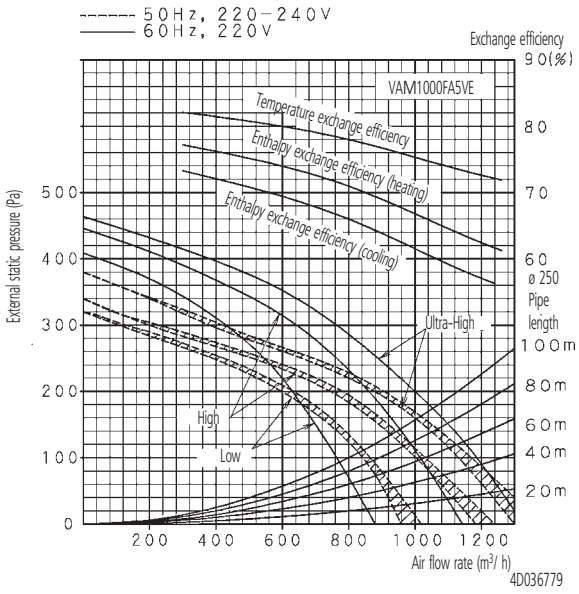


4

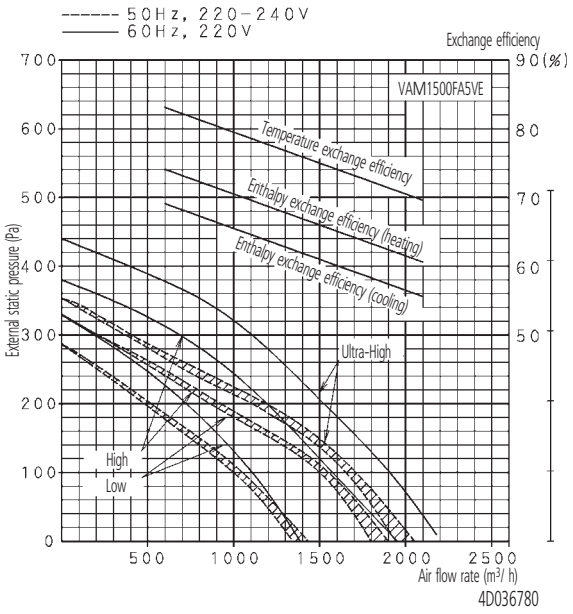
VAM800FA5/7VE



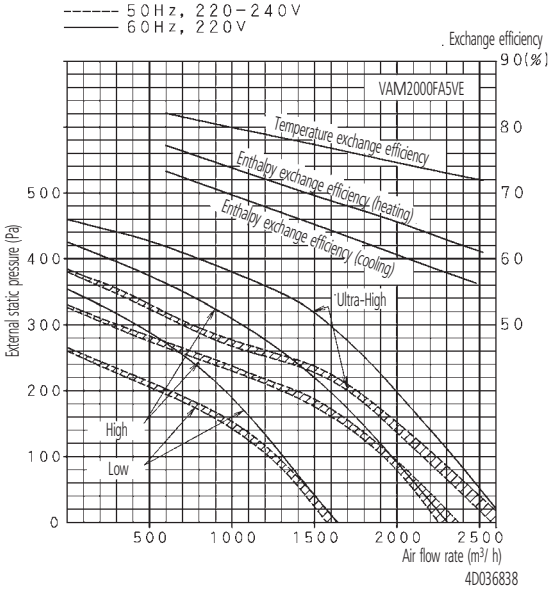
VAM1000FA5/7VE



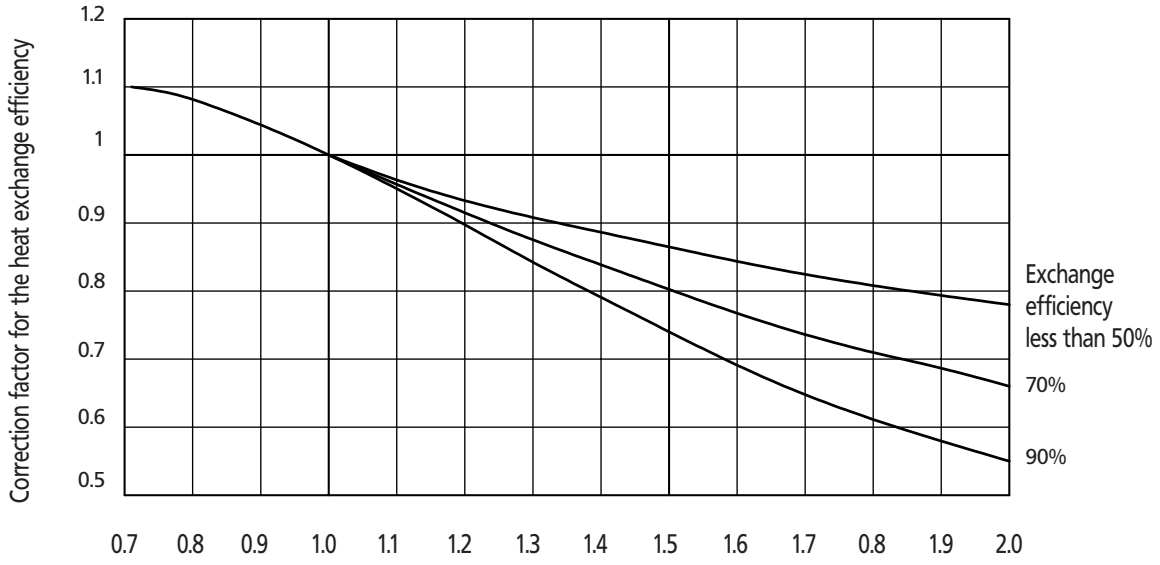
VAM1500FA5/7VE



VAM2000FA5/7VE



3.5 The correction ratio of exchange efficiency



C: 4D023764 + 4D023764

<Example of correction>

VAM500 (50Hz): Air flow rate at strong notch 500 m^3/h
(Cooling) Enthalpy exchanging efficiency 58%

Supply air and exhaust air flow rate for fresh-up mode:
Supply air flow rate / Exhaust air flow rate = 550 / 500 = 1.1
(Cooling) Enthalpy exchange efficiency from above Table

$$58 \times \underline{0.96} = 55.6\%$$

(0.96: Correction ratio)

3.6 Sound level data

3.6.1 Overall sound pressure levels

Ventilation Mode		220V / 50Hz						230V / 50Hz					
		Total Heat Exchange mode			Bypass mode			Total Heat Exchange mode			Bypass mode		
Fan Speed		U-H	H	L	U-H	H	L	U-H	H	L	U-H	H	L
Model	VAM150FA7VE	27	26	20.5	27	26.5	20.5	28	27	21	28	27	21
	VAM250FA7VE	28	26	21	27.5	27	21	28.5	26.5	21.5	28	27.5	21.5
	VAM350FA7VE	32	31.5	23.5	31.5	31	24.5	33	32	25	32	31.5	25.5
	VAM500FA7VE	33	31.5	24.5	33.5	32.5	24	34	32.5	25.5	34	33	26.5
	VAM650FA5/7VE	34.5	33	27	34.5	33	27	35	33.5	27.5	35	34.5	27
	VAM800FA5/7VE	35.5	34.5	31	35.5	34.5	31	36.5	35.5	31.5	36.5	35.5	31.5
	VAM1000FA5/7VE	36	35	31.5	36	35.5	32	36.5	35.5	31.5	36.5	35.5	32
	VAM1500FA5/7VE	39.5	38	34	40.5	38	33	41	38.5	35	41	38.5	35
	VAM2000FA5/7VE	40	38	35	41	38	33	41.5	40	36	41.5	40	35

Ventilation Mode		240V / 50Hz						220V / 60Hz					
		Total Heat Exchange mode			Bypass mode			Total Heat Exchange mode			Bypass mode		
Fan Speed		U-H	H	L	U-H	H	L	U-H	H	L	U-H	H	L
Model	VAM150FA7VE	28.5	27.5	21.5	28.5	27.5	21.5	28.5	26.5	19	28	27	20
	VAM250FA7VE	29	27	22	28.5	28	22	29.5	26	19.5	29	27	20.5
	VAM350FA7VE	34	33	26	33.5	32.5	26.5	34.5	32	22	34.5	33	22
	VAM500FA7VE	34.5	33	27.5	34.5	33.5	27.5	35.5	33.5	24	35	33	24
	VAM650FA5/7VE	35.5	34	28	35.5	35	28.5	36	33	27	35.5	34	27
	VAM800FA5/7VE	37	36	32	37	36	32	36	34.5	31	37	35	31
	VAM1000FA5/7VE	37	36	32	37	36	33	37	35	31	37	35	31
	VAM1500FA5/7VE	41.5	39	36	41.5	39	36	40.5	38	33	40.5	38	33
	VAM2000FA5/7VE	41.5	40	38	42.5	41	37	41	38	34	41	38	35

3.6.2 Sound power spectrum

VAM150FA7VE

[dB]

Model	Power supply		Hz/ Notch	63	125	250	500	1000	2000	4000	8000
VAM150FA7VE	50Hz	220V	U-H	50	48	46	40.5	38.5	34	25.5	27
			H	47	47	42	40	37.5	27.5	25	26.5
			L	44	42	38.5	35.5	29.5	21.5	22.5	23.5
		230V	U-H	51	49	47	41.5	39.5	35	27	28.5
			H	47.5	47.5	42.5	39.5	37	28.5	26	27.5
			L	44	42	38.5	36	29.5	21.5	22.5	23.5
		240V	U-H	53	50.5	46.5	42	40	36.5	30	31.5
			H	49.5	49.5	45	42	39.5	31.5	29.5	31.5
			L	44.5	42.5	39.5	36	30	22.5	23.5	25
	60Hz	220V	U-H	52	51	46	42.5	39.5	33.5	24.5	27
			H	49	49	44.5	40.5	37	29.5	26	27.5
			L	41	42	39	35.5	29	21	21.5	23.5

4D036765

VAM250FA7VE

[dB]

Model	Power supply		Hz/ Notch	63	125	250	500	1000	2000	4000	8000
VAM250FA7VE	50Hz	220V	U-H	51.1	51	48	42	38.5	33.5	25.5	25.5
			H	49.5	48.5	46	40	36.5	29	22	23.5
			L	44.5	44	42	34	28	19.5	21	22
		230V	U-H	52	51.5	47	43	39.5	34	27	27
			H	50.5	49.5	47	41	37.5	30	24.5	26
			L	44.5	44.5	42	35	28	19.5	21	22
		240V	U-H	51.5	52.5	48	44.5	41	36	29	29.5
			H	52	52	48.5	40.5	38	32.5	28	30
			L	45	44.5	43	34.5	28.5	21	22.5	23.5
	60Hz	220V	U-H	51.5	52	49	43.5	39.5	34	25.5	25.5
			H	49	50	45.5	40	38	30	24.5	26
			L	44.5	41	39	34.5	30.5	20	20	22

4D036766

VAM350FA7VE

[dB]

Model	Power supply		Hz/ Notch	63	125	250	500	1000	2000	4000	8000
VAM350FA7VE	50Hz	220V	U-H	57.5	53	49.5	45	42.5	39.5	31.5	25.5
			H	58.5	51	46.5	43.5	40.5	35	26	26.5
			L	58.5	45.5	41.5	38	33.5	24	25	27
		230V	U-H	59.5	54	50.5	46	43.5	40.5	32.5	27.5
			H	60	52	49	46	42	36.5	29.5	28.5
			L	59.5	46	42.5	38.5	34.5	25	26	28
		240V	U-H	62	55.5	52	47.5	45	42	34.5	30
			H	64	54.5	49.5	46	44	38.5	31	32
			L	60	46.5	44	39	35	26	26.5	28.5
	60Hz	220V	U-H	59	53.5	52.5	48.5	45	41	32.5	27.5
			H	61.5	52	49.5	46.5	41.5	37	28	30
			L	55.5	44	41	36	32.5	23.5	22.5	24

4D036767

VAM500FA7VE

[dB]

Model	Power supply		Hz/ Notch	63	125	250	500	1000	2000	4000	8000
VAM500FA7VE	50Hz	220V	U-H	57	54	51	48	45	37.5	27.5	25.5
			H	54	51.5	49	46	42.5	36	26.5	26
			L	50.5	47.5	44	39	33.5	25	23	24.5
		230V	U-H	57.5	54.5	51.5	48.5	45.5	38	28.5	26.5
			H	55	52.5	50	47	43.5	37	28	28
			L	51.5	48.5	45	39.5	34.5	26.5	25	26.5
		240V	U-H	58.5	55.5	52.5	49.5	46.5	39	29.5	28.5
			H	56.5	54	51.5	48.5	45.5	38.5	30	30
			L	52	48.5	45.5	40	34.5	27	25.5	27.5
	60Hz	220V	U-H	57.5	54	51	49	46.5	39	29	25.5
			H	55	52	49.5	47	44	36	26.5	26
			L	51	47	44	39.5	33	23.5	22.5	25.5

4D036768

VAM650FA5/7VE

[dB]

Model	Power supply		Hz/ Notch	63	125	250	500	1000	2000	4000	8000
VAM650FA5/7VE	50Hz	220V	U-H	62	58	52.5	48.5	45.5	41.5	34	26
			H	61	56.5	51	47	44.5	39	30	26
			L	53.5	50.5	46	42	37.5	32	24	25.5
		230V	U-H	62.5	58.5	53	49	46	42	35	27
			H	61.5	57	51.5	47.5	45	39.5	30.5	27
			L	54.5	51.5	47	43	38.5	33	26	27.5
		240V	U-H	63.5	59.5	54	50	47	43	36	28.5
			H	63	58.5	53	49	46.5	41.5	32.5	29.5
			L	56	43	48.5	44.5	40	34.5	28	30
	60Hz	220V	U-H	59.5	58	53.5	48.5	46	43	38	23
			H	61.5	56	51	47	44	40	30	26.5
			L	54	51	46	42	38.5	31	23	25.5

4D036769

Measuring place

Notes:

1. Operation sound is measured in an anechoic chamber.
2. The operating sound level may become greater than this value depending on the operating conditions, reflected sound, and peripheral noise.
3. Operation sound differs with operation and ambient conditions.
4. The power levels have been calculated on the assumption that the measuring point were right under the source of operating sound.
5. U-H: Ultra high
   H: High
   L: Low

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VAM800FA5/7VE

[dB]

Model	Power supply		Hz/ Notch	63	125	250	500	1000	2000	4000	8000
VAM800FA5/7VE	50Hz	220V	U-H	58	58	52.5	49.5	48.5	41.5	33.5	26
			H	58.5	57	51.5	49.5	47	40.5	31	27.5
			L	54.5	54.5	47.5	44.5	43	35.5	24.5	23.5
		220V	U-H	58.5	59.5	53	50	49	42	34	27
			H	59	58.5	52	50	47.5	41	31.5	28.5
			L	55.5	54	49.5	46.5	44	37.5	27.5	28
		240V	U-H	59	58	53	50	49	43.5	34.5	27
			H	59.5	59	52.5	50.5	48	41.5	32	29.5
			L	58	58	51	48	46.5	39	29.5	30.5
	60Hz	220V	U-H	58	57.5	54	50.5	49	43	33.5	26
			H	58.5	57.5	52.5	50	47	39.5	30	27
			L	54	54	48.5	45	43	35	24	23.5

4D036770

VAM1000FA5/7VE

[dB]

Model	Power supply		Hz/ Notch	63	125	250	500	1000	2000	4000	8000
VAM1000FA5/7VE	50Hz	220V	U-H	62	58.5	54	50.5	49	42	36.5	28
			H	61	57	52	50	48	38.5	31	25.5
			L	58	55	49	45.5	43.5	36.5	27.5	24
		230V	U-H	62.5	57.5	54.5	51	49.5	42.5	37	29
			H	61.5	57.5	52.5	50.5	48.5	39	31.5	26.5
			L	58.5	55	49	47	43.5	37	28	25
		240V	U-H	62.5	59	54.5	51.5	50.5	42.5	37	29
			H	62	58	53	51	49	39.5	32	27.5
			L	59	55.5	49.5	47.5	44	37.5	29	26
	60Hz	220V	U-H	62.5	57.5	53.5	52	49.5	42	36	27
			H	61	57	52	50	48	38	30	24.5
			L	59	54	51	47.5	43	35.5	26	24.5

4D036771

VAM1500FA5/7VE

[dB]

Model	Power supply		Hz/ Notch	63	125	250	500	1000	2000	4000	8000
VAM1500FA5/7VE	50Hz	220V	U-H	60.5	61	55.5	52.5	50.5	46	39.5	29.5
			H	60.5	60	53.5	51.5	49.5	44.5	37	31
			L	58.5	58	51	49	47	39.5	30.5	31
		230V	U-H	61	61.5	57	54.5	52	48.5	41.5	30.5
			H	61	60.5	54.5	52.5	49.5	43	34	31.5
			L	59.5	59.5	52	49.5	48	40.5	31.5	32
		240V	U-H	61.5	63	59	56	53	46.5	40	32
			H	61	60.5	54	52	49.5	43	34	31.5
			L	60	60	52.5	50	48.5	41	32	32.5
	60Hz	220V	U-H	62	62	57	54.5	52	46	37	31
			H	61	60.5	56	53	50	42.5	33	31.5
			L	59.5	59	51.5	49	45.5	39.5	31.5	32.5

4D036772

VAM2000FA5/7VE

[dB]

Model	Power supply		Hz/ Notch	63	125	250	500	1000	2000	4000	8000
VAM2000FA5/7VE	50Hz	220V	U-H	65	61.5	57	54	53	45	39.5	32.5
			H	64	60	55	53	51	41.5	34.5	30.5
			L	62	58	51.5	50	48.5	40.5	32.5	30.5
		230V	U-H	65.5	62	58	55.5	53.5	45.5	40	33
			H	65	61	56.5	54	52	42.5	35.5	32
			L	62	59	53	50.5	48.5	40.5	33	31
		240V	U-H	66	62.5	58	55	54	46	40.5	33.5
			H	65	61	56	54	52	42.5	35.5	32
			L	63	60	54.5	52	50	41.5	34	32.5
	60Hz	220V	U-H	66.5	61.5	57.5	56	53.5	46	40.5	33
			H	64	60	55	53	51	41	33.5	30
			L	60.5	57.5	51	48.5	46.5	41	32.5	32.5

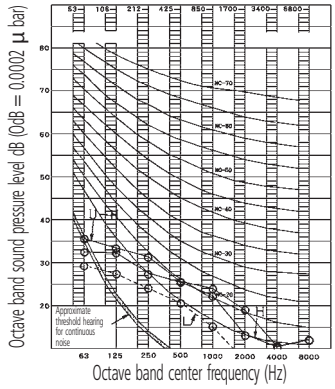
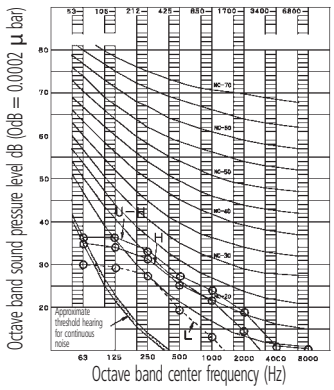
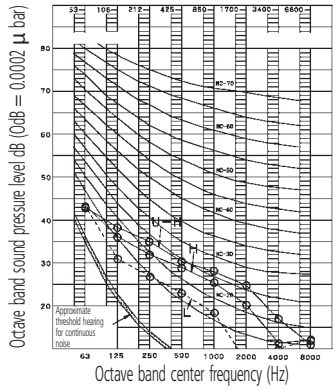
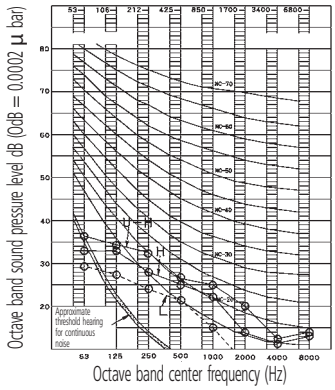
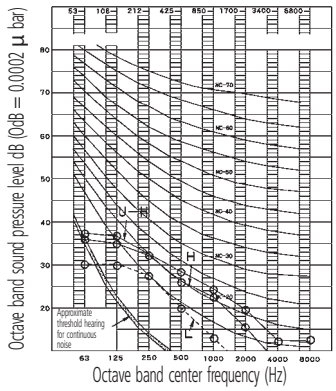
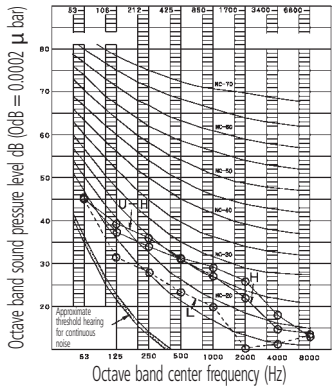
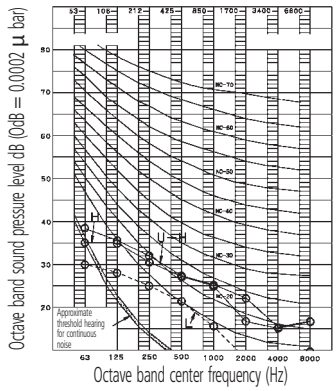
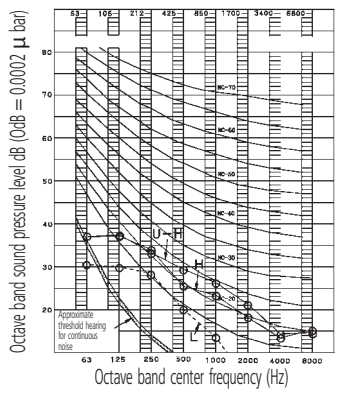
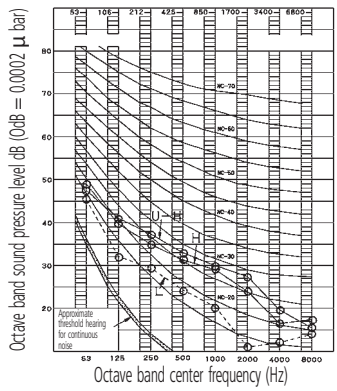
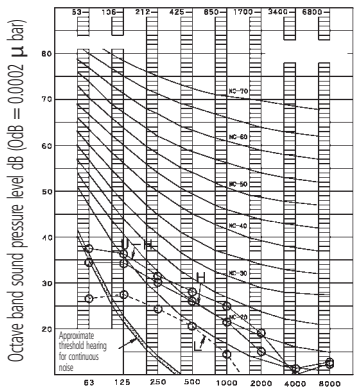
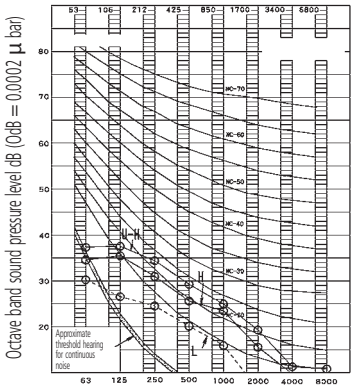
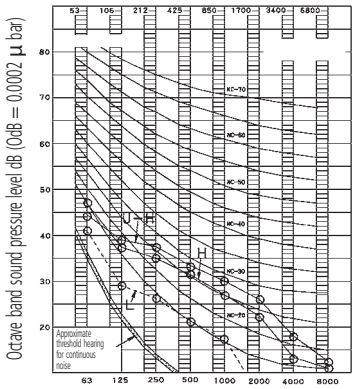
4D036837

Measuring place

Notes:

1. Operation sound is measured in an anechoic chamber.
2. The operating sound level may become greater than this value depending on the operating conditions, reflected sound, and peripheral noise.
3. Operation sound differs with operation and ambient conditions.
4. The power levels have been calculated on the assumption that the measuring point is right under the source of operating sound.

3.6.3 Sound pressure spectrum

	VAM150FA7VE	VAM250FA7VE	VAM350FA7VE
50Hz 220V	 4D036868	 4D036870	 4D036871
50Hz 230V	 4D036878	 4D036879	 4D036880
50Hz 240V	 4D036887	 4D036888	 4D036889
60Hz 220V	 4D036896	 4D036897	 4D036898

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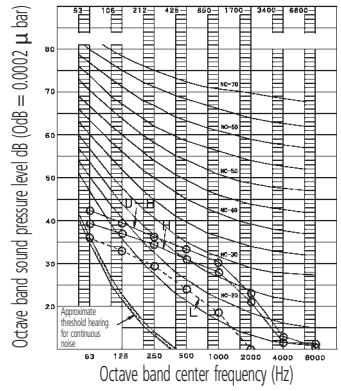
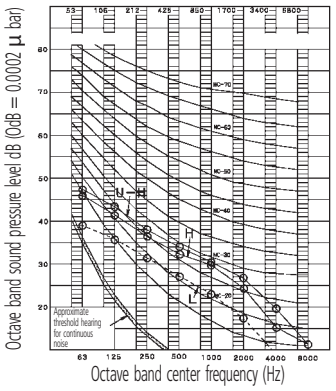
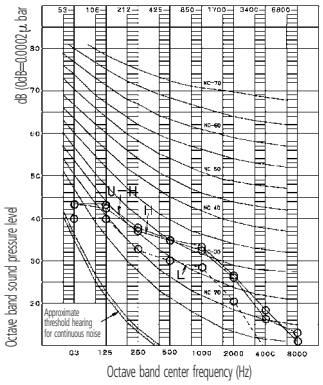
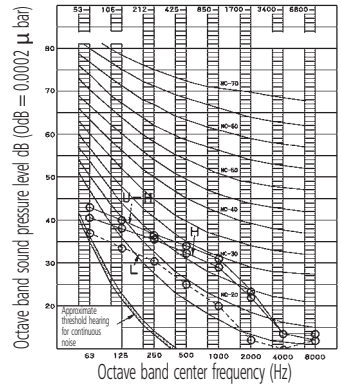
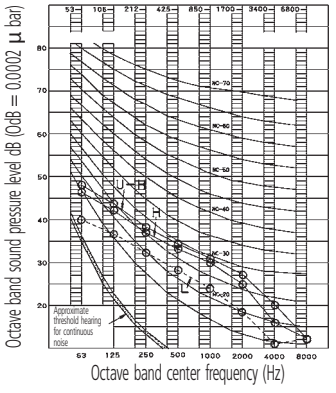
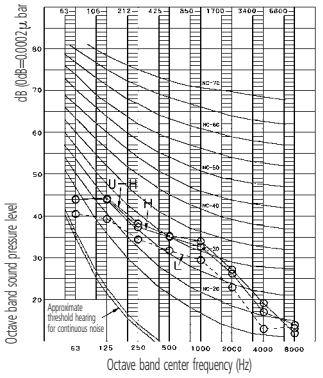
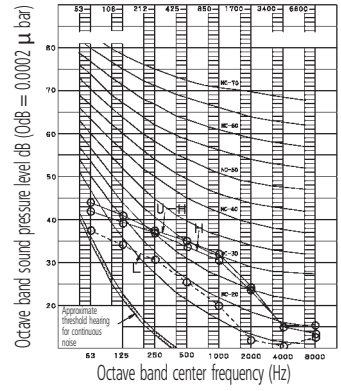
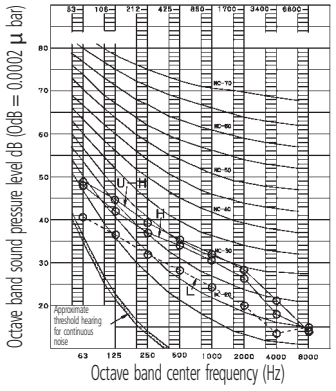
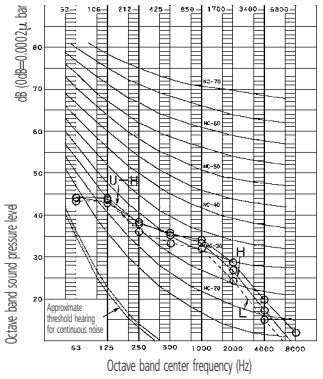
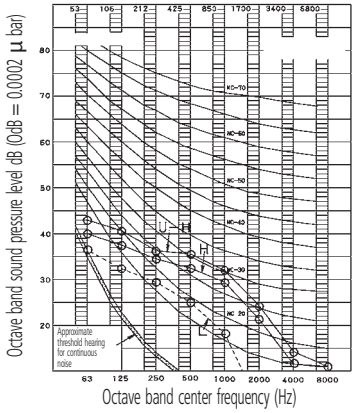
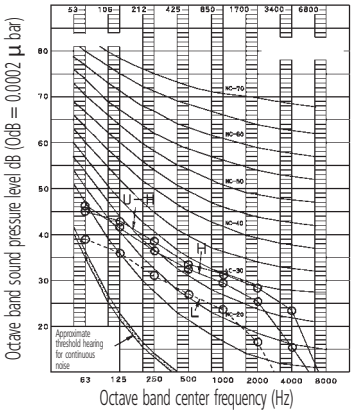
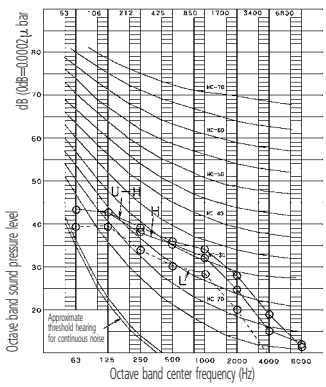
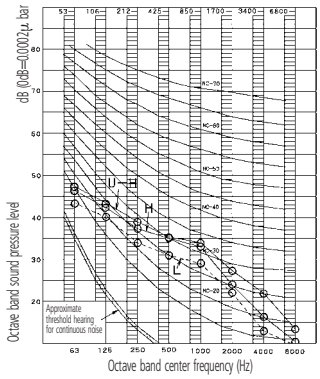
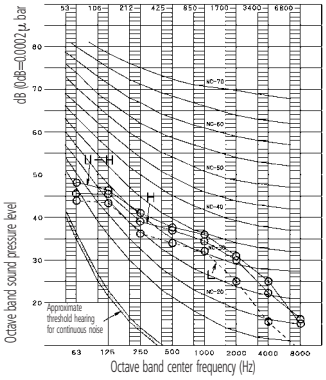
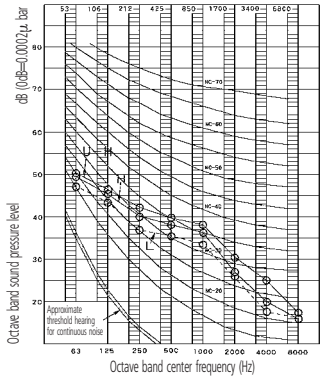
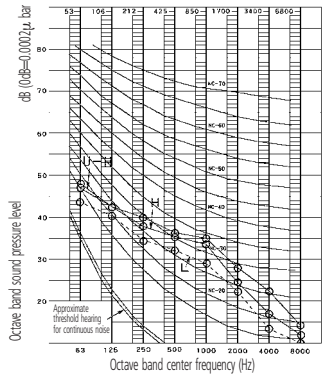
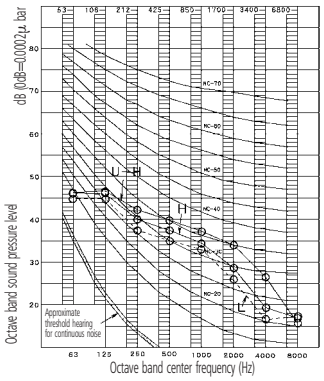
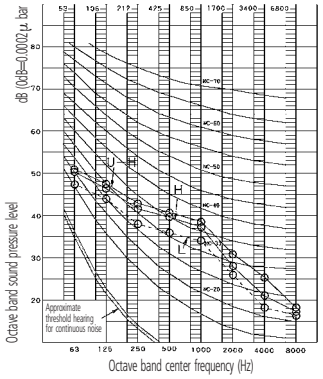
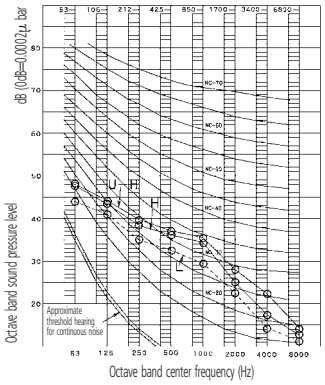
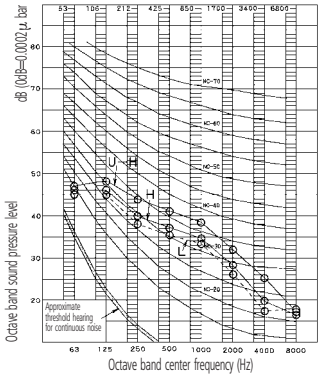
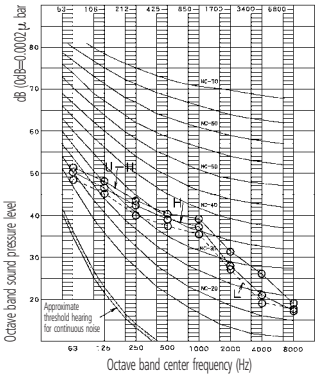
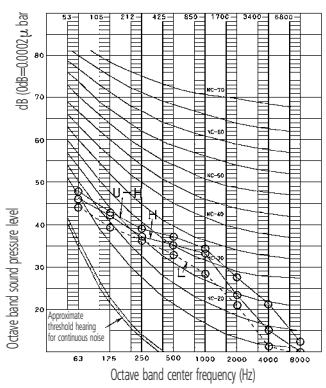
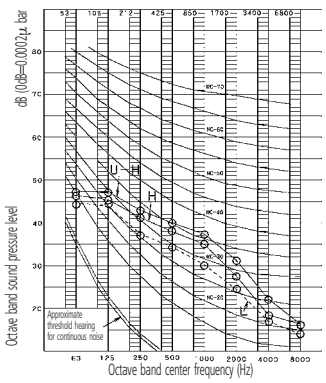
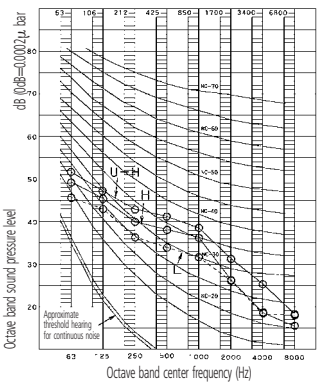
	VAM500FA7VE	VAM650FA5/7VE	VAM800FA5/7VE
50Hz 220V	 4D036872	 4D036873	 4D036874
50Hz 230V	 4D036881	 4D036882	 4D036883
50Hz 240V	 4D036890	 4D036891	 4D036892
60Hz 220V	 4D036899	 4D0368900	 4D036901

	VAM1000FA5/7VE	VAM1500FA5/7VE	VAM2000FA5/7VE
50Hz 220V	 4D036875	 4D036876	 4D036877
50Hz 230V	 4D036884	 4D036885	 4D036886
50Hz 240V	 4D036893	 4D036894	 4D036895
60Hz 220V	 4D036902	 4D036903	 4D036904

3.7 Electric characteristics

Units			Power supply		FM	
Model name	50Hz	60Hz	MCA	MFA	kW	FLA
VAM150FA7VE	Power supply max.264V min.198V	Power supply max. 242V min.138V	0.9	15	0.03 ¥ 2	0.4 ¥ 2
VAM250FA7VE			0.9	15	0.03 ¥ 2	0.4 ¥ 2
VAM350FA7VE			1.35	15	0.03 ¥ 2	0.6 ¥ 2
VAM500FA7VE			1.35	15	0.03 ¥ 2	0.6 ¥ 2
VAM650FA5/7VE			2.3	15	0.14 ¥ 2	1.0 ¥ 2
VAM800FA5/7VE			3.4	15	0.23 ¥ 2	1.5 ¥ 2
VAM1000FA5/7VE			3.4	15	0.23 ¥ 2	1.5 ¥ 2
VAM1500FA5/7VE			6.75	15	0.23 ¥ 4	1.5 ¥ 4
VAM2000FA5/7VE			6.75	15	0.23 ¥ 4	1.5 ¥ 4

SYMBOLS:

MCA: min. circuit amps. (A)
MFA: max. fuse amps. (A) (See note 5)
FM: fan motor
FLA: full load amps. (A)
kW: fan motor rated output (kW)

NOTES:

1. Voltage range units are suitable for use on the electrical systems where the voltage supplied to the unit terminals is not below or above the listed range limits.
2. Maximum allowable voltage variation between phases is 2 %.
3. MCA/MFA
   MCA = 1.25 ¥ $FLA_{(fm1)}$ + $FLA_{(fm2)}$
   MFA £ 4 ¥ FLA
   (VAM2000FA5/7VE is regarded as 2 ¥ VAM1000FA5/7VE)
4. Select wire size based on the value of MCA.
5. Instead of the fuse, use the circuit breaker.

4D036862

Specifications for field supplied fuses and wire

Model	Type	Power supply wiring			Transmission wiring	
		Field supplied fuses	Wire	Size	Wire	Size
VAM150FA7 VAM250FA7 VAM350FA7 VAM500FA7 VAM600FA5/7 VAM800FA5/7 VAM1000FA5/7 VAM1500FA5/7 VAM2000FA5/7	VE	15A	H05VV-U3G	Wire size must comply with local codes.	Shield wire (2 wire)	0.75 – 1.25 mm^2

3

Heat Recovery Ventilation

ISO14001 assures an effective environmental management system in order to help protect human health and the environment from the potential impact of our activities, products and services and to assist in maintaining and improving the quality of the environment.

Daikin units comply with the European regulations that guarantee the safety of the product.

Daikin Europe N.V. is approved by LRQA for its Quality Management System in accordance with the ISO9001 standard. ISO9001 pertains to quality assurance regarding design, development, manufacturing as well as to services related to the product.

VRV products are not within the scope of the Eurovent certification programme.

Specifications are subject to change without prior notice

DAIKIN EUROPE N.V.

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Prepared in Belgium by Vanmelle

technical data

Heat Recovery Ventilation

Installation

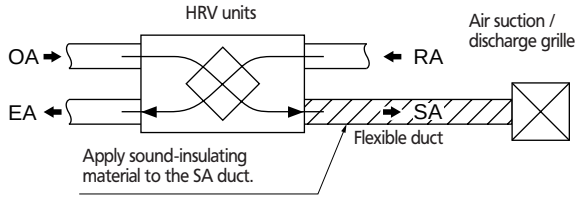
4. Installation

4.1 Reducing operating sound

The air suction and discharge grille may give out operating sound higher by 8 to 11 phons than of the HRV units body. When installing this unit in a quiet place, take measures to reduce operating sound.

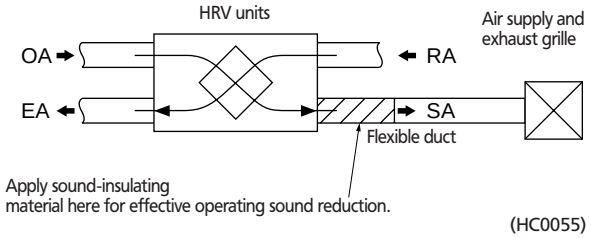
4.1.1 Points for reducing operating sound

1. Operating sound heard from the air discharge outlet can be reduced just by applying sound-insulating material to the SA (indoor air supply) duct.



(HC0054)

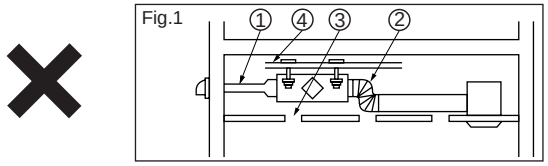
2. Operating sound can be reduced more effectively by applying sound-insulating material to a portion of the SA duct near the unit body than that near the air suction / discharge grille.



(HC0055)

4.1.2 Taking measures to reduce operating sound heard from attic-installed equipment and air ducts.

1. When installing large air volume models (650 m^3 / h or more), avoid the following wherever possible if it is expected to be necessary to apply sound-insulating material to them. (Fig.1)



(HC0056)

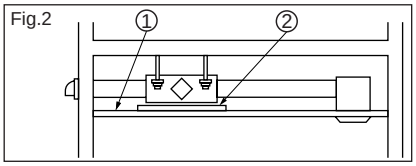
① Making the duct diameter extremely small (Example: f 250 Æ f 150, f 200 Æ f 100)

② Making the duct extremely bent using bellows (in particular, connecting bellows to the air discharge outlet of the unit body)

③ Making opening holes on the ceiling

④ Hanging the unit on a material which does not have enough hanging strength
See "Precautions for installing and handling the unit" on pages 77 and 87.

2. Take the following sound reduction measures. (Fig.2)



(HC0057)

① Use a sound-insulating (low-permeability-to-sound) ceiling.

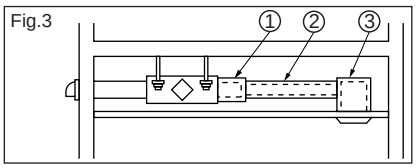
Note:
Some sound-insulating ceilings are not very effective in reducing low-frequency element of the operating sound.

② Place a sound-reducing material under the source of the operating sound.

Note:
When using a sound-insulating sheet, it is necessary to have the entire body of the unit covered with it. Note, however, that some models do not allow the use of a sound-insulating sheet because it may badly affect the ventilation of their radiation heat.

4.1.3 Reducing operating sound heard from the air discharge outlet (suction inlet)

1. Use the following recommended optional accessories to reduce operating sound heard from attic-installed duct type models. (Fig.3)



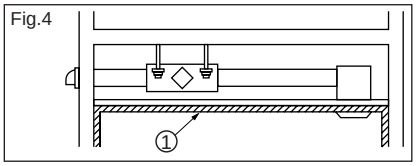
(HC0058)

① Sound-eliminating box (Silencer)

② Flexible duct

③ Sound-eliminating air suction / discharge grille

2. If the above accessories do not give satisfactory effect or when an attic-installed cassette type model is used, take the following measure.

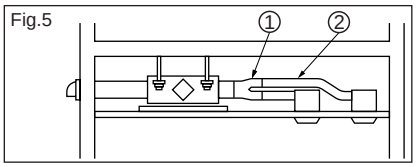


(HC0059)

① Apply a sound-absorbing material to the interior of the room.

3. To reduce the air flow sound heard from the air discharge outlet (suction inlet) of an attic-installed duct type model, use a small diameter flexible duct, which excels in sound absorptivity, for greater sound reduction effect.

① Branched duct (for letting air flow through two ducts to slow down its speed before it reaches the air discharge outlets (sunction inlets))



(HC0060)

② Flexible duct

4. Installation of the unit with the source of its operating sound located at a corner of a room will be a partially effective sound reduction measure; it will keep persons in the center of the room free from the annoying operating sound, with those in the corner of the room kept annoyed by the operating sound. To avoid this, try to find the best installation place from which the operating sound is least heard by everyone in the room.

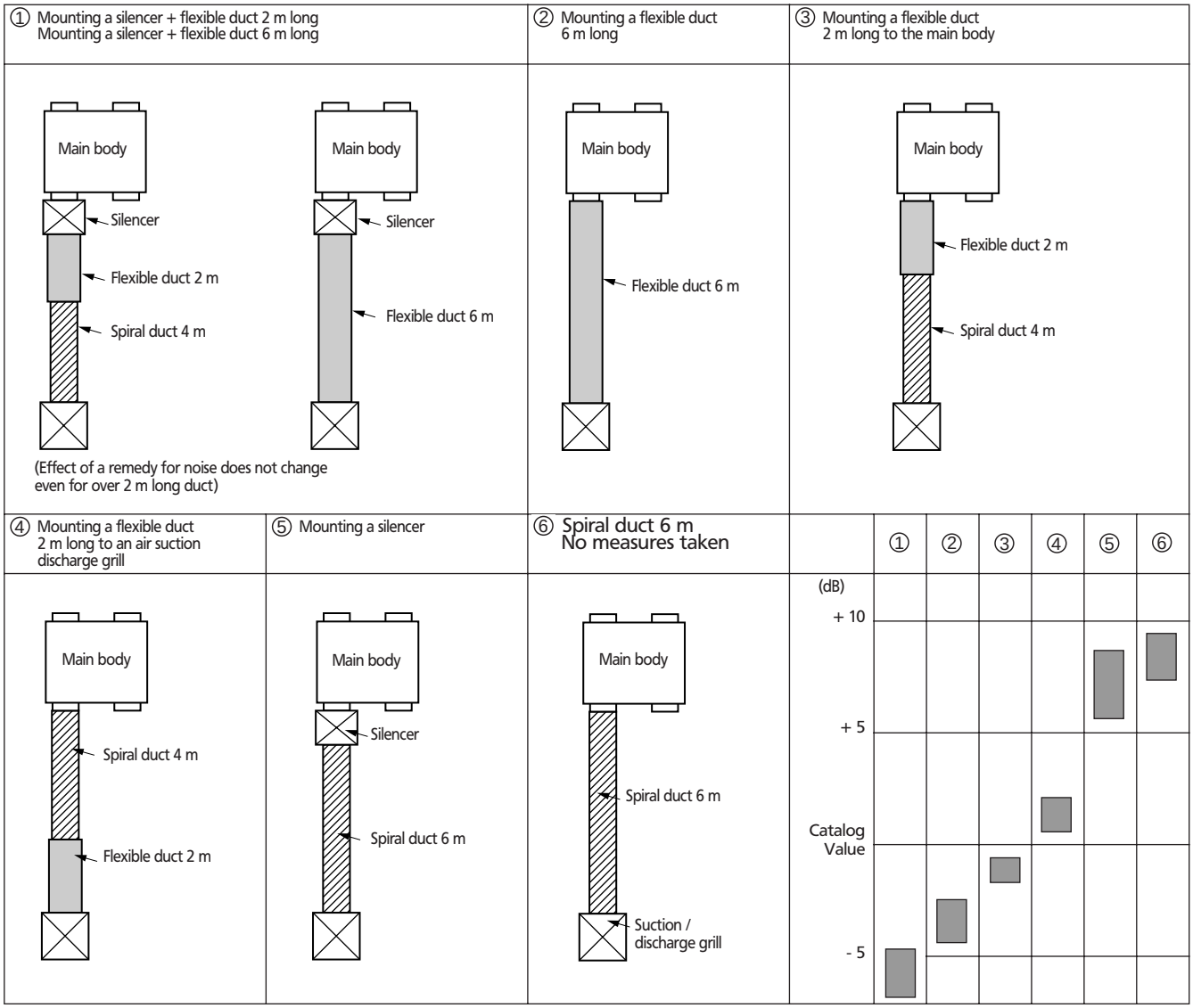
4.1.4 Effect of remedy for sound

Caution

1. Be sure to connect a flexible duct (2 m) to an outlet of the main body in the indoor air supply side.
2. Do not connect a spiral duct and an alminium bellows directly to the outlet of the main body.

*A silencer is effective especially when using theflexible duct at the same time.

4.1.5 General comparison of the effect (① Æ ⑥ in more effective order)



(HC0061)

Note:

Measure the noise at 1.5 m below the air supply grille. Operating noise conforms to JIS standard and the value is converted in terms of the anechoic chamber.

4.1.6 Nameplate for note

"Notes for duct work" is written on the HRV units as indicated below.

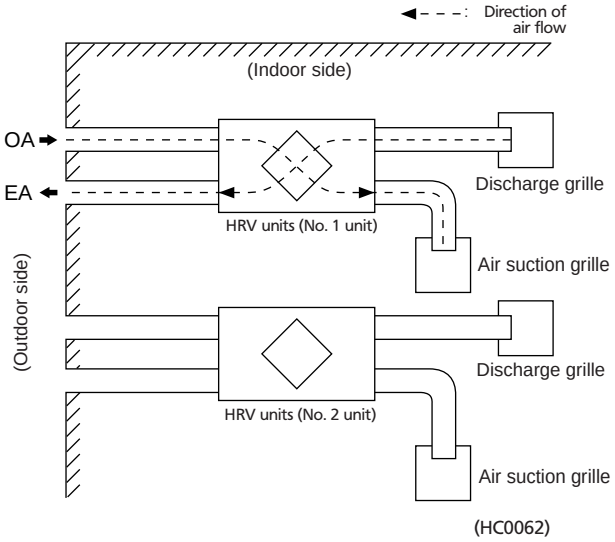
- When connecting a spiral duct or an aluminum bellows, sound at the air discharge outlet is higher by 8~11 phon than the main body operating sound.
- When using this unit in a quiet place, take a remedy for sound by connecting an optional flexible duct at the outlet of the indoor air suction side of the main body.

4.2 Centralized piping

Wherever possible, avoid centralized OA and EA pipings for two or more HRV units, and install ducts for each body of the unit. (Fig. 2)

Because the air flow shown in Fig.1 is generated when centralized OA and EA pipings for two or more HRV units normal air flow cannot be maintained. If a back flow prevention damper is installed in the duct on OA and EA side of each HRV units (Fig.3), costs will increase as compared with the case a duct is installed for each body. It is therefore recommended that a duct be in-stalled for each body. (Before installing the back flow prevention damper, contact our engineering section.)

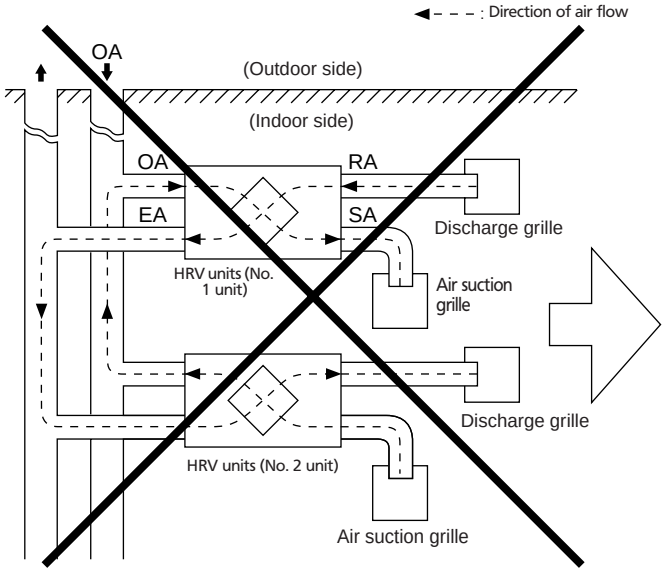
Fig.2: Install a duct for each HRV unit.



(HC0062)

In the above duct system diagram, the air of No.1 unit will flow into normal direction regardless of the operation of No.2 unit when one duct is provided for each unit.

Fig.1: Centralized piping cannot be installed.

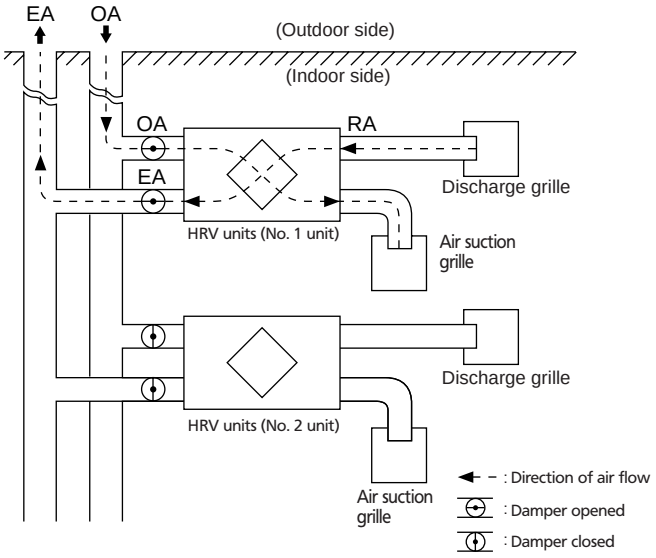


(HC0063)

In the above duct system diagram, if a damper is not provided and No.1 unit is operated with No.2 unit being stopped, the air flows in the direction indicated by a broken line, the amount of the air supplied from outside to OA side is decreased, and the air is discharged from the discharge grille of EA side.

Therefore, the air will not flow into the normal direction.

Fig.3: Install a back flow prevention damper on each duct on OA and EA sides. (Field supply)



(HC0064)

In the above duct system diagram, if a back flow prevention damper (field supply) is installed on each duct on OA and EA sides and the damper interlocked to the operation signals of HRV units, faults such as those shown in Fig.1 can be eliminated and the normal air flow maintained.

(Note, however, that the above does not apply to the standard duct system.)

4.3 Cautions

1. Install the unit on a rigid and stable place. Refer to the specification and weight of the unit.

Use suspension bolts for installation. Confirm that the place for installation can stand the weight of the unit. If not, reinforce the place with beams, etc. and install the suspension bolts.
If the strength of the place for installation is not sufficient, the place resonates to the vibration of the unit and abnormal noise may be transmitted.

3

2. Install a service space and an inspection hole. Refer to the outline drawing for details.

Be sure to provide a service space and an inspection hole for inspection of air filter, heat exchange element and fan. HRV units require one inspection hole.

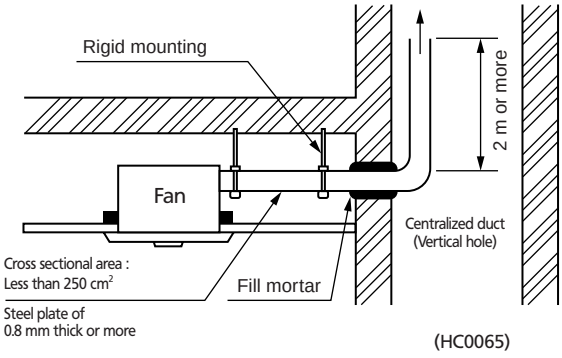
3. Bellows may not be able to use depending on the local regulations. (In the case in Japan)

Some local regulations may not allow the use of bellows in view of the safety for fire prevention. Before using the bellows, contact administrative agencies or fire department in your district. Note that bellows are not allowed in Tokyo in accordance with the Fire Prevention Act of Tokyo.

4. When exhausting air into the centralized duct (vertical hole), install a riser duct of steel plate of over two meters long inside the vertical hole or install an approved smoke back flow prevention damper. (In the case in Japan)

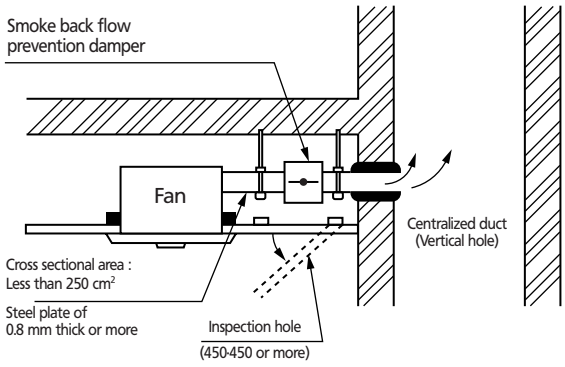
When exhausting air into centralized duct (vertical hole), the Building Standards Act requires that the duct must be capable of preventing fire from expanding through the duct should a fire break out.

When a riser duct of steel plate of 2 m long is installed



(HC0065)

When a smoke back flow prevention damper is installed



(HC0066)

Caution

- Installing a 2 m exhaust duct in a centralized duct involves difficulty in construction and maintenance, and is not practised generally. In actual installation, the approved smoke back flow prevention dam per is used, Use Daikin's optional smoke back flow prevention damper.

5. Air filters are provided on the air intake side and exhaust air side. Be sure to install these filters.

Air filter cleans the air and prevents clogging of the element, and must be installed properly.

6. Confirm the using conditions of HRV units before installation.

Ambient conditions for use: –10°C to 50°CDB at 80% RH or less

Outdoor air temperature condition

When used below –10°C, indoor air temperature varies greatly from outdoor air temperature and frost may form on the heat exchange element depending on conditions of temperature and humidity. Further, the frost formation may be frozen. The frozen frost melts during the day as the temperature rises but the heat exchange efficiency drops before the frozen frost is melted.

As a countermeasure, preheating of the air on low temperature side is considered.

In a place where the temperature exceeds 50°C, deformation of resin parts such as air filter and reduced life of motor and electric parts due to deteriorated insulation are considered.

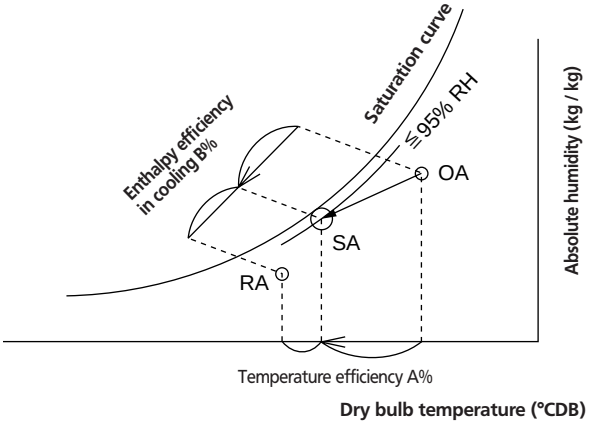
7. The precise available conditions are shown below.

Conditions:

Ambient temperature & humidity for HRV unit	–10 to 50°CDB 80% RH or less	
Indoor / Outdoor air	–10 to 43°CDB	The relative humidity [% RH] is as described below

1) Operation in highly humid areas (in cooling mode)

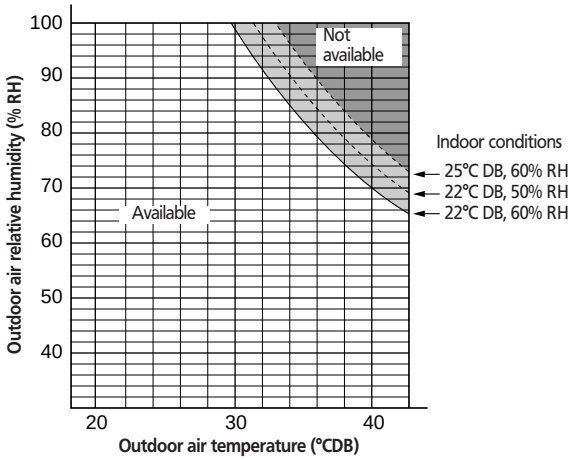
To prevent dew formation, use the unit under the condition that the indoor discharge air is 95% RH or less on the psychrometric chart.



(HC0067)

Fig.1 shows the limit under normal indoor conditions.

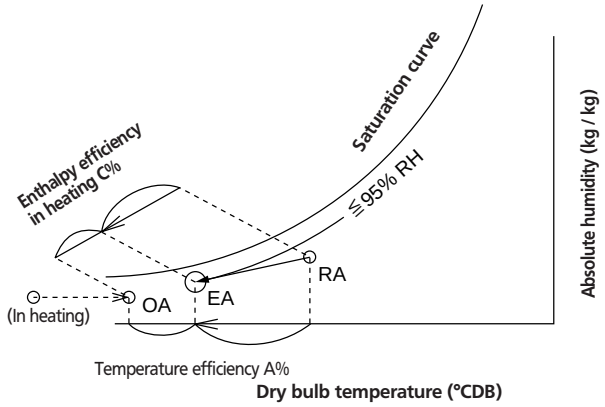
Fig.1 Conditions:
Temperature efficiency A = 72%
Enthalpy efficiency B = 56% (In cooling)
This conditions are at the minimum efficiency that are the severest to dew formation.



(HC0068)

2) Operation in cold areas (in heating mode)

To prevent dew formation and freezing, use the unit under the conditions that the outdoor discharge air is 95% RH or less on the psychrometric chart.



(HC0069)

Note:

If the outdoor discharge air exceeds 95% RH, please preheat the outdoor suction air before it goes through the heat exchanger.

8. Do not use HRV units where the air contains noxious gas and corrosive components of materials such as acid, alkali, organic solvent, carbon black and paint. Also, do not use in a place where damage from sea wind and hot spring prevail or where air containing odor is recovered for supply to other locations.

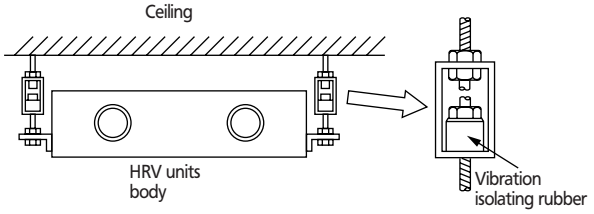
9. Do not operate HRV units in [Bypass] ventilation mode when the indoor is heated during winter.

Such operation may cause frost to form in the body and dirty ceiling may result.

10. When a unit is installed on the ceiling using short suspension bolts, abnormal noise may be generated due to resonance with the ceiling.

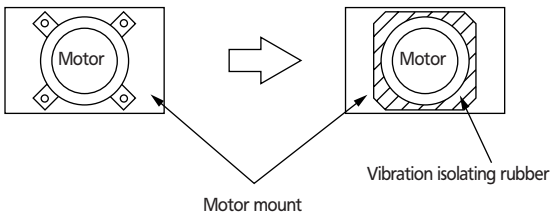
Provide resonance preventive measures for the body suspension bolts.

Example



(HC0070)

If abnormal noise is suspected generating from a spiral duct connection, change the duct to flexible duct. The above preventive measure is considered to eliminate the problem (resonance) but contact our service group and provide means to prevent vibration or necessary changes of the motor of the unit body.



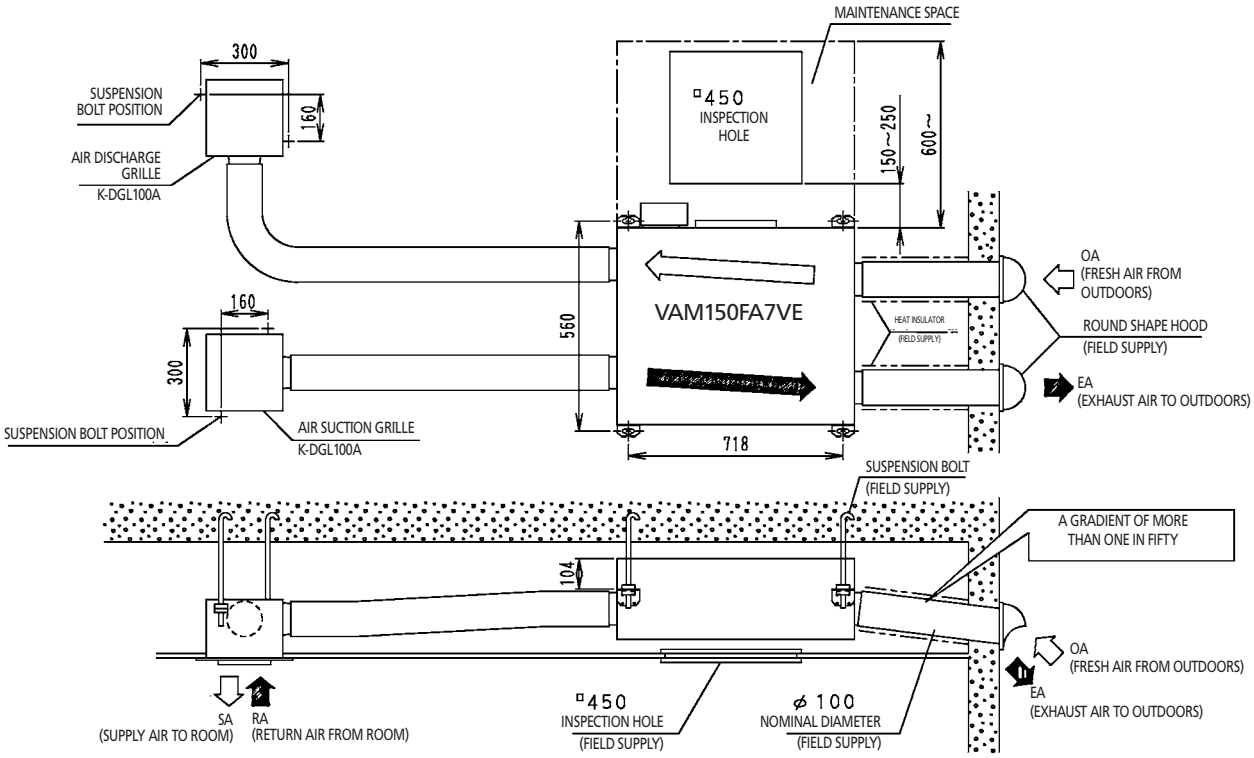
(HC0071)

Caution

- When the outdoor air infiltrates into the ceiling and the temperature and humidity in the ceiling become high, insulate the metal part of the unit.

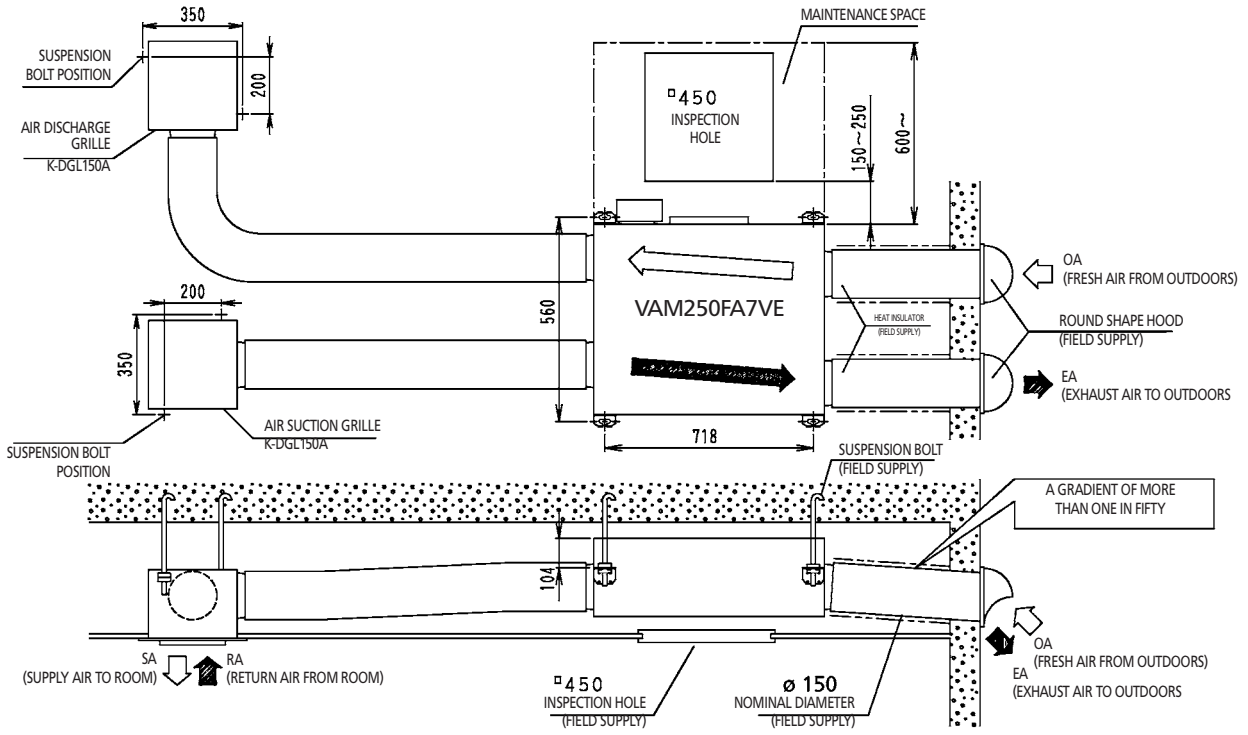
4.4 Standard drawing for installation

VAM150FA7VE



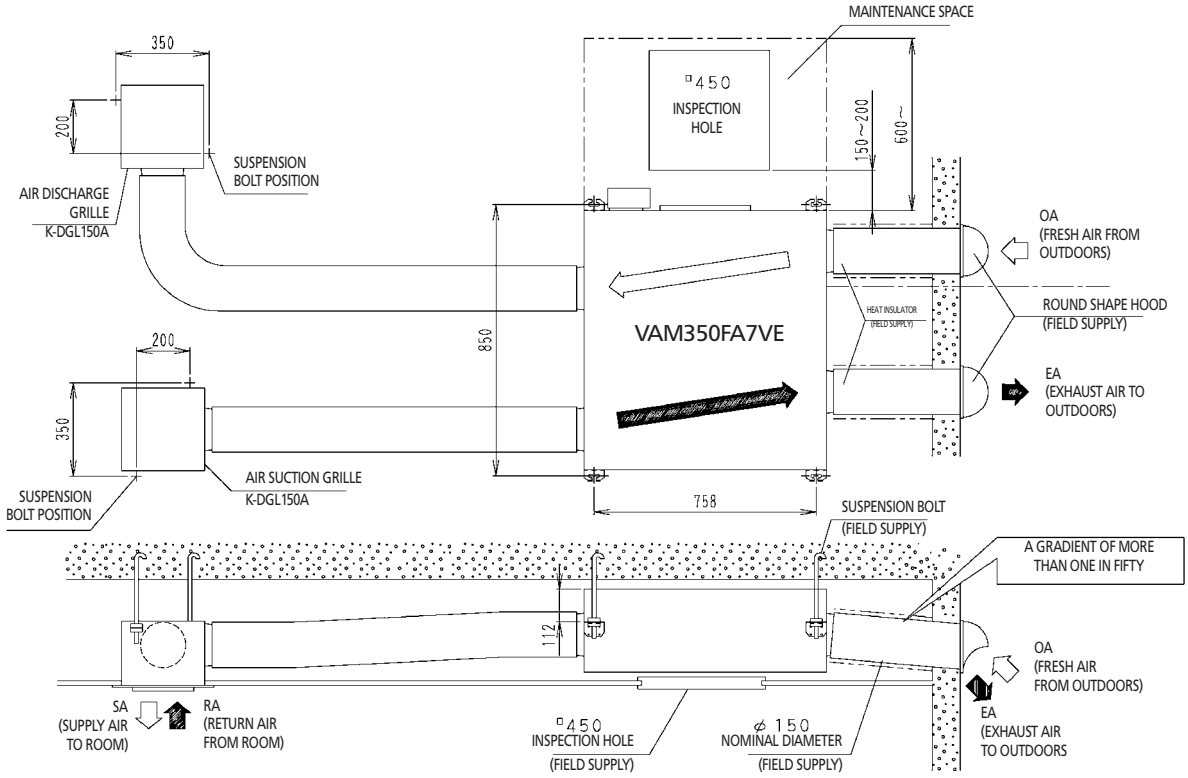
3D036781

VAM250FA7VE



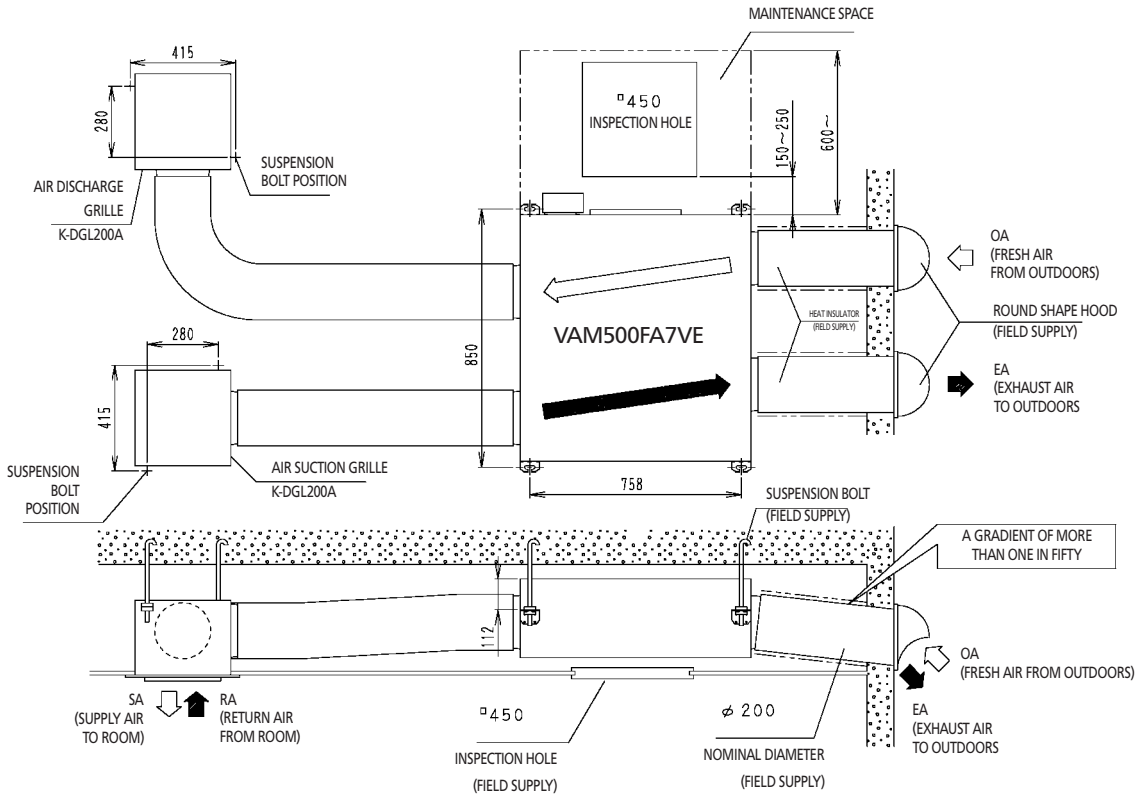
3D036782

VAM350FA7VE



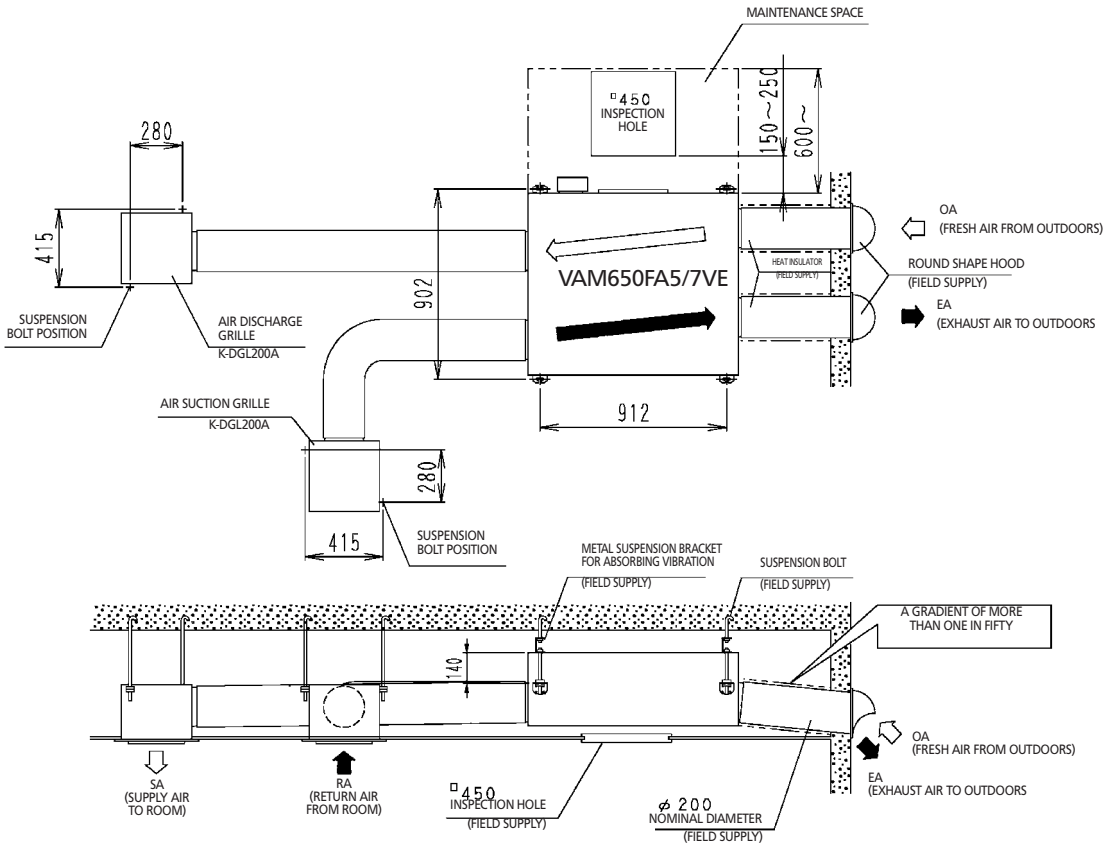
3D036786

VAM500FA7VE



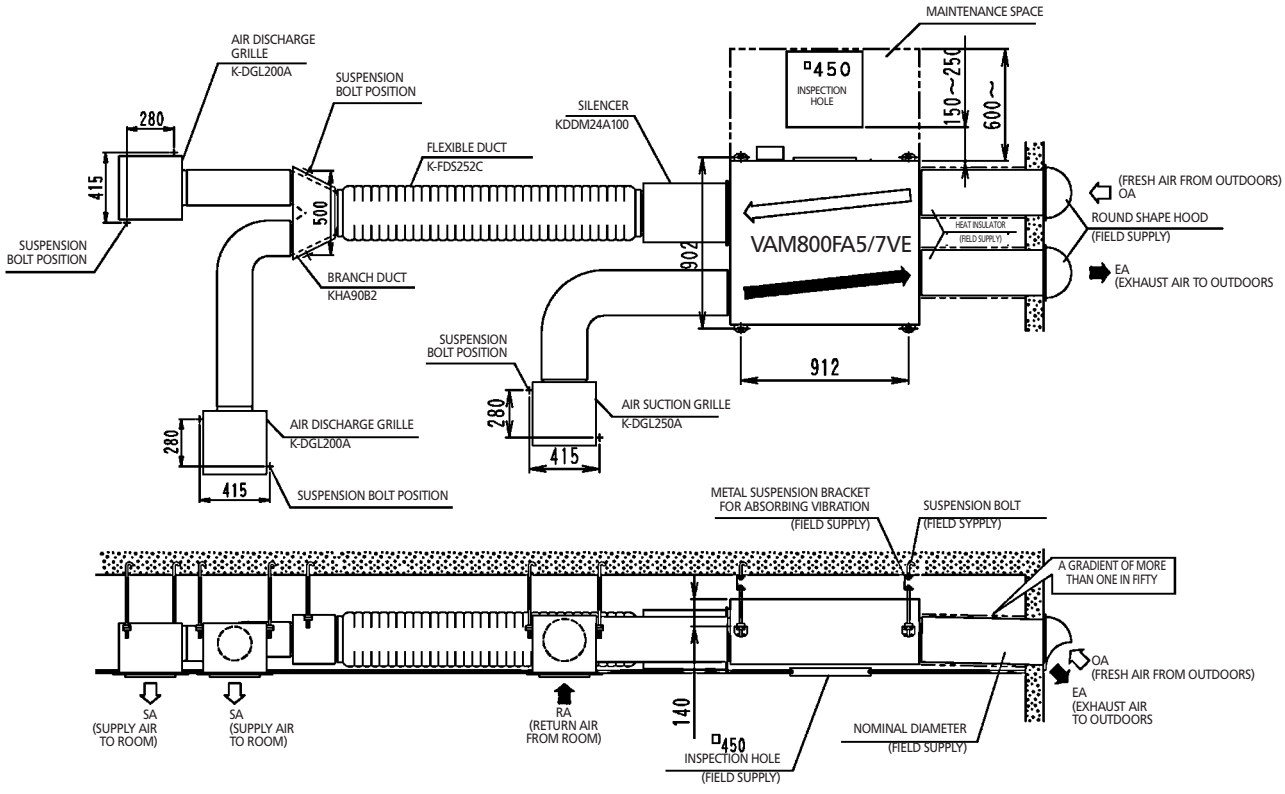
3D036787

VAM650FA5/7VE



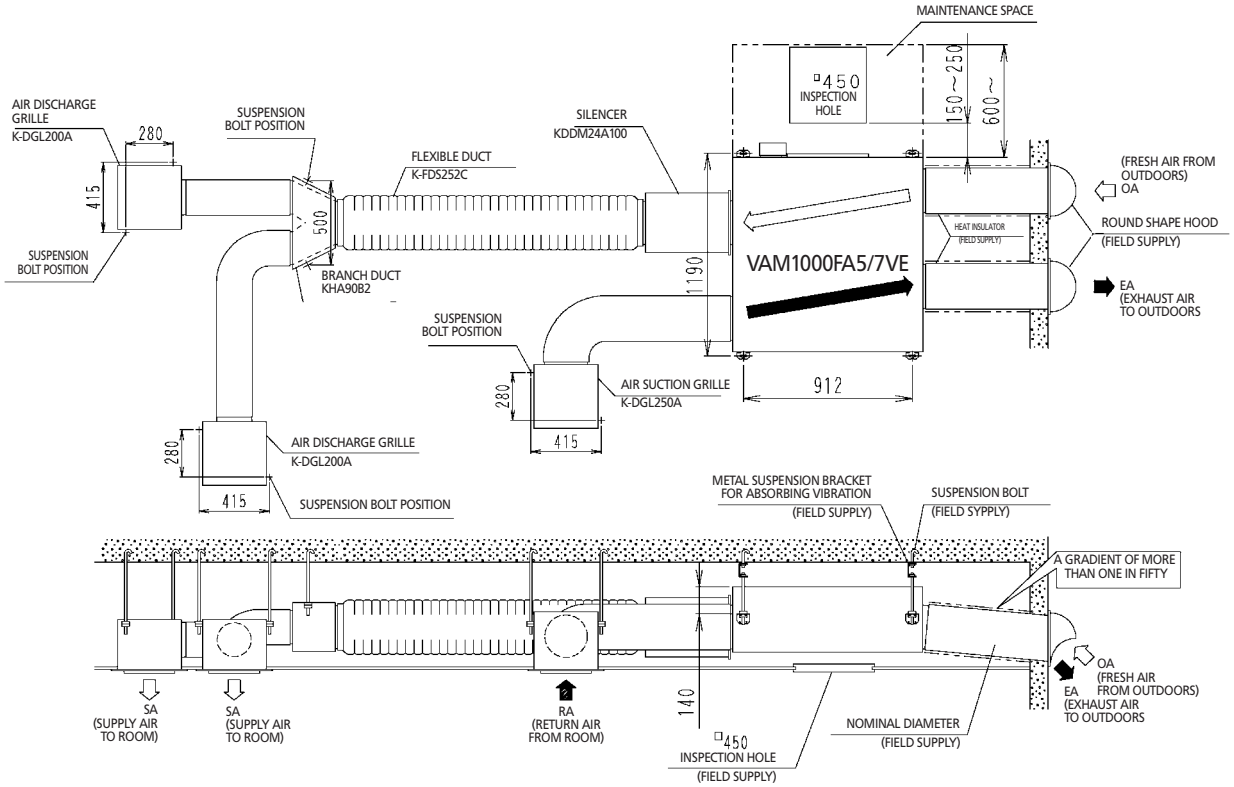
3D036788

VAM800FA5/7VE



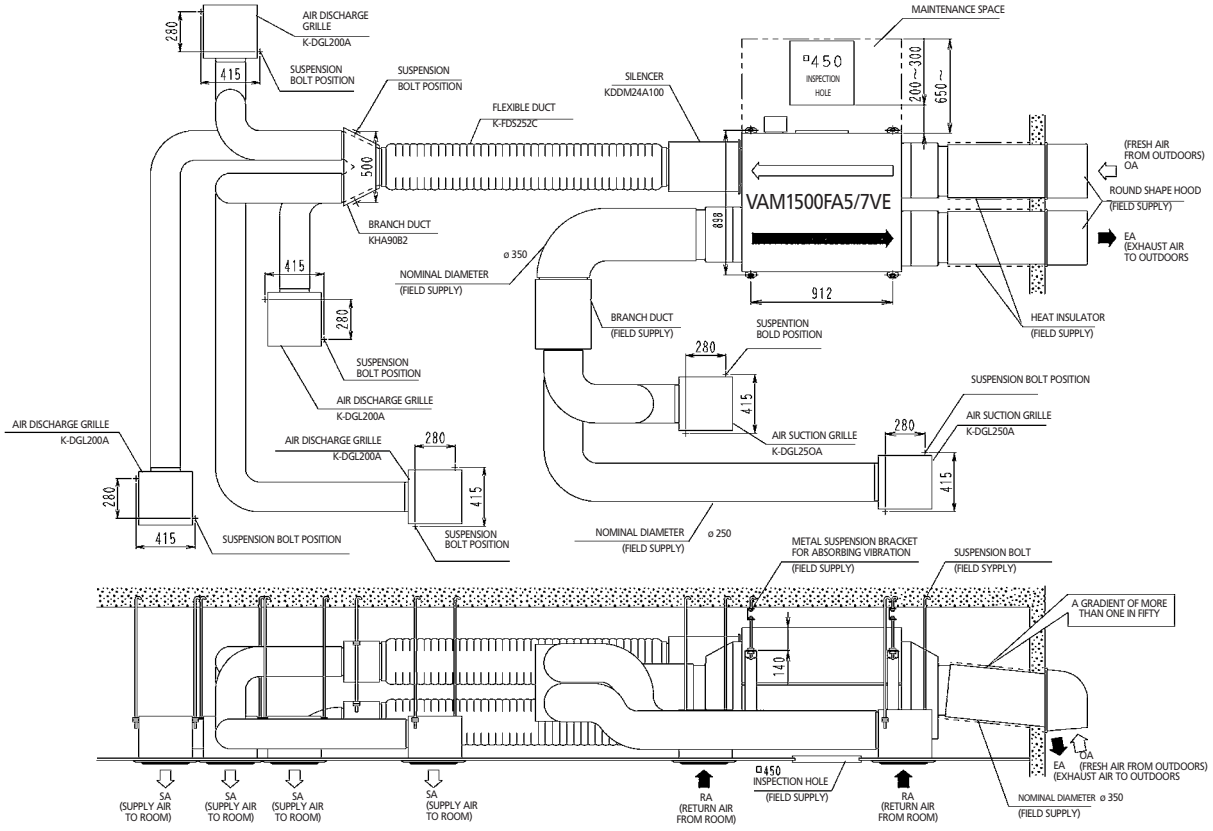
3D036789

VAM1000FA5/7VE



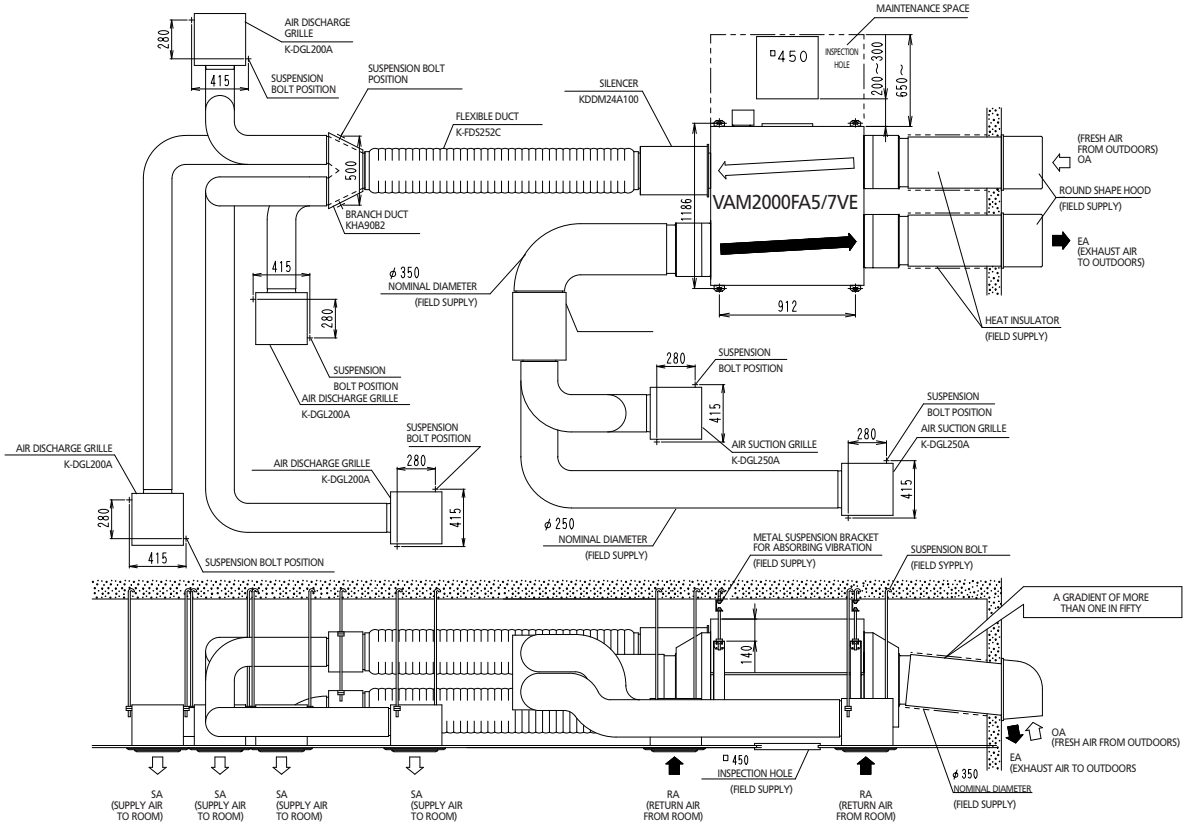
3D036790

VAM1500FA5/7VE



3D036791

VAM2000FA5/7VE

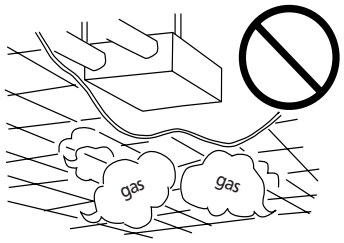


3D020531

4.5 Cautions in installation

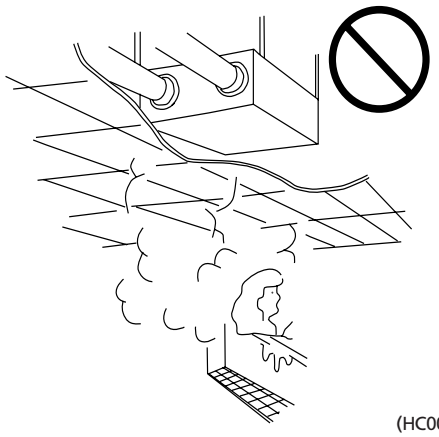
Do not use a HRV or an air suction / discharge grille in the following places.

- **Place such as machinery plant and chemical plant where gas, which contains noxious gas or corrosive components of materials such as acid, alkali, organic solvent and paint, is generated. Place where combustible gas leakage is likely.**
  Such gas can cause fire.



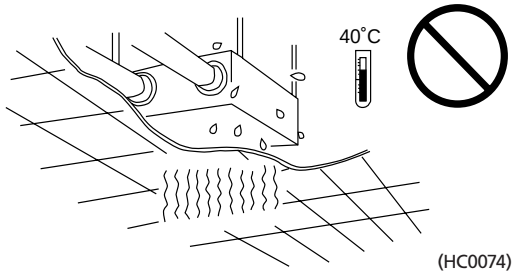
(HC0072)

- **Place such as bathroom subjected to moisture.**
  Electric leak or electric shock and other failure can be caused.



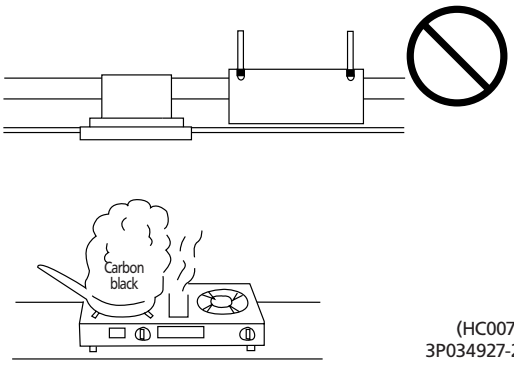
(HC0073)

- **Place subjected to high temperature or direct flame.**
  Avoid a place where the temperature near the HRV unit and the air suction / discharge air grille exceeds 40°C. If the unit is used at high temperature, deformed air filter and heat exchange element or burned motor result.



(HC0074)

- **Place subjected to much carbon black.**
  Carbon black attaches to air filter and heat exchange element, marking them unable to use.



(HC0075)
3P034927-2B

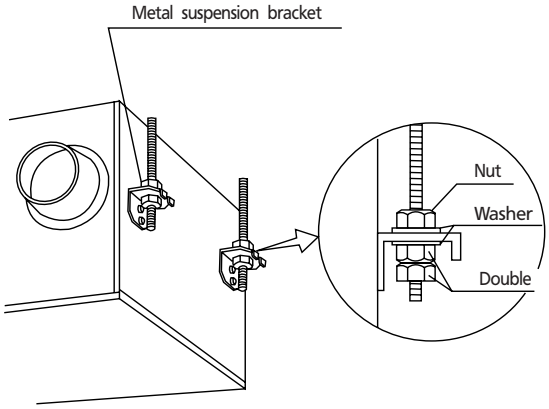
4.6 Installation

4.6.1 Installation of HRV units

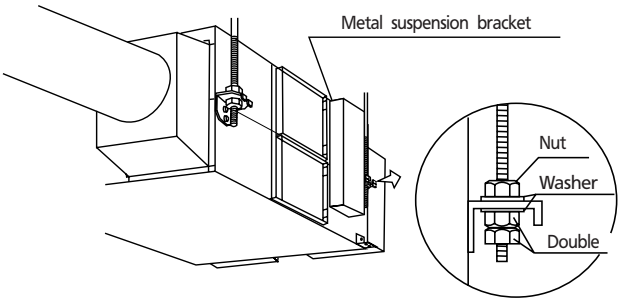
- Install the anchor bolt (M10 to 12) in advance.
  Pass the ceiling suspension fixture through the anchor bolt and secure the anchor bolt with washer and nut. (Before installation, check for foreign objects such as vinyl and paper remaining inside the fan housing.)
- The ceiling suspension fixture is fitted on top of the standard unit. If the anchor bolt is long, install it on the bottom of the unit. (Be sure to screw in the removed mounting screw on top to prevent air leakage.)

Install the duct caution name plate properly on the indoor side (SA·RA) and outdoor side (EA·OA).

VAM150FA7VE, VAM250FA7VE, VAM350FA7VE
VAM500FA7VE, VAM650FA5/7VE, VAM800FA5/7VE,
VAM1000FA5/7VE



VAM1500FA5/7VE, VAM2000FA5/7VE



(HC0076)

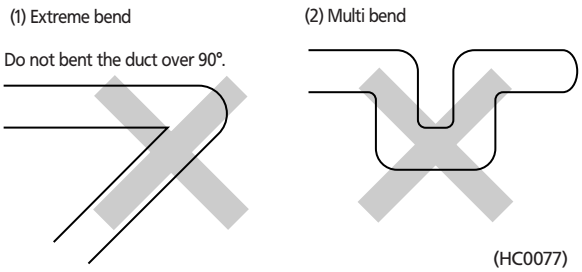
Note:

Remove the clamp (at two locations) for securing the unit in transit, if it prevents installation work. (Be sure to screw in the removed mounting screw on the body side to prevent air leakage.)

4.7 Duct Work

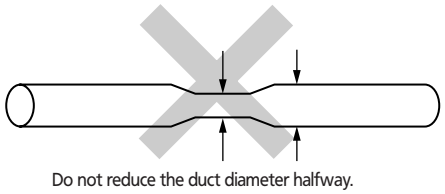
4.7.1 Caution

- Do not install ducts as shown below.



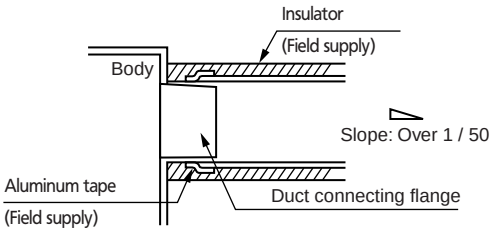
(HC0077)

(3) Reduce the diameter of the duct to be connected.



(HC0078)

1. To prevent air leakage, wind aluminum tape round the section after the duct connecting flange and the duct are connected.
2. Install the opening of the indoor air intake as far as from the opening of the exhaust suction.
3. Use the duct applicable to the model of unit used (Refer to the outline drawing.)
4. Install the two outdoor ducts with down slope (slope of 1 / 50 or more) to prevent entry of rain water. Also, provide insulation for both ducts to prevent dew formation. (Material: Glass wool of 25 mm thick)



(HC0079)

5. If the level of temperature and humidity inside the ceiling is always high install a ventilation equipment inside the ceiling.
6. Insulate the duct and the wall electrically when a metal duct is to be penetrated through the metal lattice and wire lattice or metal lining of a wooden structure wall.

4.7.2 Going through the external wall

1. Hole diameter

Duct dia. + 50 or 75
(I.D. depends on the core drill specification)

<e.g.>

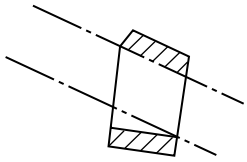
Duct diameter	Hole diameter
f 100 + 50	f 150
f 150 + 50	f 200

2. Drilling the hole

Ideally it is better to grade in the same procedure as refrigerant piping.

In the case of a square duct

Grade a wood frame of a duct stay.



(HC0080)

In the case of a round duct

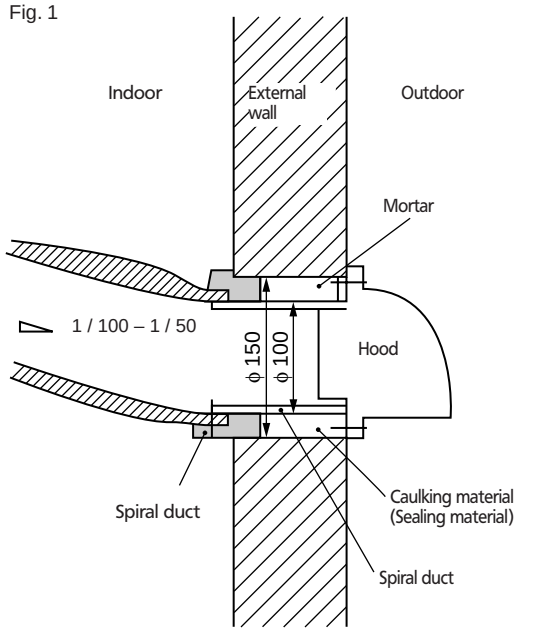
Drill a hole horizontally because the hole cannot be made with the tool graded.

3. Preventing wind and rain from entering

Most of a space between the duct and the external wall is protected by mortar. Coated wall is filled with a caulking material. (See fig. 1)

Image picture

Fig. 1



(HC0081)

4. How about the building which has already been built?

Same as the newly-built building.

- Only hole diameter 100 is instructed in a drawing by a drawing company, so a detailed work is executed by the judgement of an installation company.

7

4.8 Electrical wiring procedure

⚠ Before obtaining access to terminal devices, all power supply circuits must be interrupted.

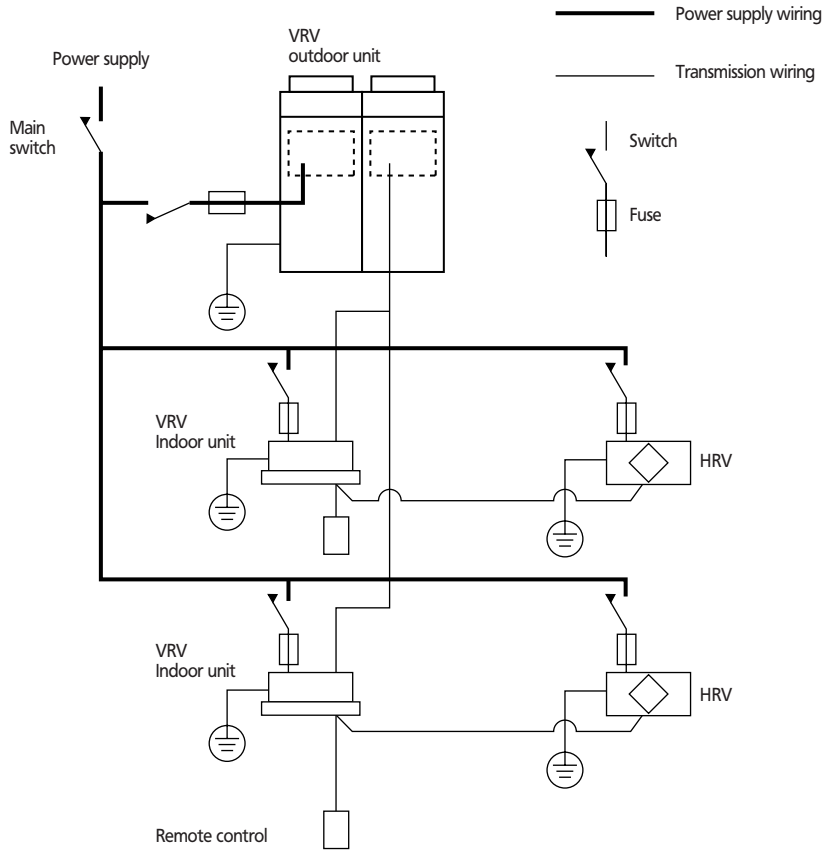
Connection of Wiring

- Connect the wires in accordance with the diagram of each system.
- All wiring must be performed by an authorized electrician.
- All field supplied parts and materials and electric works must conform to local codes.
- Use copper wire only.

Connection of wiring

- A circuit breaker capable of shutting down supply to the entire system must be installed.
- A single switch can be used to supply power to units on the same system. However, branch switches and branch circuit breakers must be selected carefully.
- Fit the power supply wiring of each unit with a switch and fuse as shown in the drawing.
- Be sure to give the electric grounding (earth) connection.

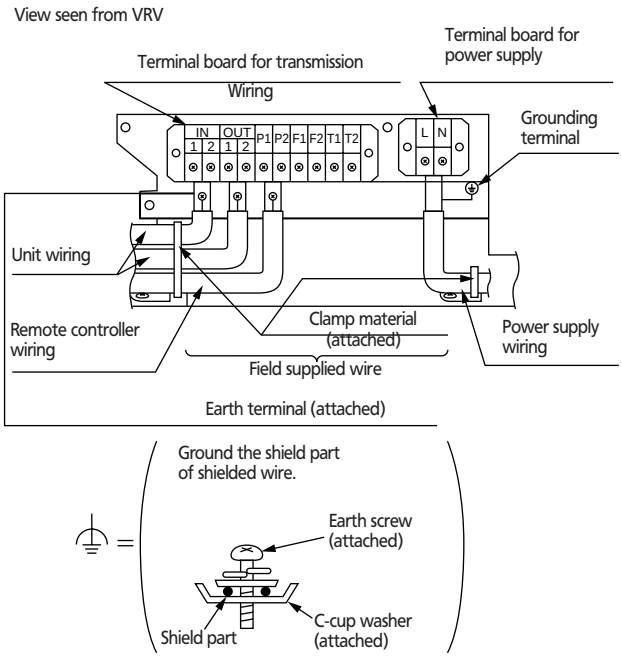
Complete System Example



(HC0082)

Model	Type	Power supply wiring			Transmission wiring	
VAM150FA7	VE	Field supplied fuses	Wire	Size	Wire	Size
VAM250FA7		15A	H05VV-U3G	Wire size must comply with local codes.	Shield wire (2 wire)	0.75 ~ 1.25 mm^2
VAM350FA7						
VAM500FA7						
VAM650FA5/7						
VAM800FA5/7						
VAM1000FA5/7						
VAM1500FA5/7						
VAM2000FA5/7						

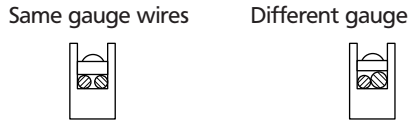
(HC0083)



(HC0084)

⚠PRECAUTIONS

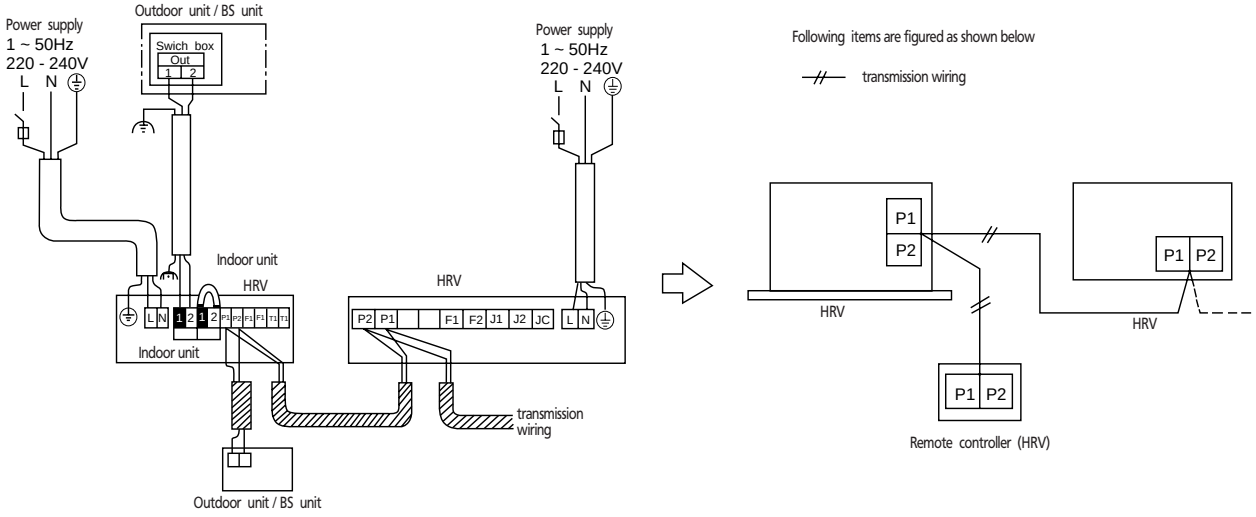
1. Do not connect wires of different gauge to the same power supply terminal. Looseness in the connection may cause overheating. When connecting more than one wire to the power supply wiring, use a 2 mm^2 (f 1.6) gauge wire.



2. Keep total current of crossover wiring between indoor units less than 12 A. When using two power wiring of gauge greater than 2 mm^2 (f 1.6), branch the line outside the terminal board of the unit in accordance with electrical equipment standards. The branch must be sheathed so as to provide an equal or greater degree of insulation as the power supply wiring itself.
3. Do not connect wires of different gauge to the same grounding terminal. Looseness in the connection may deteriorate protection.
4. Keep the power supply wiring distant from other wires to prevent noise.
5. For remote control wiring, refer to the "INSTALLATION MANUAL OF REMOTE CONTROL".

8

Wiring Example

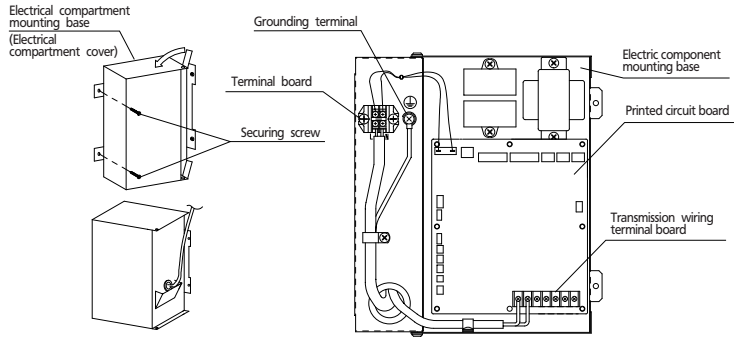


(HC0085)

- All transmission wiring except for the remote control wires is polarized and must match the terminal symbol.
- Use screened wire in transmission wiring. Ground the shield of the shield wire to "⏚", at the grounding screw, with the C-cup washer.
- Sheathed wire materials may be used for transmission wiring, but they are not suitable for EMC (Electromagnetic Compatibility) (European Directive).
- When using sheathed wire, electromagnetic compatibility must conform to Japanese standards stipulated in the Electric Appliance Regulatory Act.
  Transmission wiring need not be grounded when using sheathed wire.

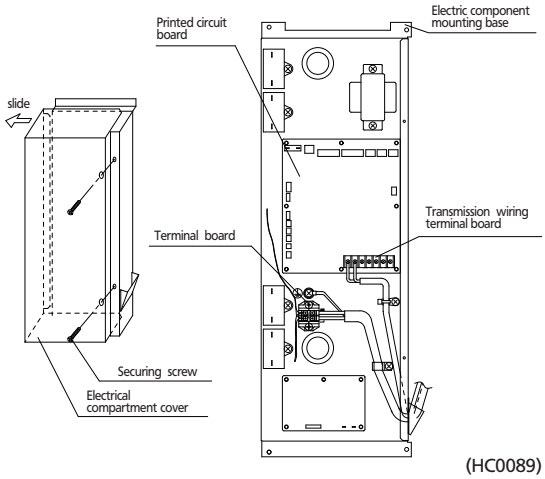
4.8.1 Opening the switch box

VAM150FA7VE, VAM250FA7VE, VAM350FA7VE, VAM500FA7VE, VAM650FA5/7VE, VAM800FA5/7VE, VAM1000FA5/7VE



(HC0088)

VAM1500FA5/7VE, VAM2000FA5/7VE



(HC0089)

⚠ Before opening the cover, be sure to turn off the power switches of the main units and other devices connected with the main units.

- Remove the screw securing the cover and open the switch box.
- Secure the power cord control wires with the clamp, as shown above.

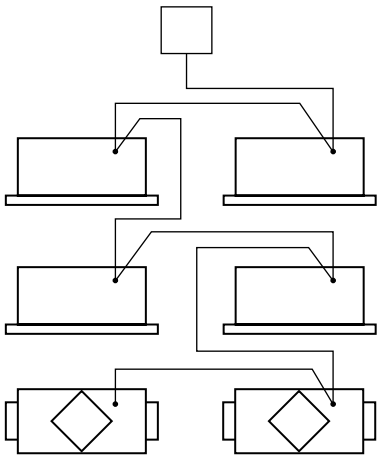
4.8.2 How to install the optional adapter circuit board

1. Open the electrical compartment cover by following the procedure described in the "Opening the switch box" section.
2. Remove the securing screw, and install the adapter circuit board.
3. After the wires are connected, fasten the electrical compartment cover.
   (For detail, refer to 6. Optional accessories.)

4.8.3 Wiring system of centralized transmission control wiring

Total length of wiring should not exceed 1000 m.

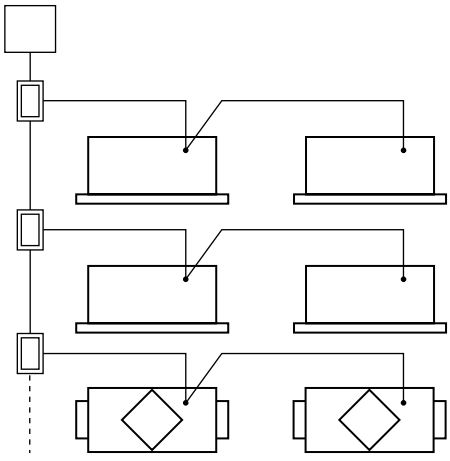
Series wiring



(HC0090)

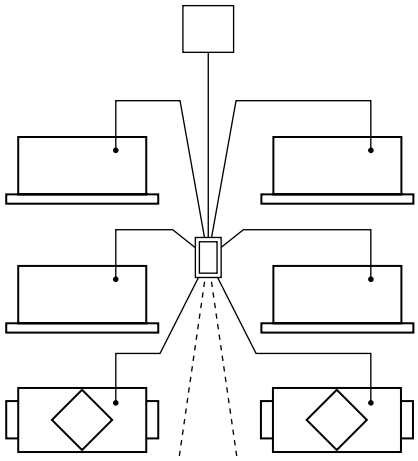
(Can be connected up to 8 branches)

Bus type wiring



(HC0091)

Star type wiring



(HC0092)

(Can be connected up to 8 branches)

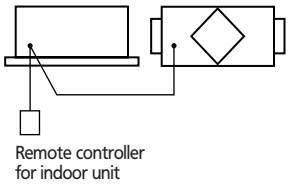
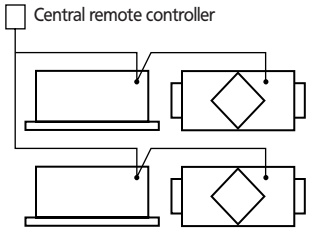
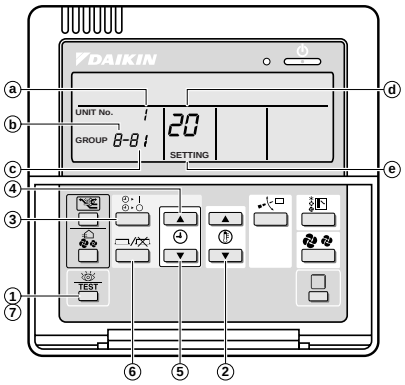
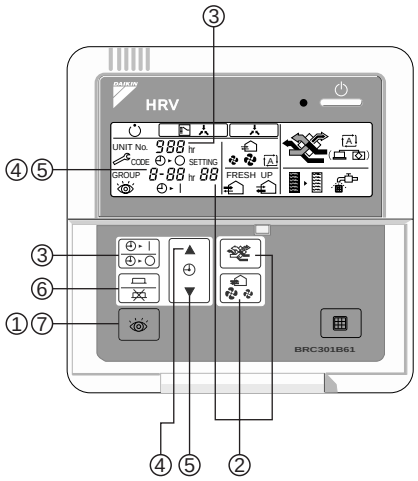
Cautions:

The bus type wiring and the star type wiring cannot be used at the same time.
Do not connect more than 3 wires to the same terminal.
If necessary, use a relay terminal (field supply).

In this technical manual, all the schematic drawings is shown by the series wiring, which do not require relay terminals.

4.9 Initial setting

4.9.1 Initial setting by the remote control for indoor unit

	Purpose	Controller	Operating procedure for initial setting
	• Interlocked operation  • When only the centralized controller is used.  	• Remote control for indoor unit  	**The following describes the operating procedure and settings.** ① When in the normal mode, press the "TEST" button for a minimum of four seconds, and the FIELD SET MODE is entered. ② Select the desired MODE NO. with the "▲/▼" button. ③ During group control, when setting by each indoor unit (mode No. 20, 21, 22 and 23 have been selected), push the "TIMER SETTING" button and select the INDOOR UNIT NO. to be set. (This operation is unnecessary when setting by group.) ④ Push the "▲" upper button and select FIRST CODE NO. ⑤ Push the "▼" lower button and select the SECOND CODE NO. ⑥ Push the "PROGRAM / CANCEL" button once and the present settings are SET. ⑦ Push the "TEST" button to return to the NORMAL MODE.
		• BRC301B61  	**The following describes the operating procedure and settings.** ① Press the INSPECTION button for more than four seconds to enter the local setting mode when the unit is in the normal mode. ② Use the VENTILATION MODE, AIR FLOW RATE button to select the desired "mode number". (The code display will blink.) ③ To make setting for individual unit under group control (when mode no. 27, 28 or 29 is selected), press TIMER SETTING ON / OFF button to select the "unit No." for which the settings are to be made. (This process is not necessary when settings are made collectively for the group.) ④ Press the top section of the TIMER button to select the "setting switch No.". ⑤ Press the lower section of the TIMER button to select the "setting position No.". ⑥ Press the PROGRAM / CANCEL button once to enter the settings. (The code display will stop blinking and light up.) ⑦ Press the INSPECTION button to return to normal mode.

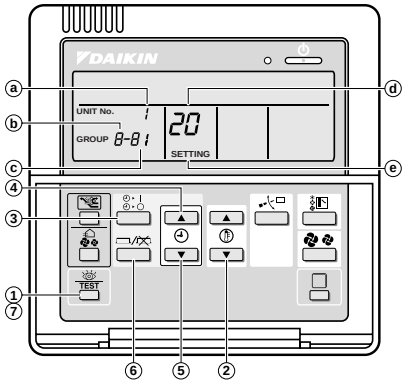
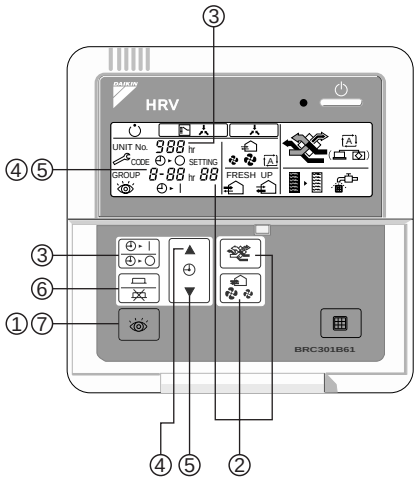
Notes:

When you make several field settings to one (or one group of) indoor unit(s), the item ② to ⑥ of the above setting procedure should be repeated and it should be terminated to the "normal display" by the procedure of item ⑦ as last.

(HC0093)

4.9.2 Setting procedure of group no. for centralized control

The following shows the procedure how to set the group number for the centralized control by the remote control for indoor unit

	Purpose	Control	Operating procedure
	When you use the central remote controller and the unified On / Off controller, you have to set the each unit connected to the central transmission line. <Example> Central remote controller or ON / OFF controller [1-00] [1-01] [1-02] No necessary [1-03] Remote controller for indoor unit	• Remote control for indoor unit  	**The following describes the operating procedure and settings.** ① When in the normal mode, press the "TEST" button for a minimum of four seconds, and the FIELD SET MODE is entered. ② Select the desired MODE NO. with the "▲/▼" button. ③ During group control, when setting by each indoor unit (mode No. 20, 21, 22 and 23 have been selected), push the "◀/▶" button and select the INDOOR UNIT NO. to be set. (This operation is unnecessary when setting by group.) ④ Push the "▲" upper button and select FIRST CODE NO. ⑤ Push the "▼" lower button and select the SECOND CODE NO. ⑥ Push the "▭" button once and the present settings are SET. ⑦ Push the "TEST" button to return to the NORMAL MODE.
		• BRC301B61  	**The units in [ ] do not require the group no. setting for the centralized controller connected to the central transmission line. (Auto-address setting)** ① Press the INSPECTION button for more than four seconds. ② Use the VENTILATION MODE, AIR FLOW RATE to select the mode no. "00". ③ Use the top or lower section of the TIMER button to set the group no. for the centralized controller. (When you use the unified ON / OFF controller, it displays only the group no. selected by the setting switch for zone control.) ④ Press the PROGRAM / CANCEL button to enter the setting group no. shown on the display. ⑤ Press INSPECTION button to return to normal mode.

Notes:

Do not duplicate the group number.
Be sure to supply the power to the remote controller side.
(It cannot be set without the power supply.)

(HC0094)

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4.9.3 Initial setting for "Central zone control"

When HRV unit is connected to the central transmission line (terminal connector no. (F1) and (F2)), it is necessary to make a initial setting of "collective zone interlock" by the remote control for indoor unit. (Factory set "OFF".)
Make initial setting as follows.

Combination with central control

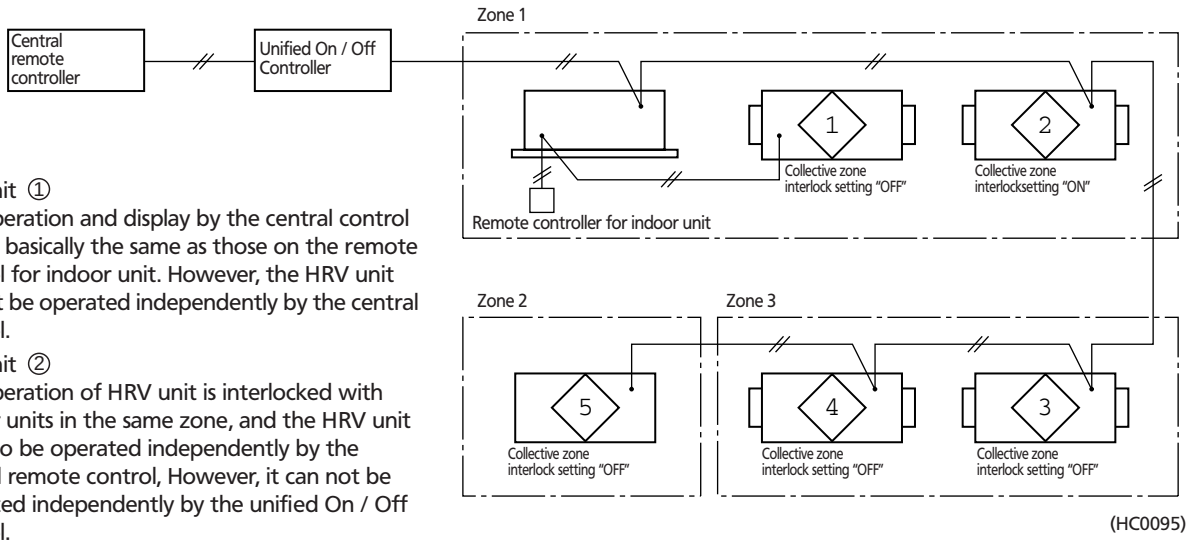
Central control ○: Possible ¥: Impossible

Central control				Operation · function		Initial setting for "central zone control"
Multi-function centralized control	Unified ON / OFF control	Schedule timer	Adapter PCB for remote control	Interlocked operation (Automatic selection)	Independent operation / stop (By central control)	
1 unit	—	—	—	○	¥	ON
				¥	¥	OFF
1 unit	1 – 4 units	—	—	○	¥	ON
				¥	○	OFF
1 unit		1 unit	—	○	¥	ON
				¥	¥	OFF
1 unit	1 – 4 units	1 unit	—	○	¥	ON
				¥	○	OFF
—	1 – 4 units	—	—	It is impossible to operate.		ON
				¥	○	OFF
—	—	1 unit	—	It is impossible to operate.		ON
				¥	○	OFF
—	—	1 unit	—	○	¥	ON
				¥	X (Only collective operation)	OFF
—	—	—	1 unit	○	¥	ON
				¥	X (Only collective operation)	OFF

Cautions

When you make an initial setting "ON", the interlocked operation has a priority, and it is impossible to operate / stop HRV unit independently by the central remote control or the unified On / Off control. If there is no indoor unit for interlocked operation in the same zone, make an initial setting "OFF".
When you make an initial setting "OFF", the independent operation of HRV unit has a priority, and the interlocked operation is not possible.
When the HRV unit is operated independently by the central control, the HRV unit will not operate until the preset time elapses if the precool / preheat time setting is set. Therefore, please do not set the precool / preheat time setting in normal operation.

Example of system



(HC0095)

The unit ①
The operation and display by the central control will be basically the same as those on the remote control for indoor unit. However, the HRV unit cannot be operated independently by the central control.

The unit ②
The operation of HRV unit is interlocked with indoor units in the same zone, and the HRV unit can also be operated independently by the central remote control, However, it can not be operated independently by the unified On / Off control.

The unit ⑤
When the central remote control is used, each unit will be one zone, unless you set the zone for plural units.

3

Heat Recovery Ventilation

ISO14001 assures an effective environmental management system in order to help protect human health and the environment from the potential impact of our activities, products and services and to assist in maintaining and improving the quality of the environment.

Daikin units comply with the European regulations that guarantee the safety of the product.

Daikin Europe N.V. is approved by LRQA for its Quality Management System in accordance with the ISO9001 standard. ISO9001 pertains to quality assurance regarding design, development, manufacturing as well as to services related to the product.

VRV products are not within the scope of the Eurovent certification programme.

Specifications are subject to change without prior notice

DAIKIN EUROPE N.V.

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Prepared in Belgium by Vanmelle

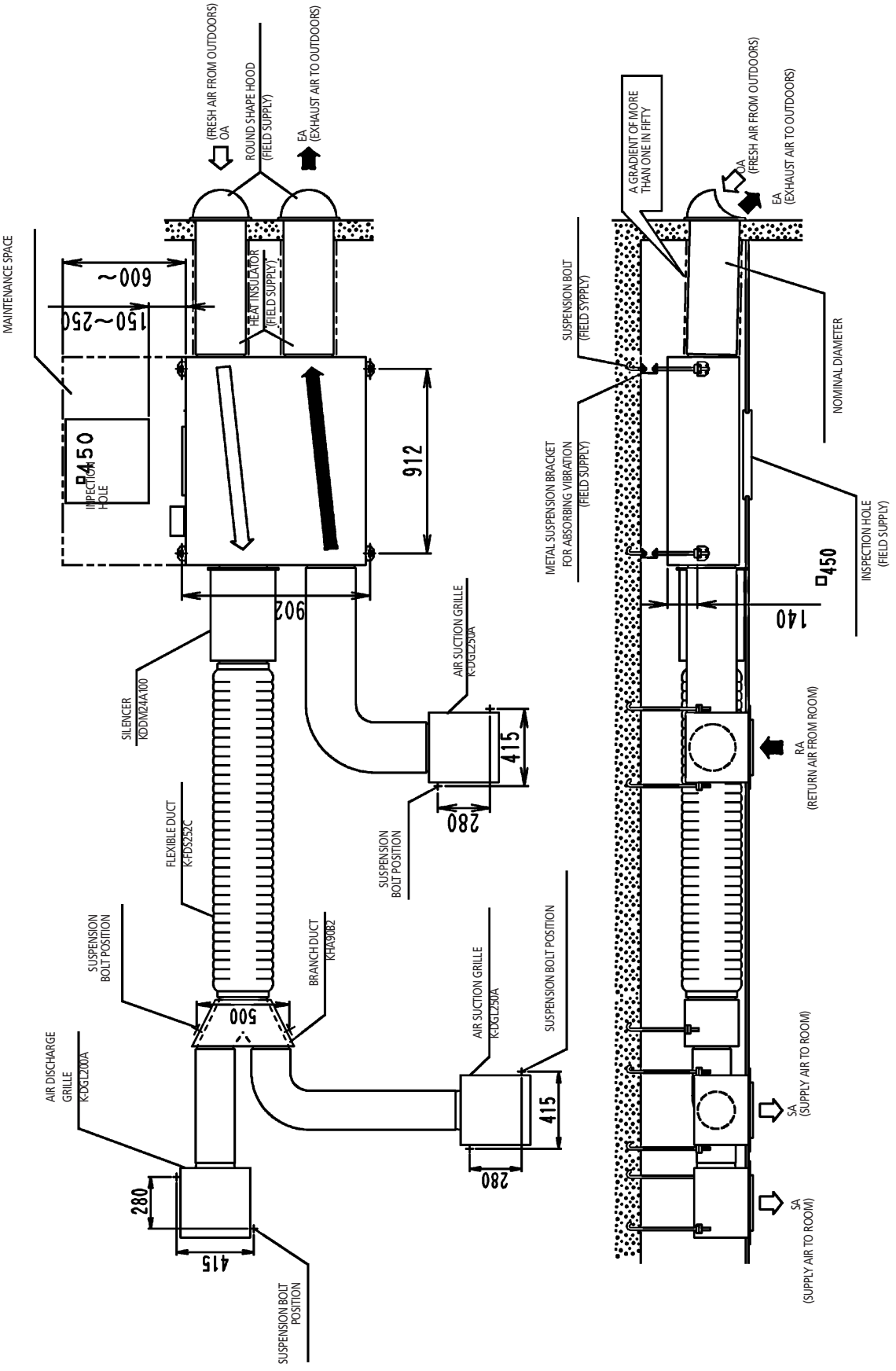
technical data

Heat Recovery Ventilation

Optional accessories

6. Optional accessories

Installation example



Optional Accessories

		VAM150FA7VE	VAM250FA7VE	VAM350FA7VE	VAM500FA7VE	VAM650FA5/7VE
Remote Control		BRC301B61				
Wiring adapter for Humidifier		KRP50-2				
Installation box for adapter PCB		KRP50-2A90 (Mounted electric component assembly of HRV)				
Wiring adapter for electrical appendices		KRP2A61 (For general) KRP2A51 (For EC Market)				
Central Remote Control		DCS302B61 (For general) DCS302B51 (For EC Market)				
Schedule Timer		DST301B61 (For general) DST301B51 (For EC Market)				
Unified ON / OFF control		DCS301B61 (For general) DCS301B51 (For EC Market)				
Air suction / discharge grille						
	Model name	K-DGL100A	K-DGL150A		K-DGL200A	
	Nominal pipe diameter (mm)	f 100	f 150		f 200	
Silencer	Model name	–	–	–	KDDM24A50	KDDM24A100
	Nominal pipe diameter (mm)	–	–	–	f 200	
Air Filter for replacement		YAFF323F15	YAFF323F25	YAFF323F35	YAFF323F50	YAFF323F65
High efficiency filter		YAFM323F15	YAFM323F25	YAFM323F35	YAFM323F50	YAFM323F65
Flexible duct ***	Model name (1m)	K-FDS101C	K-FDS151C		K-FDS201C	
	Nominal pipe diameter (mm)	f 100	f 150		f 200	
	Model name (2m)	K-FDS102C	K-FDS152C		K-FDS202C	
	Nominal pipe diameter (mm)	f 100	f 150		f 200	
Heater control kit		BRP4A50				
Direct expansion coil unit		–	–	–	BHDM50AJVE	BHDM80AJVE
Adapter for discharge		–	–	–	KDAJ25K36	KDAJ25K56

3D036867

		VAM800FA5/7VE	VAM1000FA5/7VE	VAM1500FA5/7VE	VAM2000FA5/7VE
Remote Control		BRC301B61			
Wired Remote Controller		BRC1C517			
Central Remote Controller		DCS302B61 (For General) DCS302B51 (For EC Market)			
Unified ON / OFF control		DCS301B61 (For general) DCS301B51 (For EC Market)			
Schedule Timer		DST301B61 (For general) DST301B51 (For EC Market)			
Wiring adapter for electrical appendices		KRP2A61 (For general) KRP2A51 (For EC Market)			
For Humidifier		KRP50-2			
Installation box for adapter PCB		KRP50-2A90 (Mounted electric component assembly of HRV)			
For Heater Control Kit		BRP4A50			
Silencer	Model name	KDDM24A100	KDDM24A100	KDDM24A100x2	KDDM24A100x2
	Nominal pipe diameter (mm)	f 250	f 250	f 250	f 250
Air suction / discharge grille					
	Model name	K-DGL250A	K-DGL250A	K-DGL250A	K-DGL250A
	Nominal pipe diameter (mm)	f 250	f 250	f 250	f 250
Air Filter for replacement		YAFF323F65	YAFF323F100	YAFF323F65 ¥ 2	YAFF323F100 ¥ 2
High efficiency filter		YAFM323F65	YAFM323F100	YAFM323F65 ¥ 2	YAFM323F100 ¥ 2
Flexible duct ***	Model name (1m)	K-FDS251C	K-FDS251C	K-FDS251C	K-FDS251C
	Nominal pipe diameter (mm)	f 250	f 250	f 250	f 250
	Model name (2m)	K-FDS252C	K-FDS252C	K-FDS252C	K-FDS252C
	Nominal pipe diameter (mm)	f 250	f 250	f 250	f 250
Duct adapter	Model name	–	–	YDFA25A1	YDFA25A1
	Nominal pipe diameter (mm)	–	–	f 250	f 250
Direct expansion coil unit		BHDM80AJVE	BHDM100AJVE	–	–
Adapter for discharge		KDAJ25K56	KDAJ25K56	–	–

3TW24921-1

Interlock adapter for VRV

Indoor Unit	FXYCP-K	FXK-L	FXYFP-K	FXYSP-K	FXH-L	FXA-L/FXYAP-L	FXL-L/FXN-L	FXM-L
Adapter for wiring	KRP1B61 *	KRP1B61	KRP1B2 *	KRP1B61		KRP1B3	KRP1B61	
Installation box for adapter PCB **	KRP1B96 Note 2, 3	–	KRP1C98 Note 4	–	–	KRP1B93 Note 3	–	–

Notes:

1. Installation box ** is required for each adapter marked *.
2. Up to 2 adapters can be fixed for each installation.
3. Only one installation box can be installed for each indoor unit.
4. Up to 2 adapters can be fixed for each indoor unit.
5. Flexible duct size *** is for the duct from HRV unit to branch duct (or air outlet)
6. Concerning Adapter for discharge (KDAJ) refer to the VRV Option Handbook (OH98-1, P337).

3D020362B

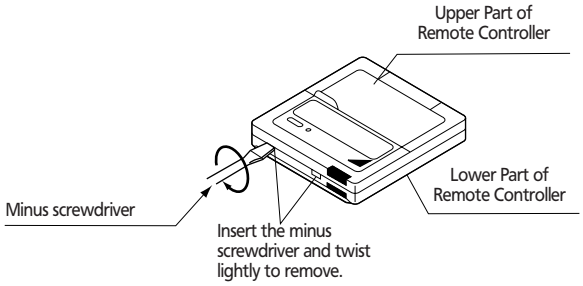
6.1 BRC301B61: Remote control

6.1.1 Remote control mounting instructions

1. Remove the upper part of remote control.

Insert minus screwdriver into the slots in the lower part of remote controller (2 places), and remove the upper part of remote control.

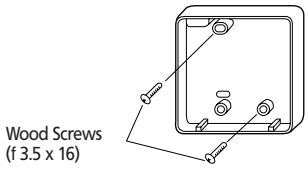
The PC board is mounted in the upper part of remote controller. Be careful not to damage the board with the minus screwdriver.

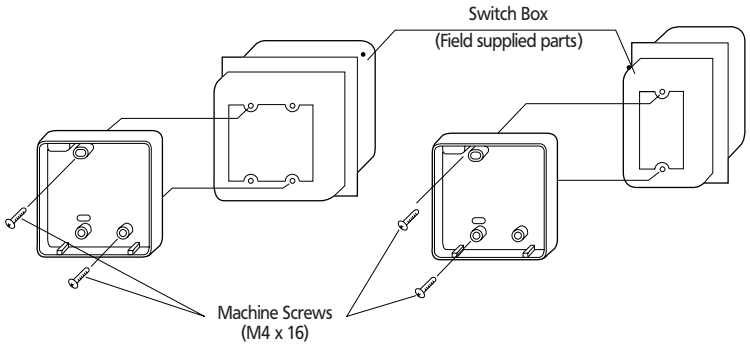


2. Fasten the remote control.

① For exposed mounting, fasten with the included wood screws (2).

② For flush-mounting, fasten with the included machine screws (2).





For the field supplied switch box, use optional accessories KJB111A or KJB211A.

NOTE

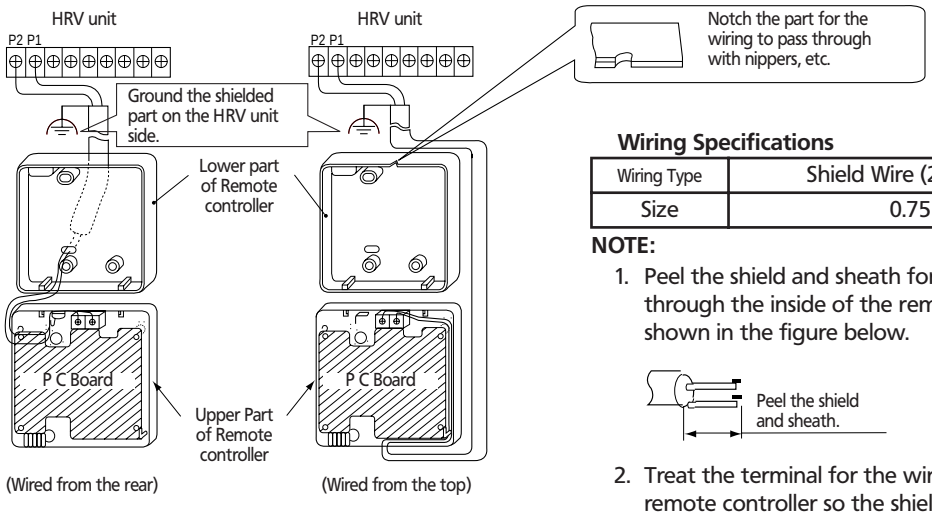
Choose the flattest place possible for the mounting surface. Be careful not to damage the shape of the lower part of remote controller by over-tightening the mounting screws.

(HC0111)
2P034150

3. Wire the HRV unit.

Connect the terminals on the upper part of the remote
controller (P1, P2) and the terminals of the HRV unit (P1, P2).
(P1 and P2 do not have polarity.)

NOTE
When wiring, run the wiring away the power supply wiring in order to avoid receiving electric noise (external noise).



Wiring Specifications

Wiring Type	Shield Wire (2 wire) (See NOTE 3)
Size	0.75 – 1.25 mm^2

NOTE:

1. Peel the shield and sheath for the part that is to pass through the inside of the remote controller case, as shown in the figure below.

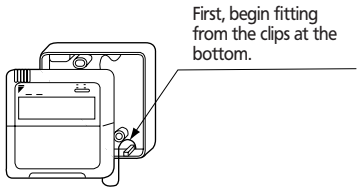
2. Treat the terminal for the wire to be connected to the remote controller so the shielded part doesn't touch any other part.
3. Sheathed wire may be used for transmission wirings, but they do not comply with EMC (Electromagnetic Compatibility) (European Directive). When using sheathed wire. EMC must conform to Japanese standards stipulated in the Electric Appliance Regulatory Act. (If using a sheathed wire, the grounding shown in the figure on the left is unnecessary.)

4. Reattach the upper part of remote controller.

Be careful not to pinch the wiring when attaching.

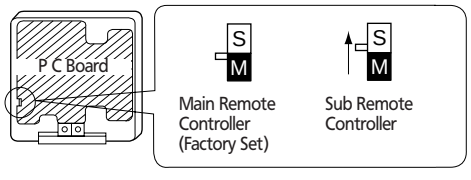
NOTE

1. The switch box and wiring for connection are not included.
2. Do not directly touch the PC board with your hand.



When controlling one HRV unit with two remote controllers

Change the MAIN/SUB changeover switch setting as described below.



Set one remote controller to "main," and the other to "sub."

NOTE

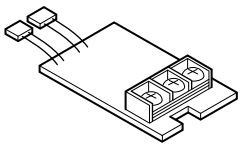
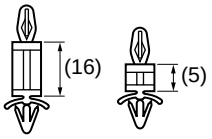
- If controlling with one remote controller, be sure to set it to "main."
- Set the remote controller before turning power supply on.

" 88 " is displayed for about one minute when the power supply is turned on, and the remote controller cannot be operated in some cases.

(HC0112)
2P034150

6.2 KRP50-2: Wiring adapter for remote contact / Humidifier KRP50-2A90: Installation box for adapter PCB

6.2.1. Components

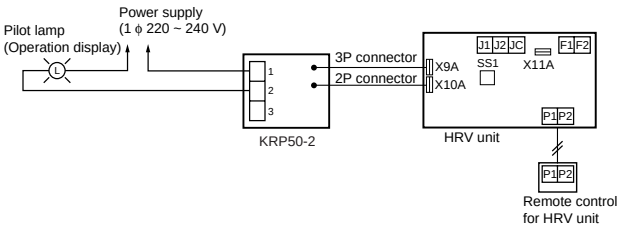
1. KRP50-2 PCB (¥1)	2. PCB catches (4 large, 4 small)
 (HC0113)	 Either large or small catches are used, depending on the model (HC0114)
Tie wrap ..... (¥1)	Manual ..... (¥1)

6.2.2. Installation guide

1 The KRP50-2 can be connected to HRV units as follows to send the operation signal (pilot lamp etc.) to remote locations.

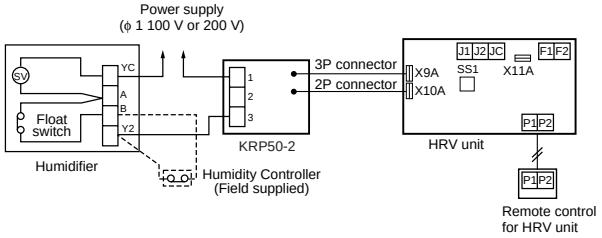
Electric wiring is as follows.

- For Remote contact



(HC0253-1)

- For Humidifier



(HC0115-1)

2 KRP50-2 can also be connected to SkyAir indoor unit for the interlocked operation with HRV units. Or to be connected and used for the adapter for outside air preheater.

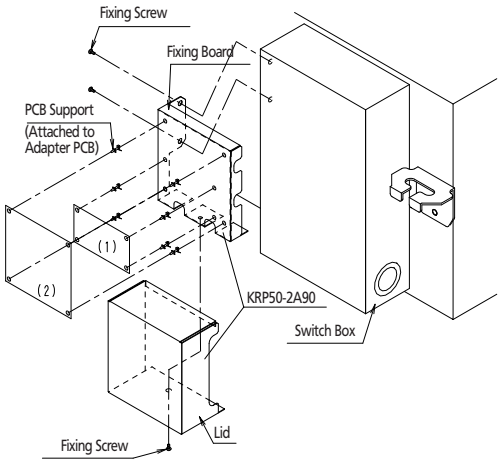
Components

See the right for components.

Fixing Screw	3 PCS.
Clamp	2 PCS.

Installation

Install the Adapter PCB to the outside of switch box. for HRV unit as show below.



Applicable adapter

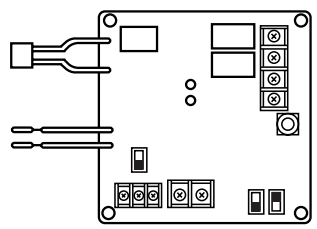
	Adapter name	Kit name
(1)	Adapter PCB for Humidifier	KRP50-2
(2)	Adapter PCB for Remote control	KRP2A61

4P055444

6.3 KRP2A51, KRP2A61: Wiring adapter for electrical appendices

KRP2A51 (For Europe)
KRP2A61 (For General)

Accessories
Check the following accessories are included in the kit before the installation.

Wiring Adapter for Electrical Appendices (1)
 × 1

PCB support	¥ 4
Clamp	¥ 3
Installation Manual	¥ 1

Notes:
- The kit type (KRP2A61 • 51 type, KRP2A62 • 52 type) varies according to air conditioner model.
- The installation plate and box for adapter PCB are required with the following air conditioner models.
  FXYFP.....KRP1A90 or KRP1B94
  FXYFP.....KRP1C98
  FXH.....KRP1B93
  FXYCP.....KRP1B96

6.3.1. General description of system

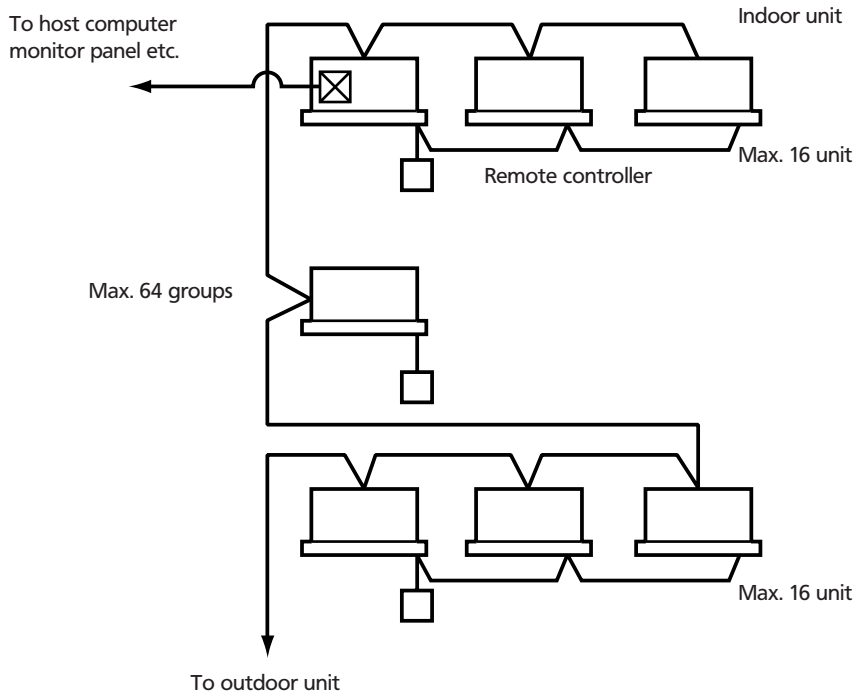
The KRP2A61 • 62 • 51 • 52 enables operation by remote control (ON/OFF control, temperature setting, operation display, error display). With it, the following system can be built. Note however that the adapter cannot be used with other optional controllers for centralized control.

1. Zone control
   (Unified control of a max. 64 groups of a max. 16 indoor units each.
   But, the max. of indoor units is 128.)

This system requires the following parts.
- Wiring Adapter for Electrical Appendices (1)
  …KRP2A61(62) or KRP2A51(52)
- Remote controller switches (For control)
  …BRC1C517
  BRC2A51 } Per group
  BRC3A61

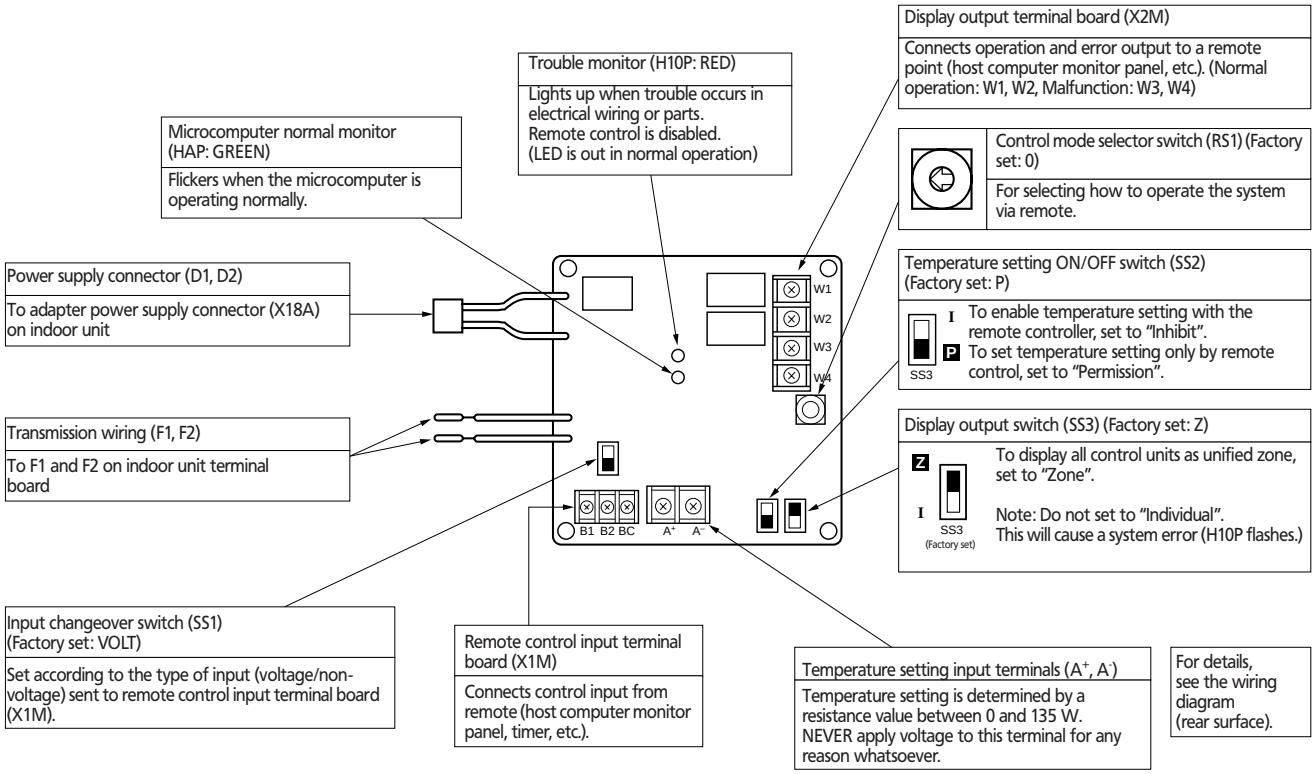
(Ex.) Zone control for 8 FXYC63KVE units (control groups of 4, 3 and 1)
KRP2A51 ¥ 1 kit
BRC1C517 ¥ 3 kits } (1 set required for each group.)

(HC0116)



Notes:
Individual indoor units connected to the centralized line cannot be displayed individually.

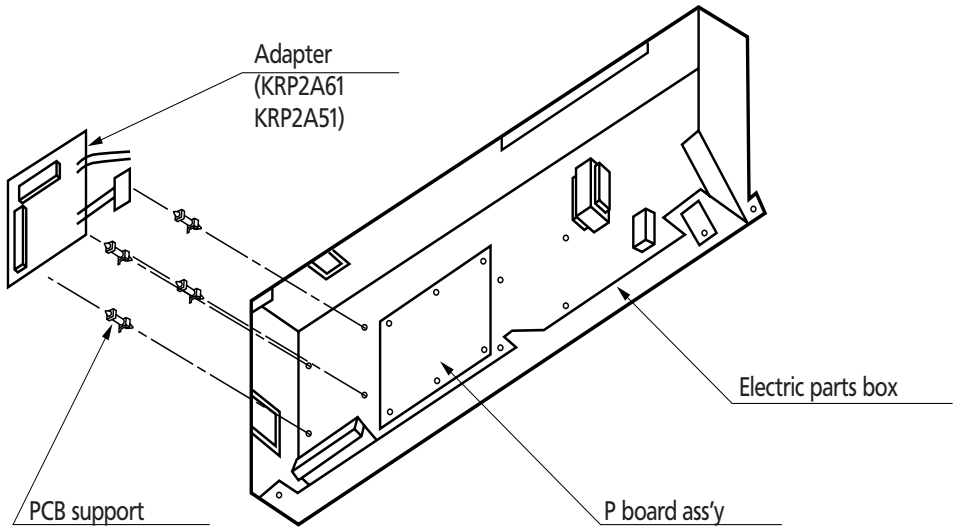
6.3.2. Names of parts and functions



(HC0117)

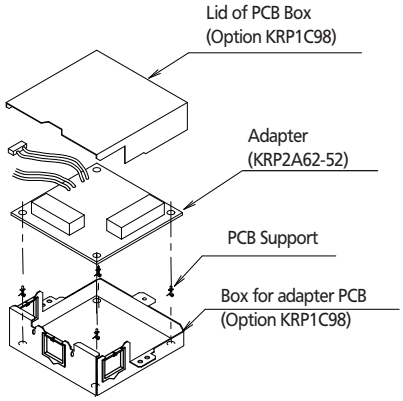
6.3.3. Installation

FXK-Ceiling mounted corner cassette



(HC0118)

FXYFP 4-way blow ceiling mounted cassette

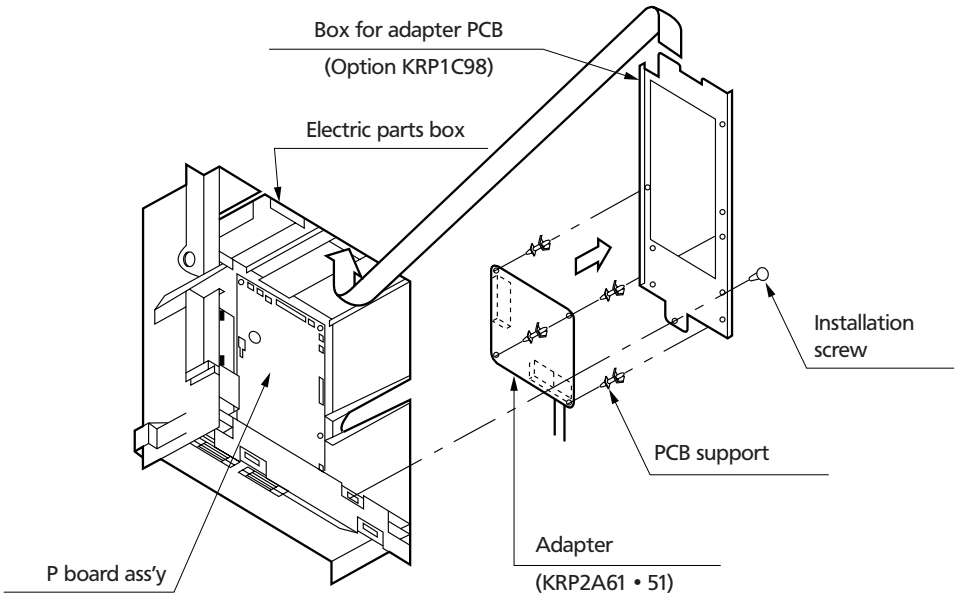


Note:

To install the adapter.
Box for adapter PCB (option) is required.

(HC0119)

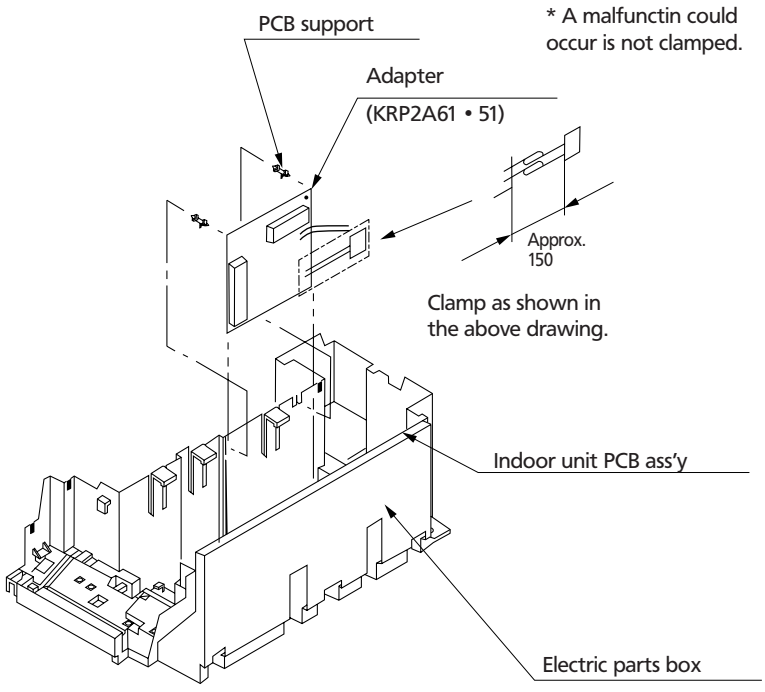
FXYCP-2-way blow ceiling mounted cassette



Note:
A separate plate is needed to install the adapter PCB.

(HC0247)

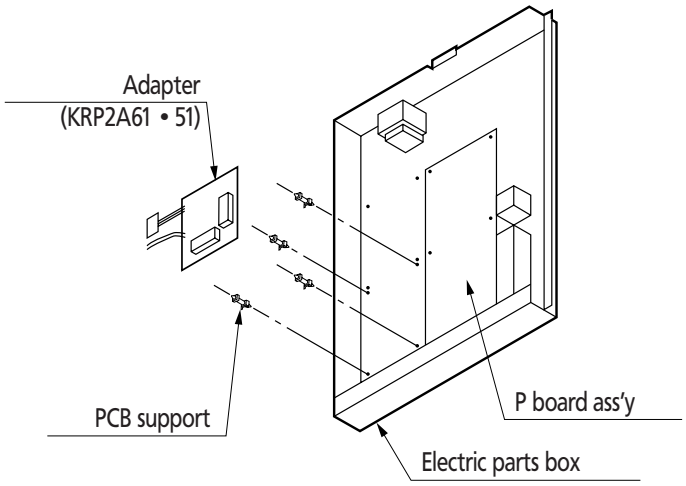
FXA/FXYAP-Wall mounted unit



(HC0120)

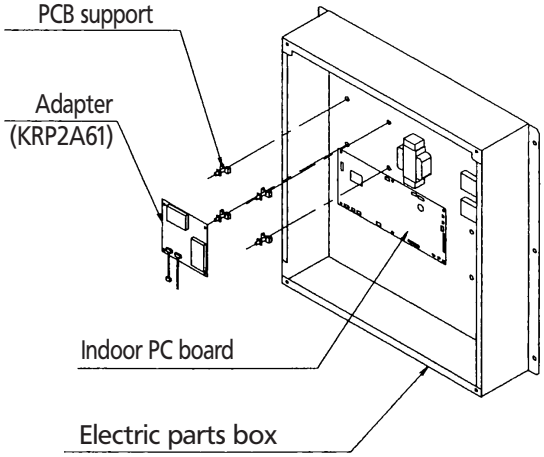
FXM Concealed ceiling unit (large)

FXM40-125



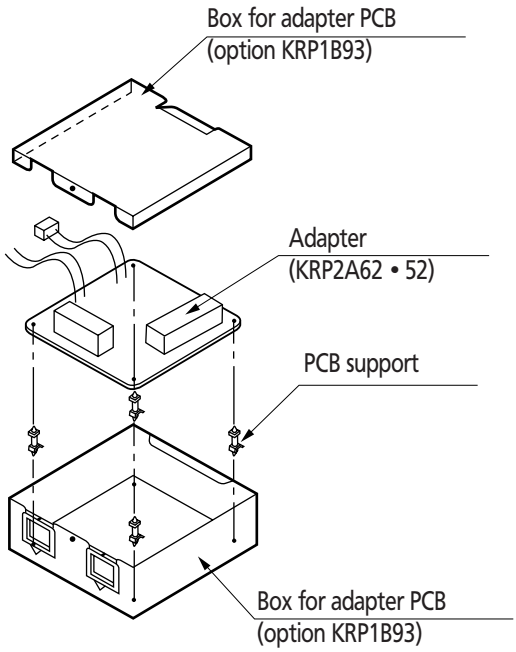
(HC0248)

FXM200 • 250



(V0219)

FXH-Ceiling suspended unit

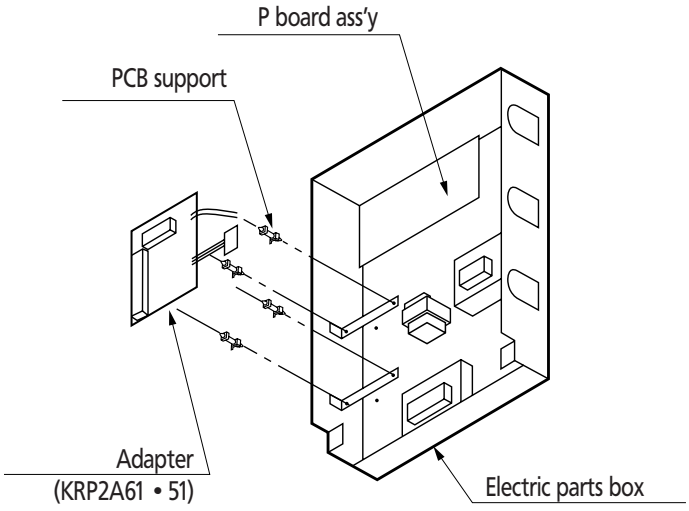


Note:

A separate plate is needed to install the adapter PCB.

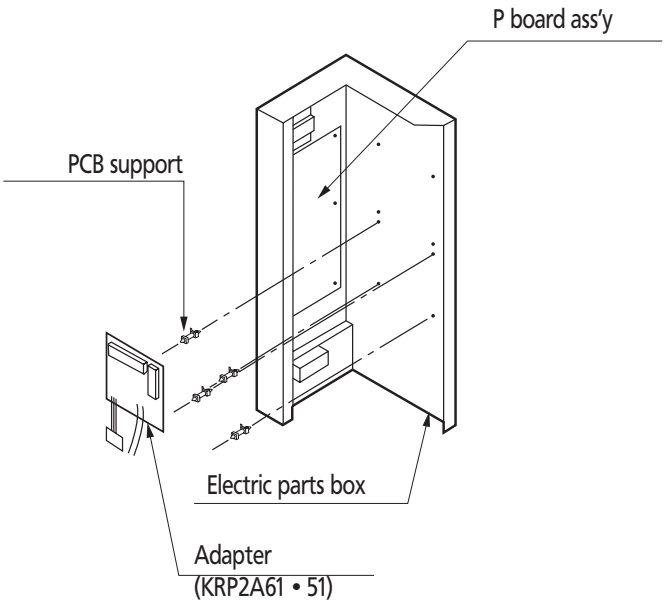
(HC0249)

FXYSP-Concealed ceiling unit



(HC0121)

FXL-FXN(Concealed) floor standing unit



(HC0250)

6.3.4. Electrical wiring

1. First, wire between the indoor and outdoor units, then to the separate power sources, and between the indoor units and the remote controllers. Then, check wiring is correct. (If wanting group control by remote controller, check transmission wiring.) For details, see the installation manual of the indoor and outdoor units.

2. Next, wire between the wiring adaptor for electrical appendices (1) and the indoor units. For details, see Wiring to indoor units.

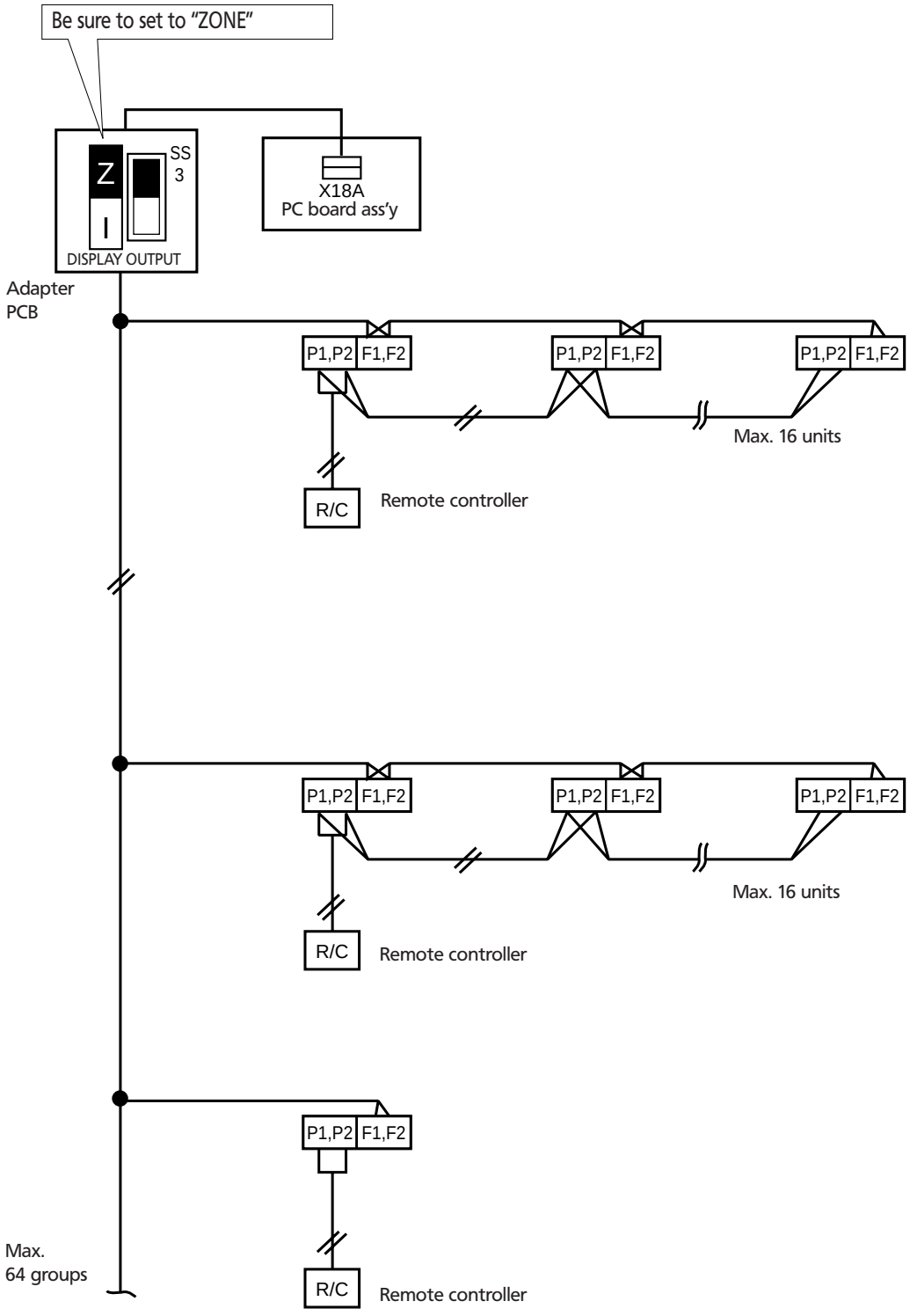
3. Finally, wire between external units such as the host computer monitor panel, and make the necessary settings. For details, see Wiring to external units (host computer monitor panel).

   Note:
   It is not necessary to set address No. for centralized control. (Setting is automatic.)

(HC0122)

Wiring to indoor units

1. For zone control



(Wiring specifications)
Wiring .... Sheathed wire (2-wire)
Gauge .... 0.75 ~ 1.25 mm^2
Length .... Max. 1000 m

< IMPORTANT >
Keep transmission wiring at least 50 mm away from power supply wiring to avoid malfunctions.

(HC0123)

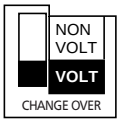
Wiring to external units (host computer monitor panel)

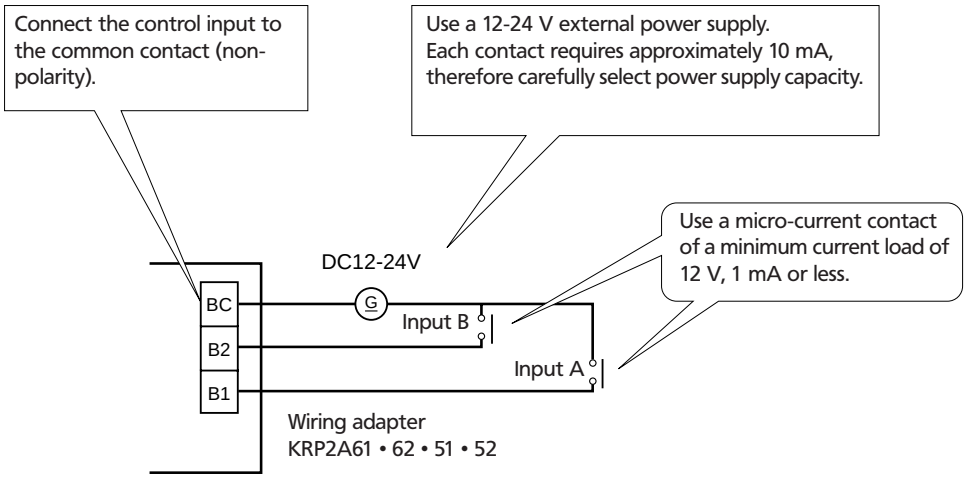
1. Remote control input (operation control)

Wire as described below. Wiring differs depending on whether using a voltage or non-voltage input.

- For voltage input

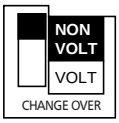
Set input changeover switch (SS1) to "VOLT". (Factory set: VOLT)

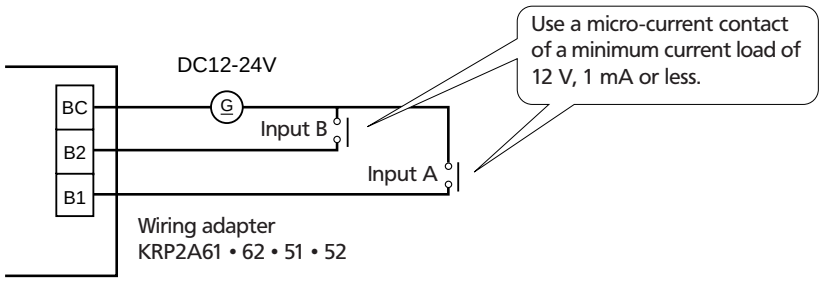




- For non-voltage input

Set input changeover switch (SS1) to "NON VOLT".





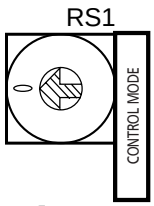
(Wiring specifications)
Wiring .... Sheathed wire
Gauge .... 0.18 ~ 1.25 mm^2
Length .... Max. 150 m

< IMPORTANT >
Keep transmission wiring at least 50 mm away from power supply wiring to avoid malfunctions.

(HC0124)

2. Setting control mode selector sitch (RS1)

Using control mode selector switch (RS1), select the control mode as described below.



Factory set:
"0" position

1. When operating with only individual display function

Position	Function
0	Individual display (input ignored)

2. When operating with constant input from A

Position	Function	Contents when input A is ON	Contents when input A is OFF
1	Remote controller rejection	Operation (remote controller is normally rejected)	Stop + remote controller rejection
2	Central priority	Operation + remote controller accepted	
3	Stop by remote controller acceptable	Operation + stop by remote controller acceptable (No operation by the remote controller)	
4	Remote controller acceptance/ rejection	Remote controller acceptance only (No operation by the remote location)	

Note:

- Input B is for forced-OFF. When ON, stop + remote controller is rejected, and input A is ignored. When OFF, even if A is ON, the contents of when input A is ON are not achieved. Input A must therefore be re-input.

3. When operating with momentary input from A
(Use a momentary input of ON time 200 mili-sec or longer.)

Position	Function	Contents of Input A	Function of Input B
5	Remote controller rejected	Stop for ON while operating, Operate for ON while stopping	Input B will be forced stop function (When ON, stop + remote controller is rejected, input A is ignored.)
6	Last command priority	Stop for ON while operating, Operate for ON while stopping (Remote controller is normally accepted.)	

(HC0125)

- For demand control from input B

- For demand control from input B

Position	Function when input A is ON	Function when input B is ON
C	Remote controller rejected (Same as position "5")	Forced thermostat OFF command
D		Forced temperature shift command
E	Last command priority (Same as position "6")	Forced thermostat OFF command
F		Forced temperature shift command

- Forced thermostat OFF command
  Forces indoor unit to operate the fan only
- Forced temperature shift command
  The indoor unit operates at 2°C higher (cooling) or 2°C lower (heating) than the set temperature.

Notes:

- In zone control, operation is displayed as long as one indoor unit is running.
  When in the last command priority mode, some units are not operation while ON.
- In such case, even if input A is ON, the unit and all other units in the same zone will stop.

4. When operating with dual momentary inputs from A and B
   (Use a momentary input of 200 mili-sec or longer.)

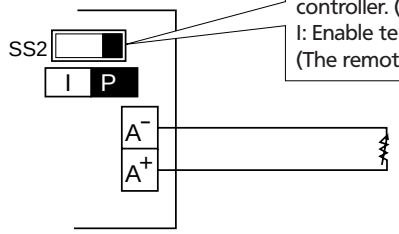
Position	Function	Contents when input A is ON	Contents when input A is OFF
7	Remote controller rejection	Operation (remote controller is normally rejected)	Stop + remote controller rejection
8	Central priority	Operation + remote controller accepted	
9	Stop by remote controller acceptable	Operation + stop by remote controller acceptable (No operation by the remote controller)	
A	Remote controller acceptance/ rejection	Remote controller acceptance only (No operation by the remote location)	
B	Last command priority	Operation (remote controller is normally accepted)	Stop (remote controller normally accepted)

Note:

- Doing constant input A with position 7 to A, it will be forced OFF function
  (input A is ignored.)
- Constant input cannot use for input B with position B.

(HC0126)

3. Temperature setting input



To enable temperature setting from both the adapter and remote controller, set SS2 to "P". (Factory set: P)
P: Enables temperature setting by both the adapter and remote controller. (Engages last command priority.)
I: Enable temperature setting from the adapter only.
(The remote controller cannot be used to set temperature.)

NEVER apply voltage to tarminals A^+ or A^- for any reason whatsoever.

Wiring adapter
KRP2A61 • 62 • 51 • 52

Temperature setting corresponds to resistance values values in the range of 0 to 135 W.
Their relationship is as shown below

Temperature setting (°C)	16	17	18	19	20	21	22	23	24
Resistance (W)	0.0 | 3.4	5.0 | 11.6	13.8 | 20.0	22.4 | 28.4	31.0 | 36.4	39.4 | 44.8	48.2 | 52.8	56.6 | 61.2	65.2 | 69.4

Temperature setting (°C)	25	26	27	28	29	30	31	32
Resistance (W)	73.8 | 77.8	82.4 | 85.8	91.0 | 94.0	99.4 | 102.2	108.6 | 110.4	117.2 | 119.2	125.8 | 127.4	134.2 | 140.0

Note:
Wiring resistance included in above figures.

(Wiring specifications)
Wiring .... Sheathed wire
Gauge .... 1.25 ~ 2.00 mm^2
Length .... Max. 70m

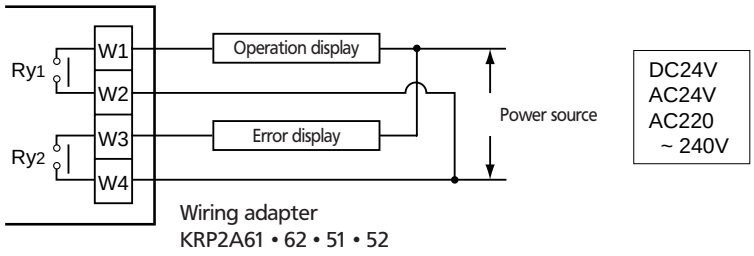
< IMPORTANT >
Keep transmission wiring at least 50 mm away from power supply wiring to avoid malfunctions.

4. Cancelling display signals

Operation output terminals (W1 and W2) and malfunction output terminals (W3 and W4) are non-voltage constant contact output. (Allowed electric current per contact is between 10 mA and 3A.)

Normal operation output (Ry1) ON when the unit is operating normally.

Malfunction output (Ry2) ON when the unit stops because of malfunction or when a malfunction of transmission occurs between the adapter



3

Note:

If using a 220 ~ 240 V power supply, keep transmission wiring at least 50 mm away from incoming power supply wiring.

(HC0127)

Output / System	Both Ry1 and Ry2 OFF	Ry1 only ON	Ry2 only ON
Zone control	All zones OFF	At least one unit running normally, no malfunction	Even 1 unit stopped due to malfunction or malfunction of transmission between adapter and indoor unit

Display output is described by system in the below table.

Note:

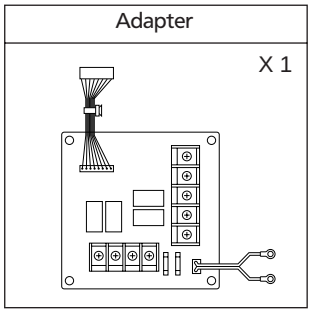
If rewiring F1 and F2 after running the system, turn ON power for 5 minutes, then turn it OFF and ON again. Changes to wiring can sometimes disable control from the wiring adapter.

(HC0128)

1PA63642B

6.4 KRP1B61: Interlock adapter of VRV

Accessories Check if the following accessories are included in the kit.

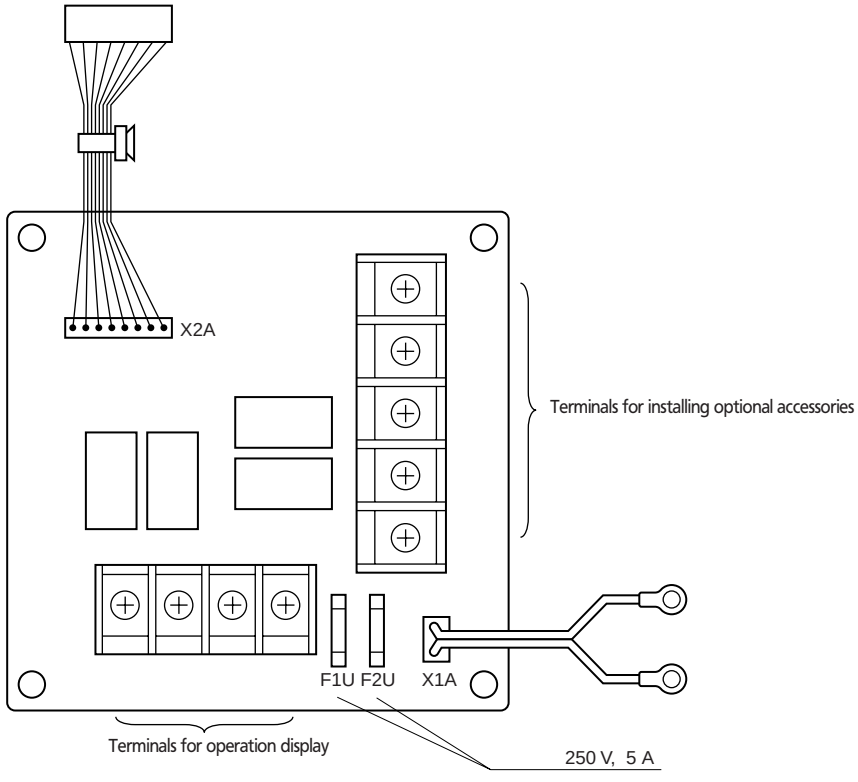


(HC0129)

PC board support	¥ 4
Clamp	¥ 3
Installation manual	¥ 1

Notes
- Kits vary according to applicable models.
- A special adapter fixing plate and box are required for the following models.
  FXYCP.....KRP1B96

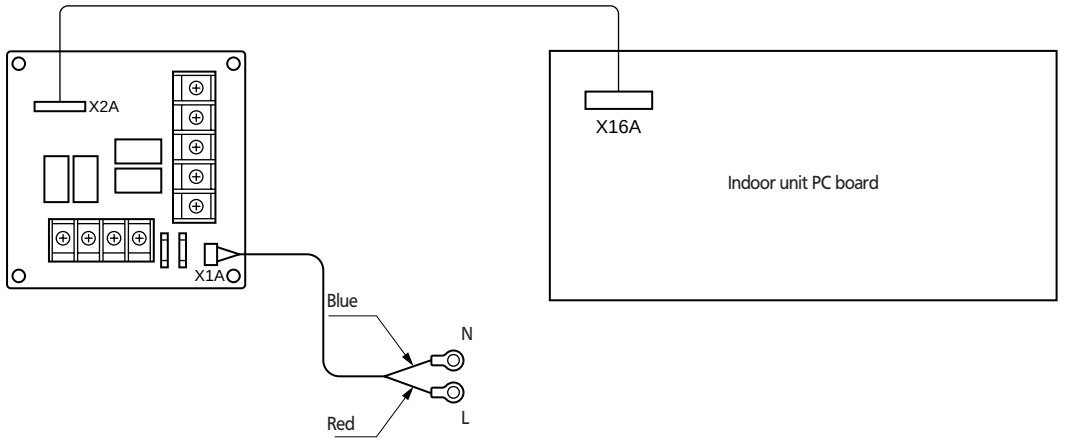
6.4.1. Names of parts



(HC0130)

6.4.2. Electric Wiring

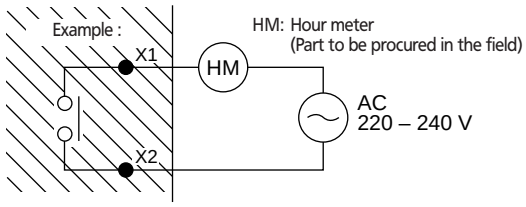
- Refer to the WIRING DIAGRAM attached to the indoor unit before attempting to wire.
  [Make sure wires to units do not pass over the PC board when wiring.]
- Wire the adapter to the indoor unit as shown below,



(HC0131)

1. Fetching the operation display signal
   - Attaching an hour meter

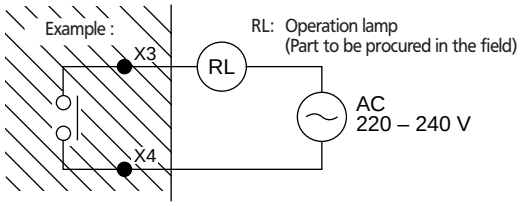
Output is generated at the contact while the compressor is running.



(HC0132)

   - Fan ON display

Output is generated at the contact while the fan is running.



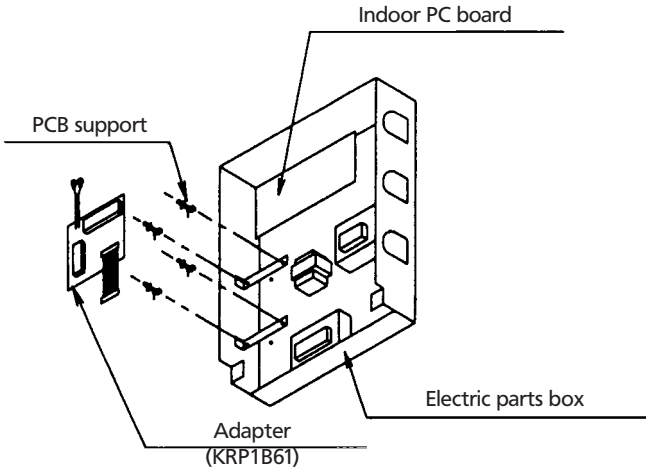
(HC0133)

2. If optional accessories are installed (auxiliary electric heater, humidifier)
   - Wire correctly in accordance with the attached installation manual.
   - Refer to the wiring diagram applied to the indoor unit when running electric wiring.

6.4.3. Installation

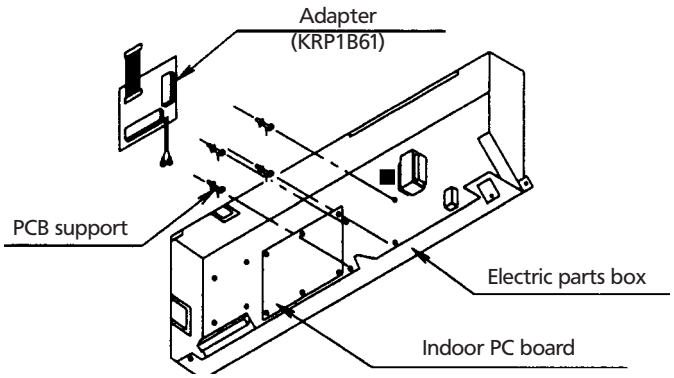
- Installation differs according to models.
- Do not bundle low and high voltage wires together.
- Bundle any access wires with the attached clamps so as to keep loose wirings off the indoor unit PC board.

FXYSP-Concealed ceiling unit



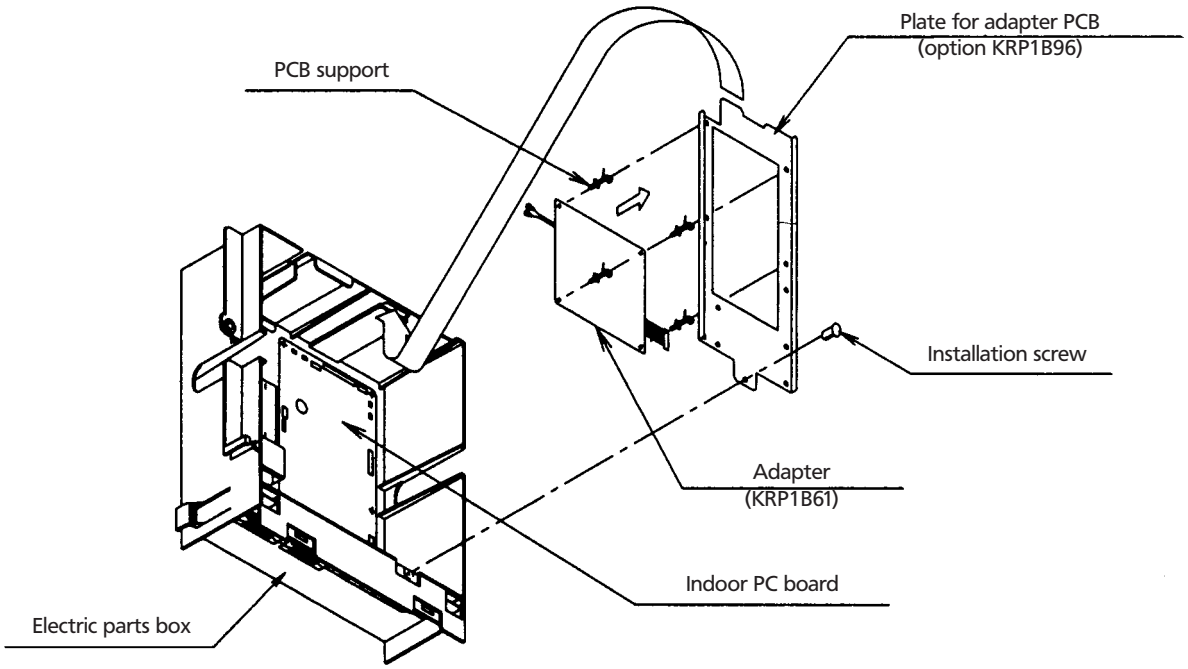
(HC0134)

FXK-Ceiling mounted corner cassette



(HC0135)

FXYCP-2-way blow ceiling mounted cassette

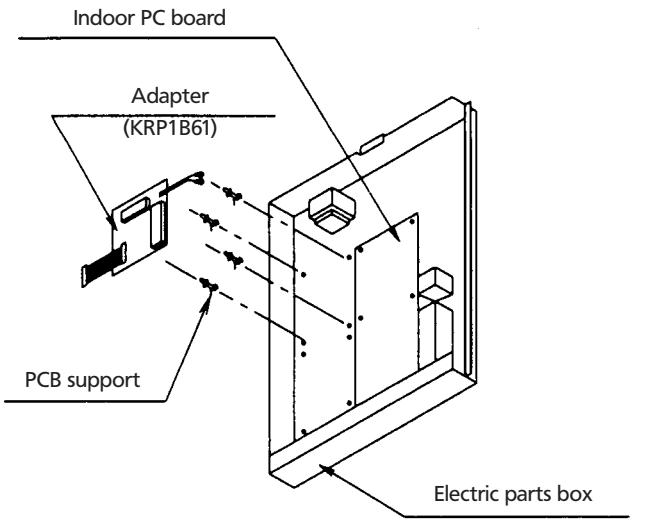


(HC0136)

NOTE: A separate plate is needed to install the adapter PCB.

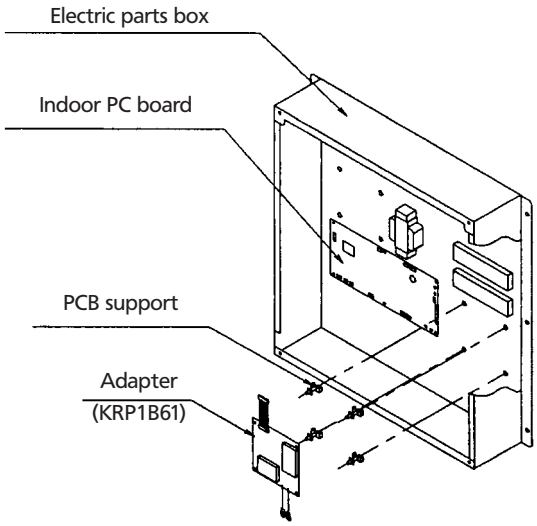
FXM-Concealed ceiling unit (large)

40 ~ 125



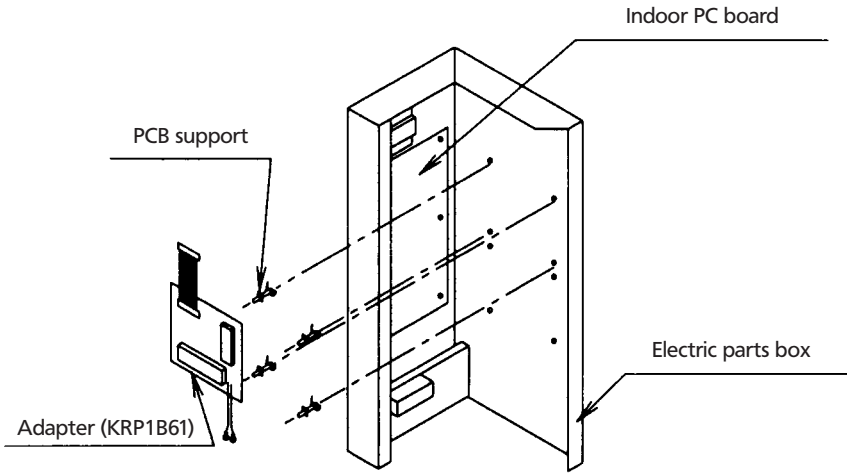
(HC0137)

200 ~ 250



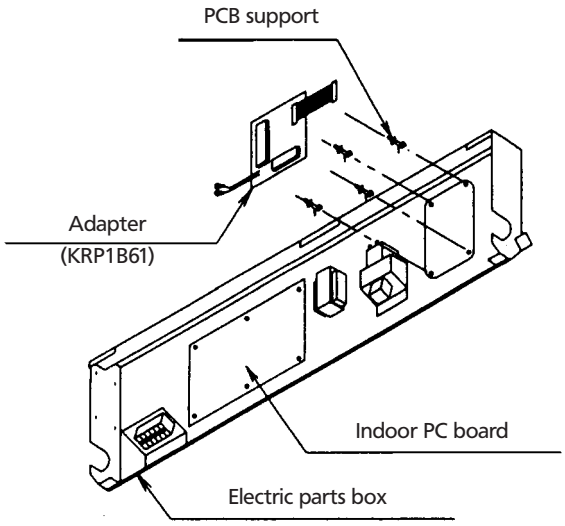
(HC0138)

FXL/FXN-(Concealed) floor standing unit



(HC0139)

FXH-Ceiling suspended unit

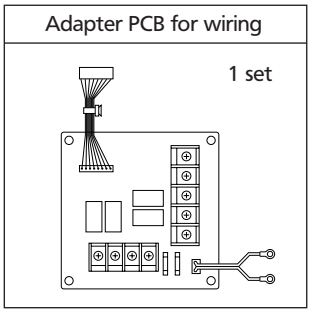


(HC0140)

6.5 KRP1B2: Interlock adapter of VRV

Contents of kit

Prior to installation check whether you have the complete kit of parts as shown below including the installation manual.



(HC0142)

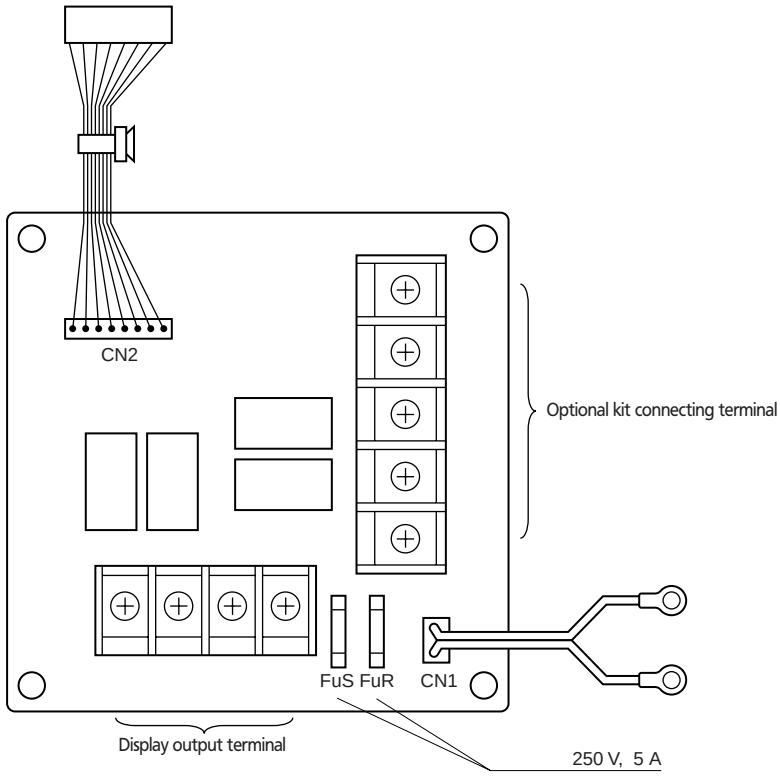
PC board support	4 pieces
Plastic straps	3 pieces
Installation manual	1 piece

Notes:

- Be careful with the selection of the optional kit, which varies depending on the model.
- For the installation of the following optional kit, it also requires the adapter fixing plate and box.
  FXYFP.....KRP1C98

5

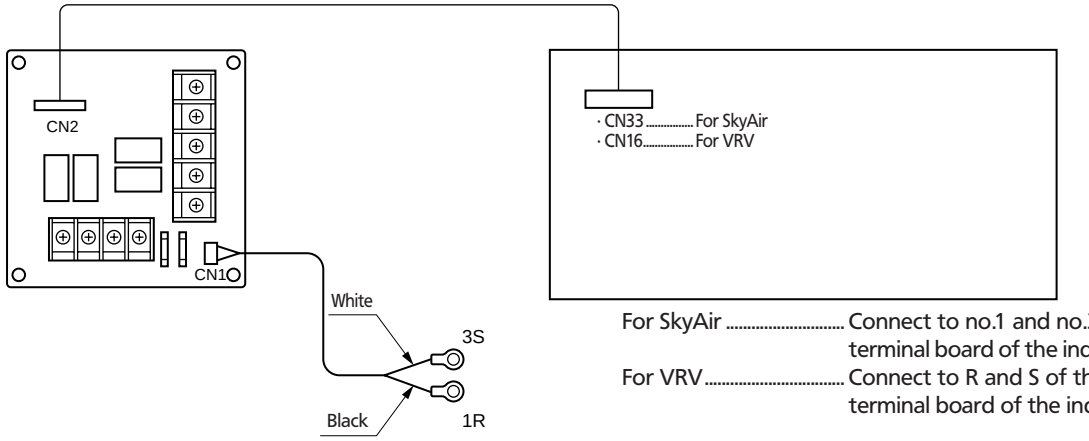
6.5.1. Names of parts



(HC0143)

6.5.2. Electrical wiring

- Refer to the wiring diagram of the indoor unit for it's wiring connection. (Make sure all the wiring to the unit should not go over the PC board.)
- Connect the wiring to the indoor unit as shown below.

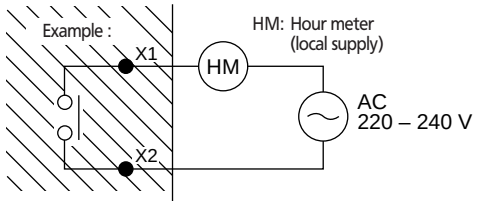


For SkyAir ..... Connect to no.1 and no.3 of the terminal board of the indoor unit
For VRV..... Connect to R and S of the terminal board of the indoor unit

(HC0144)

1. To detect the operation display signal
   - Installation of the watt-hour meter

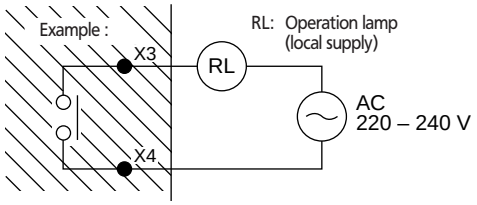
Output signal to detect the operation of the compressor



(HC0132)

   - The fan display signal

Output signal to detect the operation of the fan



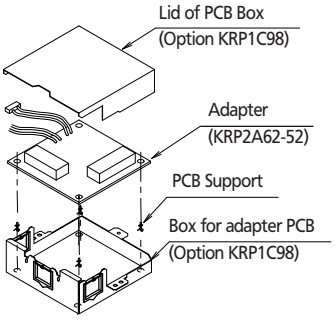
(HC0133)

2. In case other optional kits are installed. (auxiliary electric heater, humidifier and fresh air intake kit)
   - Connect the wiring properly according to the installation manual included in the kit.
   - Refer to the wiring diagram of the indoor unit for it's wiring connection.

6.5.3. Installation

- Never bundle high and low voltage wiring together.
- Be sure to bundle the excess wring with the attached plastic strap so as to keep the loose wiring off the indoor unit PC board.

FXYSP **4-way blow model**



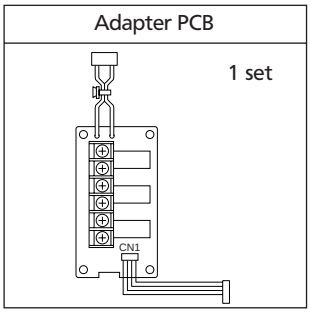
Note:
To install the adapter.
Box for adapter PCB (option) is required.

(HC0119)

6.6 KRP1B3: Interlock adapter of VRV

Contents of kit

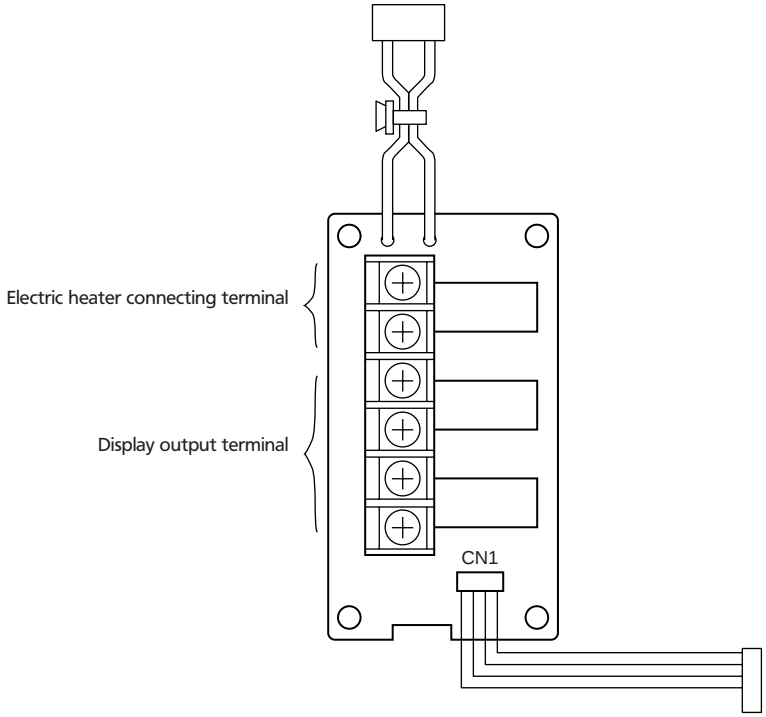
Prior to installation check whether you have the complete kit of parts as shown below including the installation manual.



(HC0217)

Plastic strap	3 pieces
Installation manual	1 piece

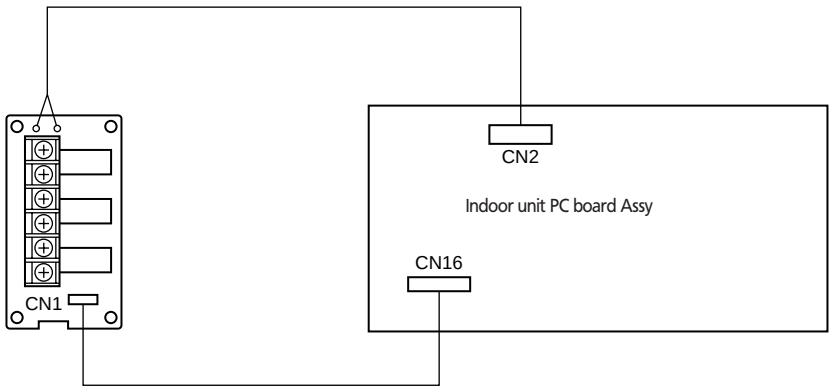
6.6.1. Name of parts



(HC0225)

6.6.2. Electrical wiring

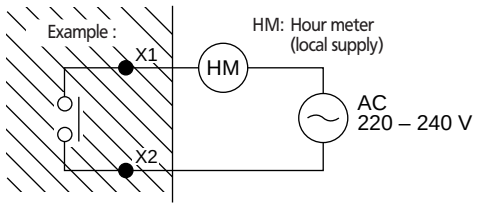
- Refer to the wiring diagram of the indoor unit for its wiring connection. (Make sure all the wiring to the unit should not go over the PC board.)
- Connect the wiring to the indoor unit as shown below.



(HC0211)

1. To detect the operation display signal
   - Installation of the watt-hour meter

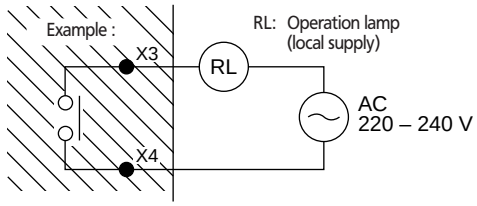
Output signal to detect the operation of the compressor



(HC0132)

   - The fan display signal

Output signal to detect the operation of the fan

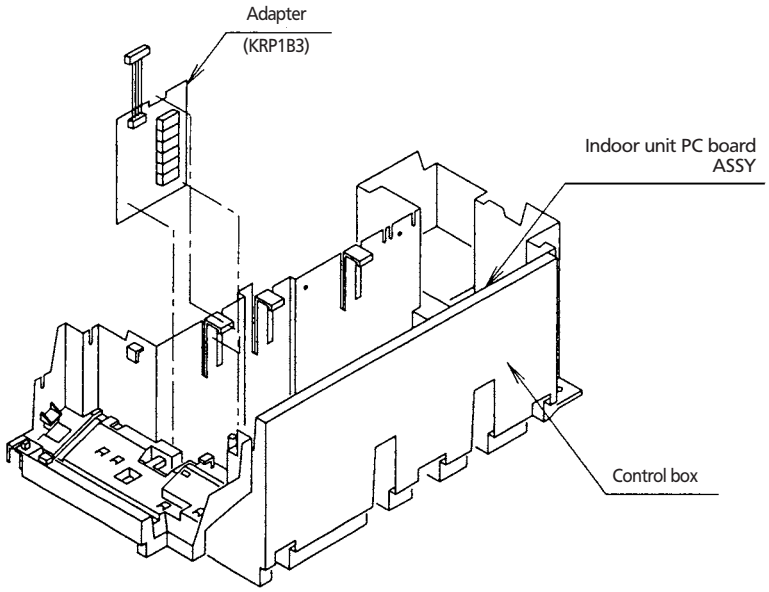


(HC0133)

2. In case the electric heater is installed
   - Connect the wiring properly according to the installation manual included in the kit.
   - Refer to the wiring diagram of the indoor unit for its wiring connection.

6.6.3.Installation

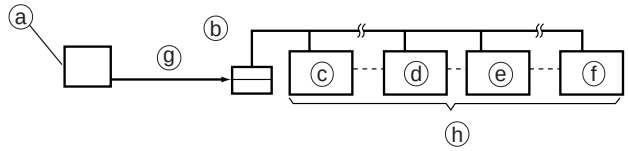
- Never bundle high and low voltage wiring together.
- Be sure to bundle the excess wring with the attached plastic strap so as to keep the loose wiring off the indoor unit PC board.



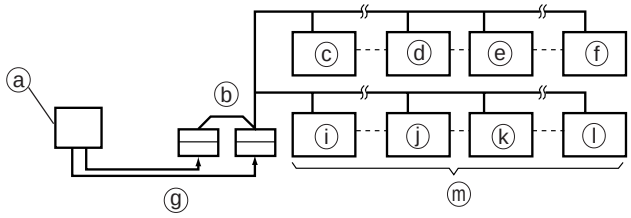
(HC0226)

6.7 DCS302B61: Centralized control

- When using 1 central remote controller



- When using 2 central remote controllers

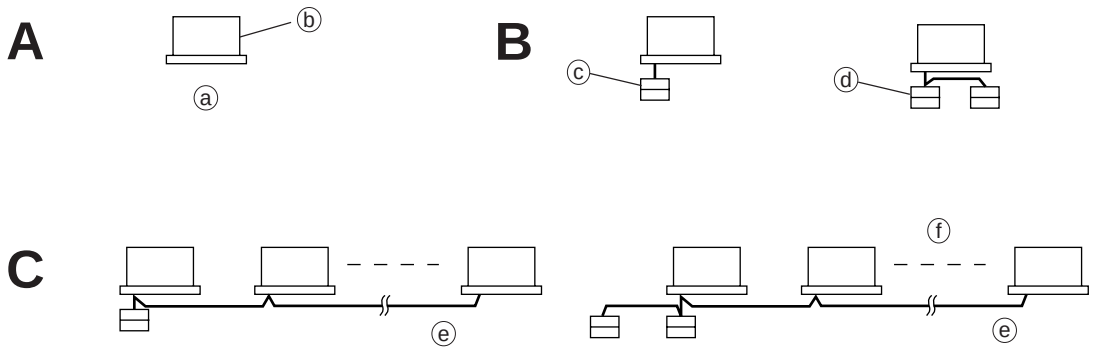


7

BEFORE USE:
GENERAL DESCRIPTION OF SYSTEM

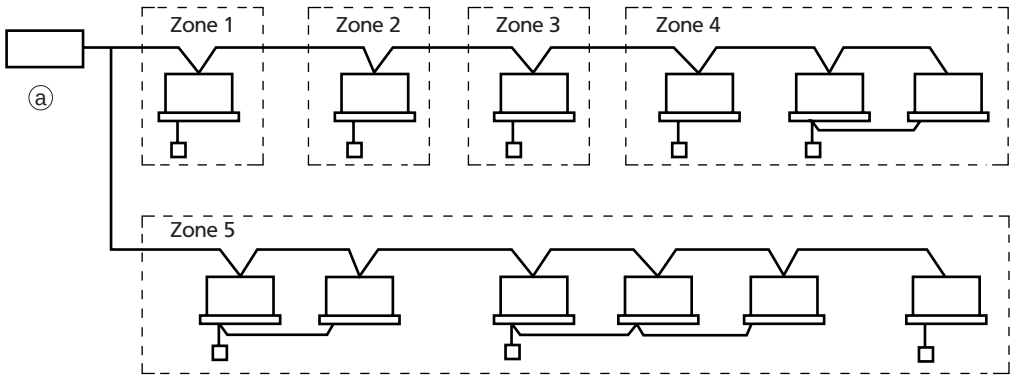
For a maximum of 64 groups of indoor unit unified operation/stop can be performed. When using 2 central remote controllers, unified operation is possible with up to a maximum of 128 groups of indoor units. It can be used to set operation modes by ZONE: ON/OFF operation, operation controlled by timer ON/OFF control possible/ impossible; as well as, to set operating state: temperature setting,etc.
It can display the operation state such as operation modes and preset temperature by group.
Furthermore, the unit can be connected with an external key system or host computer monitor panel to enable forced ON/OFF input (no-voltage normally open contactor).
(This unit cannot be used concurrently with the adapter for electrical appendieces [optional accessory].)

ⓐ Host computer monitor panel, etc. ⓑ Central remote controller ⓒ Group No. 1 – 00
ⓓ Group No. 1 – 15 ⓔ Group No. 2 – 00 ⓕ Group No. 4 – 15 ⓖ Forced ON/OFF command
(Stops with command from either central remote controller) ⓗ A maximum of 64 groups
ⓘ Group No. 5 – 00 ⓙ Group No. 5 – 15 ⓚ Group No. 6 – 00 ⓛ Group No. 8 – 15
ⓜ A maximum of 128 groups



(HC0145)

❊ GROUP OF INDOOR UNIT refers to the above.
A: A single indoor unit without remote controller **B:** A single indoor unit controlled by one or two remote controllers **C:** Maximum of 16 indoor units, group-controlled by one or two remote controllers
ⓐ Remote controller not used ⓑ Indoor unit ⓒ Remote control ⓓ Two remote controllers ⓔ A maximum of 16 units



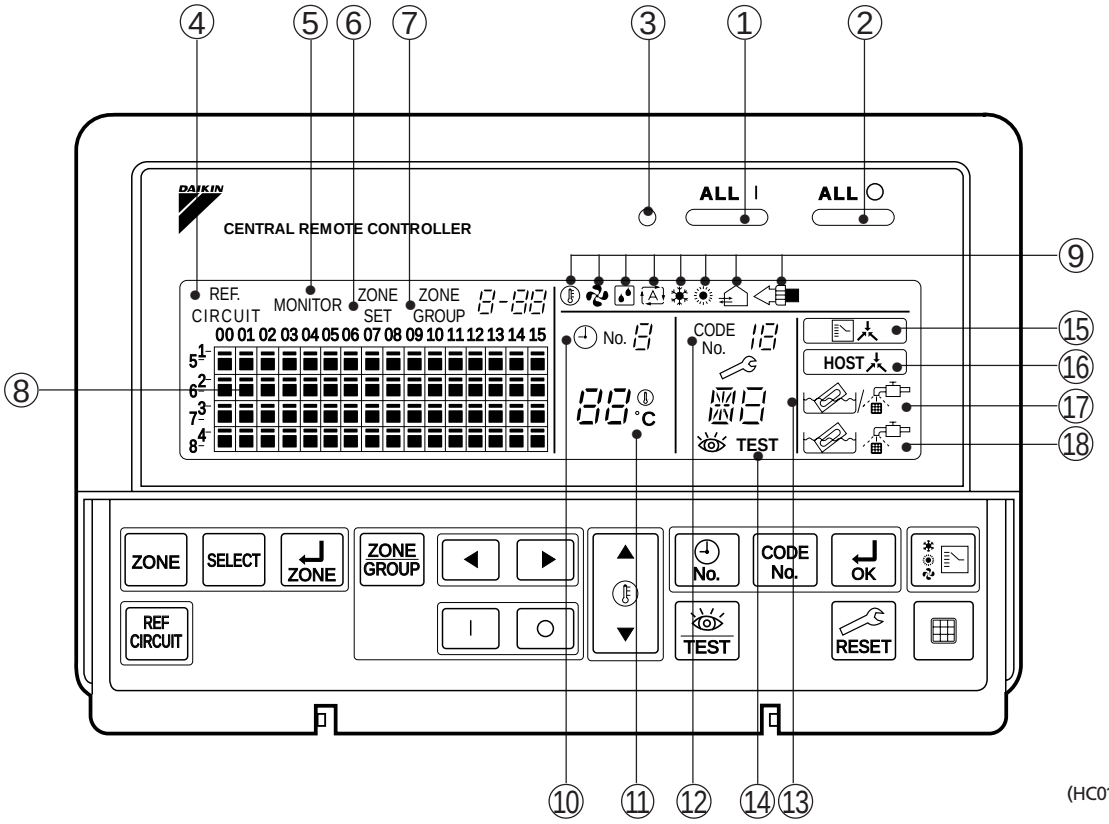
❊ **Zone** control from the central remote controller **Zone** control is available from the central remote controller. With it, it is possible to make unified settings for multiple groups, so setting operations are greatly simplified.
• Any setting you make within a given zone will apply to all groups in the said zone. • A maximum of 64 zones can be set from a single central remote controller. (Each zone contains a um of 64 groups.) • Zones can be set randomly from the central remote controller.
ⓐ Central remote control

CAUTIONS DURING USE

- Do not tamper with the inner machanism.
  Do not remove the front panel. Tampering with the inner mechanism is dangerous and may damage equipment. For inspection and adjustment, contact your DAIKIN dealer.
- Avoid places where the unit may be contacted by water.
  Water penetrating the inner mechanism may cause electrical leakage, or render electric parts defective.
- Do not press the button on the central remote controller with a pointed hard tool.
  This may damage the central remote controller.
- Avoid direct exposure to sunlight.
  Direct sunlight may discolor the LCD and obscure the image.
- Do not wipe the surface of the operation panel with benzene, thinner, chemically treated dust cloth, etc.
  This may cause discoloring or peeling. To clean, moisten a cloth with a neutral cleanser diluted in water, rince and wipe. Blot adhering water with a dry cloth.
- Never pull or twist the electric wire of a remote controller.
  It can cause the unit to malfunction.
- Never inspect or service the central remote controller by yourself.
  Ask a qualified service person to perform this work.

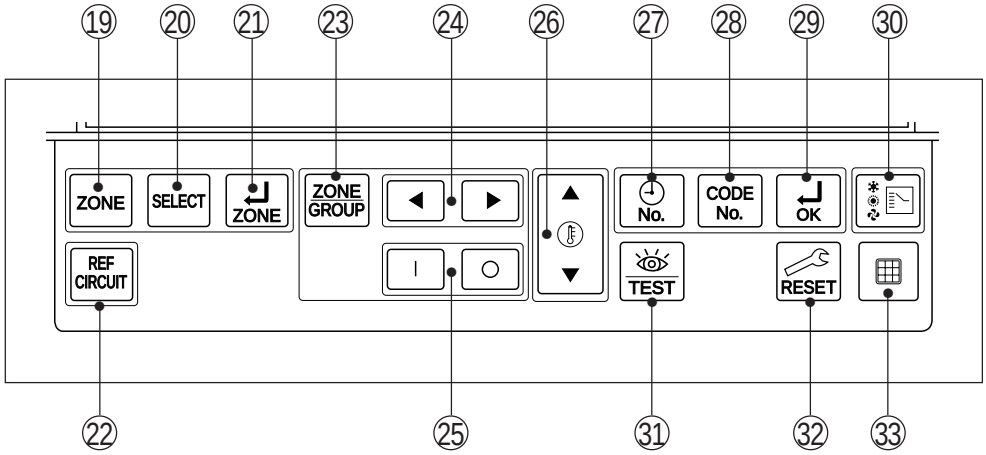
(HC0146)

Fig.1



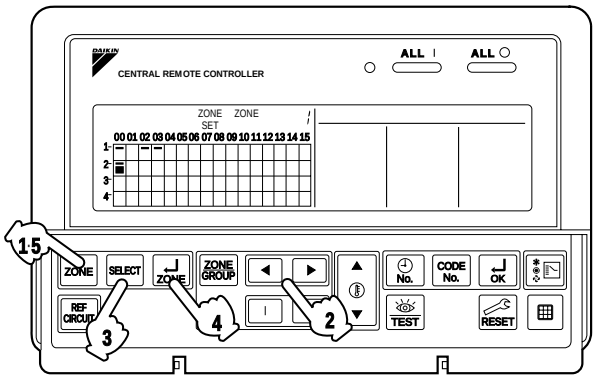
(HC0147)

Fig.2



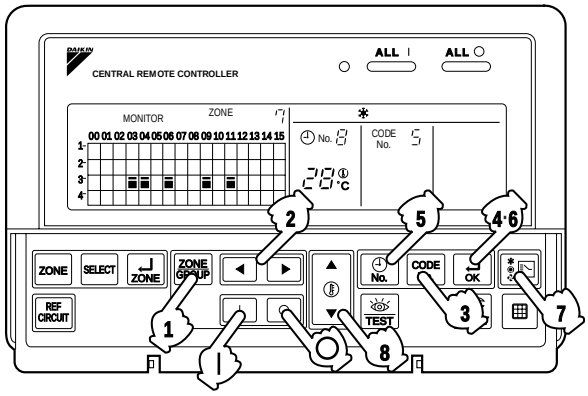
(HC0148)

Fig. 3



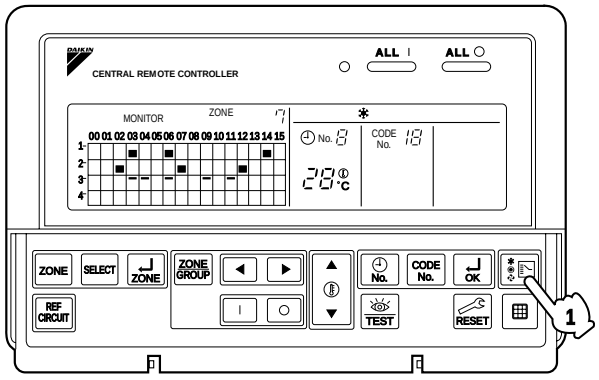
(HC0149)

Fig. 4



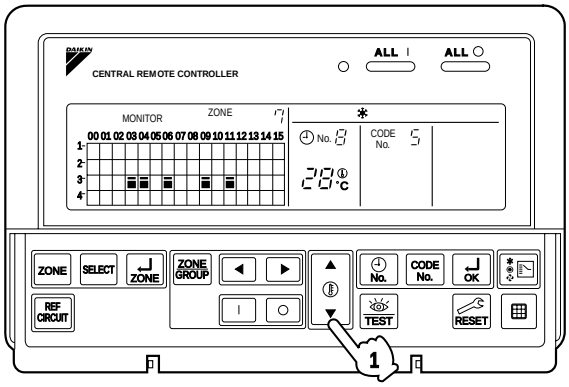
(HC0150)

Fig. 5



(HC0151)

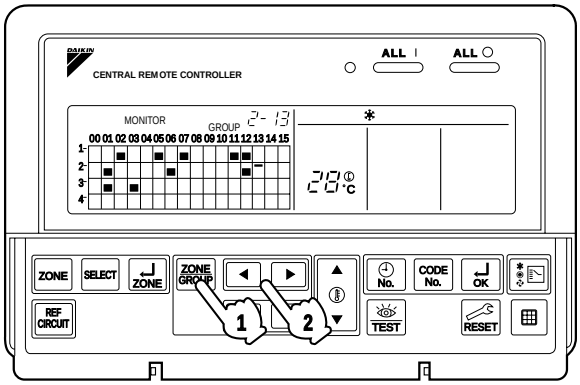
Fig. 6



(HC0152)

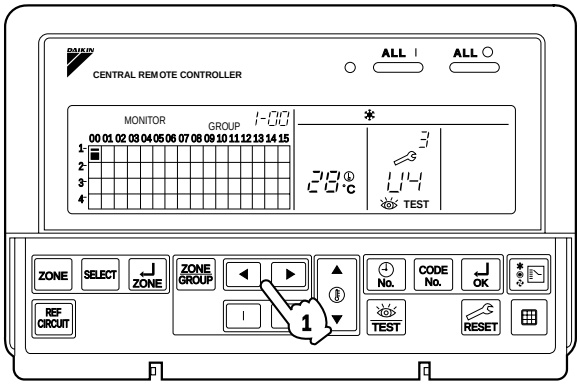
7

Fig. 7



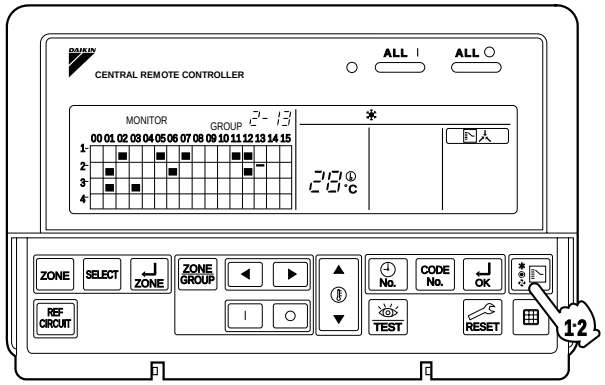
(HC0153)

Fig. 8



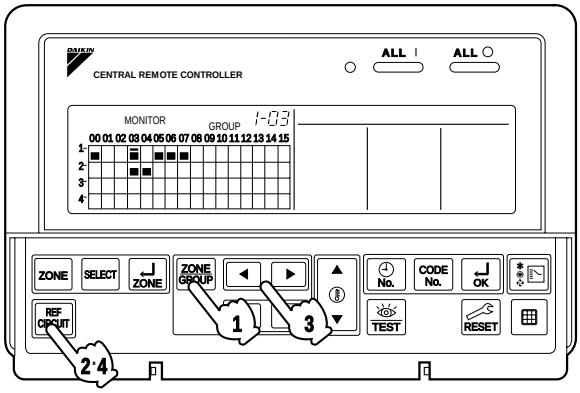
(HC0154)

Fig. 9



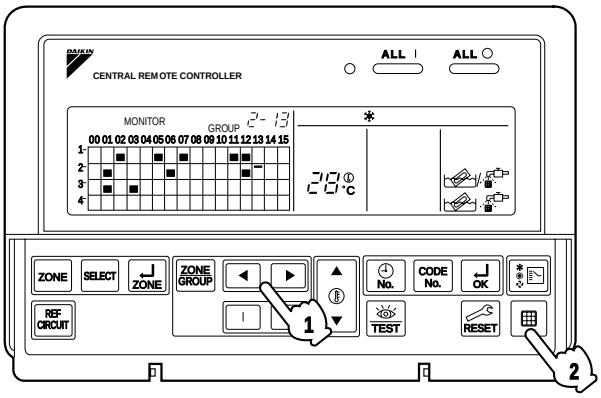
(HC0155)

Fig. 10



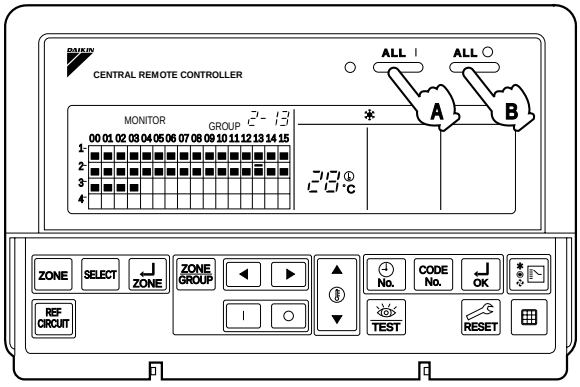
(HC0156)

Fig. 11



(HC0157)

Fig. 12



(HC0158)

FEATURES AND FUNCTIONS

■ Operation menu
This central remote controller enables the individual operation/stop by zone, and unified operation/stop. ON/OFF operation controlled by timer is possible in conjunction with the schedule timer (optional accessory).

See page 114-115,123

■ Various operation modes.
You can operate the system from both this unit and the remote controller, so to enable various operation control patterns. Twenty different operation modes are available including five operation patterns: ON/OFF control impossible by remote controller, only OFF control possible by remote controller, centralized, individual and centralized (ON/OFF control possible by remote controller only withthe timer ON); and temperature setting possible/impossible by remote controller and operation mode selecting possible/impossible by remote controller.

See page 116-123

■ Zone control for simpler operation
You can control a maximum of 64 groups of indoor units by using this central remote controller. You don't have to repeat the same setting operations by group because you can make each of the following settings by zone.
Also, there is a function which allows you to unify settings in all groups. (When set to Zone No. 0, all the below settings are unified for all groups.)
- ❍ Operation mode
- ❍ Control mode
- ❍ Setting temperature
- ❍ Programming time No. (Used in conjunction with the schedule timer)

See page 113

■ Monitor and display operating conditions of indoor units by group
You can display operating conditions such as operation mode and preset temperature; maintenance information such as time to clean, etc.; and information on trouble such as malfunction codes.
❊ "Time to clean" sign refers to the following functions.
- ❍ Display the time to clean air filter and the air cleaner elementof electric dust collector for each group.
- ❍ Display the time to clean when signaled from any given group.

See page 120

■ Function of refrigerant system display
This display helps you understand, at a glance, the indoor units sharing the same outdoor unit and the particular indoor unit among them that is set as the master remote controller.

See page 122

- Utilizing one of the PC board adapters (optional accessories) will enable you to combine this unit with the split. A/C units and unitary A/C.
  However, be sure to refer to the installation manual attached to each PC board adapter for function limitations..

(HC0159)

NAMES AND FUNCTIONS OF THE OPERATING SECTION (Fig. 1,2)

①	**UNIFIED OPERATION BUTTON** Press to operate all indoor units.	⑩	**" No." DISPLAY (TIME NO.)** Displays the operation timer No. when used in conjunction with the schedule timer.
②	**UNIFIED STOP BUTTON** Press to stop all indoor units.	⑪	**" " DISPLAY (PRESET TEMPERATURE)** Displays the preset temperature.
③	**OPERATION LAMP (RED)** Lit while any of the indoor units under control is in operation.	⑫	**" CODE No. 18" DISPLAY (CONTROL MODE)** Displays codes on how to control equipment (ON/OFF control impossible by remote controller, centralized, individual etc.). Displays the No. of the particular unit that has stopped due to malfunction.
④	**" REF. CIRCUIT " DISPLAY (REFRIGERANT SYSTEM DISPLAY)** The indicationin the square is lit while the refrigerant system is being displayed.	⑬	**" " DISPLAY (MALFUNCTION CODE)** Displays the contents of a malfunction. The lamp flashes when a malfunction stops operation. The contents of the current malfunction are displayed in the inspection mode.
⑤	**" MONITOR " DISPLAY (OPERATION MONITOR)** The lamp is lit while operation is being monitored.	⑭	**" TEST" DISPLAY (INSPECTION/TEST)** Press the inspection/test operation button. Either the inspection or test lamp lights up.
⑥	**" ZONE SET " DISPLAY (ZONE SETTING)** The lamp is lit while setting zones.	⑮	**" " DISPLAY (CHANGEOVER UNDER CONTROL)** Cool/heat selection is not possible for either the zone or the group where this particular display appears.
⑦	**"ZONE" "GROUP" DISPLAY (ZONES/GROUP)** Indicates the particular zone or group being displayed.	⑯	**" HOST " DISPLAY (UNDER HOST COMPUTER INTEGRATED CONTROL)** Setting is not possible while this display is being displayed.
⑧	**GROUP NO. IN OPERATION** Each square displays the state corresponding to each group.	⑰	**" " DISPLAY (TIME TO CLEAN)** Displayed to notify the user it is time to clean the air filter or air cleaner element of a particular group.
⑨	**" " " " " " " " " " " " " " " " DISPLAY (OPERATION MODE)** Displays operating state.		

(HC0160)

⑱	**" " " " " DISPLAY (TIME TO CLEAN AIR CLEANER ELEMENT/ TIME TO CLEAN AIR FILTER)**	㉖	**TEMPERATURE SETTING BUTTON**
	Displayed to notify the user it is time to clean the air filter or air cleaner element of the group displayed.		Press to set temperature.
⑲	**ZONE SETTING BUTTON**	㉗	**TIME NO. BUTTON**
	Turns zone setting mode ON/OFF.		Selects time No. (Use in conjunction with the schedule timer only).
⑳	**SELECTOR BUTTON**	㉘	**CONTROL MODE BUTTON**
	Selects the group to be assigned to a zone.		Selects control mode.
㉑	**ZONE OPERATION ON/OFF BUTTON**	㉙	**TIMER ON BUTTON**
	Finalizes the zone.		Sets control mode and time No.
㉒	**BUTTON FOR REFRIGERANT SYSTEM DISPLAY**	㉚	**OPERATION MODE SELECTOR BUTTON**
	See page 122.		See page 119.
㉓	**ZONE/GROUP CHANGEOVER BUTTON**	㉛	**INSPECTION/TEST OPERATION BUTTON**
	Switches display "zone" to display "group" or vice versa.		Press to run inspection or test run.
㉔	**ADVANCE/BACKWARD BUTTON**	㉜	**CLEARING BUTTON FOR MALFUNCTION CODE MEMORY**
	See page 113.		Press to clear malfunction code.
㉕	**ON/OFF BUTTON**	㉝	**FILTER SIGN RESET BUTTON**
	Starts/stops operation by zone.		See page 122.

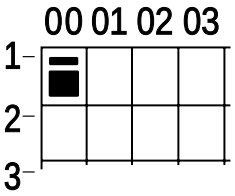
Notes:
1. Please note that all the displays in the figure appear for explanation purposes or when the cover is open.
2. If the unit is used in conjunction with other optional central controllers, the OPERATION LAMP of the unit that is not under operation control may light up and go out a few minutes behind schedule. This shows that the signal is being exchanged, and does not indicate any failure.

(HC0161)

ZONE SETTING (Fig. 3)

You can set multiple groups under a single zone to control them by zone. This equipment is factory set for 64 zones of 1 group per every zone at the time of shipment.

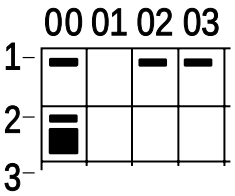
1 **Press the ZONE SETTING BUTTON, and " ZONE SET " is displayed.**



Zone No. 1 is displayed.Then, operation monitor display " ▬ " of group No. lights up in the displayed zone. The display " ■ " of the lowest group No. lightsup.

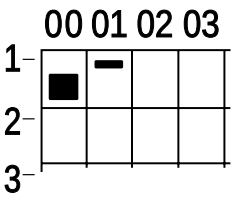
2 **Press the ADVANCE/ BACKWARD BUTTON to move the display " ■ " to the group of the desired zone. Holding the button down will quickly move the display.**

3 **Press the SELECTOR BUTTON to set the above group in the zone. The display " ▬ " of the selected group lights up.**



Repeat procedures 2 – 3 to select all desired groups for the zone.
The example in the left, groups 1-00, 1-02, 1-03 and 2-00 are set in the zone No. 1.

4 **Press the ZONE OPERATION ON/OFF BUTTON to finalize the zone. This zone becomes finalized, and the next zone No. is displayed.**



The zone No. advances one at a time. The display " ▬ " of the group that has already been set is lit in the displayed zone. The display " ■ " of the lowest group No. lights up again. Set the other zones as well following procedures 2 – 4.

In the above example, the zone No. 2 is displayed. Then, the display " ■ " of the lowest group No. that has already been set lights up.

5 **Press the ZONE SETTING BUTTON again, to finish zoning.**
The current display goes out, and the normal display appears.

NOTES

To clear all registered zones Display " ZONE SET " . Then, hold down both " RESET " and ALL i for about 4 seconds. This will clear all registered zones.

- If you have set a group in the wrong zone, reset it in the correct zone. (The last zone set is judged to be effective .)
- You cannot set the same group in multiple zones.
- When you turn ON the power, the system may display " 88 " for approximately one minute and may not respond to operation until all the liquid crystal display appears.
- Unless operated from within one minute from when the display of zoning appears, the display will automatically revert back to the "group" display.
- A single setting will simultaneously determine the same setting of all the groups in the zone. So, pay attention to the following points in setting the zone.

1. The control mode must be the same for all groups in the zone.
2. The scheduled operation must be the same for all groups in the zone, if the operation is controlled by the timer.
3. The cool/heat operation mode must be the same for all groups in the zone.
4. The preset temperature must be the same for all groups in the zone.

Note:

Be sure to select the " - - " in executing the operation by zone, as well as to set the operation mode and the temperature setting unless the uniform operation is performed in the above 3 and 4. (See page 114.)

(HC0162)

7

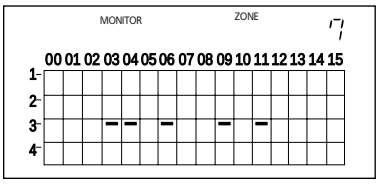
OPERATION

OPERATION BY ZONE (Fig. 4)

Flow of operation by zone

Call up the desired zone.
▼
Set the control mode.
▼
Set time No.
▼
Set operation mode.
▼
Set temperature.
▼
Start operation.
▼
Stop

1 Press the ZONE/GROUP CHANGEOVER BUTTON, to call upthe display of zoning.

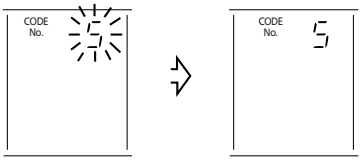


The display " ▬ " of the group set in the display zone lights up.

2 Press the ADVANCE/ BACKWARD BUTTON, to select the zone No. Holding it down will quickly move the display.

3 Press the CONTROL MODE BUTTON, to call up the desired code No. (See page 116.) Following the change, the display flashes.
Setting is not possible when using a data station or parallel interface.

4 Press the TIMER ON BUTTON.
Press the TIMER ON BUTTON within 10 seconds after the code No. is displayed. The display stops flashing and lights up solidly.

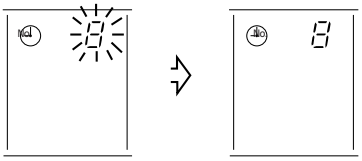


The display returns to its original state after no less than 10 seconds.

(only in conjunction with the schedule timer)

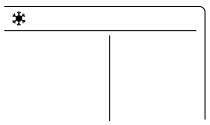
5 Press the TIME No. BUTTON, to select the desired time No.. When you change the setting, the display flashes. If you don't wish to program the to "–".
Check the timer No. of the schedule timer. If the schedule timer is not programmed, set the program in accordance with the instruction manual of schedule timer.

6 Press the TIMER ON BUTTON, to finalize the time No. The display flashes, and then lights up solidly.
Press the TIMER ON BUTTON within 10 seconds after the time No. is displayed.
The display returns to its original state after no less than 10 seconds.

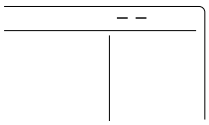


7 Press the OPERATION MODE SELECTOR BUTTON, to call up the desired mode. If you don't wish to execute the unified setting in the zone, set it to " - - ". (See page 121 for further details.)

(HC0163)



Cooling mode is selected.



Unified operation is not set within the zone.

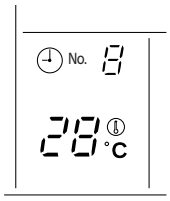
8 **Press the TEMPERATURE SETTING BUTTON.**

Each time you press the " ▲ ", the temperature rises by 1°C.

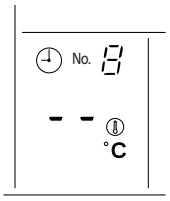
Each time you press the " ▼ ", the temperature falls by 1°C.

If you don't wish to execute the unified setting in the zone, set it to " - - ".

(See page 122 for further details.)



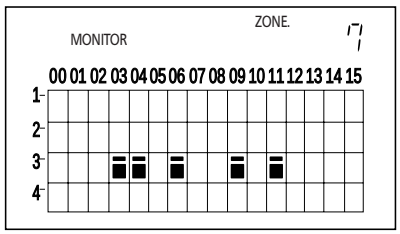
28°C is selected.



Unified operation is not set within the zone.

(When execute operation/stop by zone)

1 **Press the ON BUTTON. The operation lamp lights up, and then the display " ■ " of the corresponding group appears.**



2 **Press the OFF BUTTON.**

Unless operated from within one minute from when the display of zoning appears, the display will automatically revert back to the "group" display.

(HC0164)

OPERATION MODE

The following five operation control modes can be selected along with the temperature setting and operation mode by remote controller, for a total of twenty different modes. These twenty modes are set and displayed with control modes of 0 to 19.
(For further details, see EXAMPLE OF OPERATION SCHEDULE on the next page.)

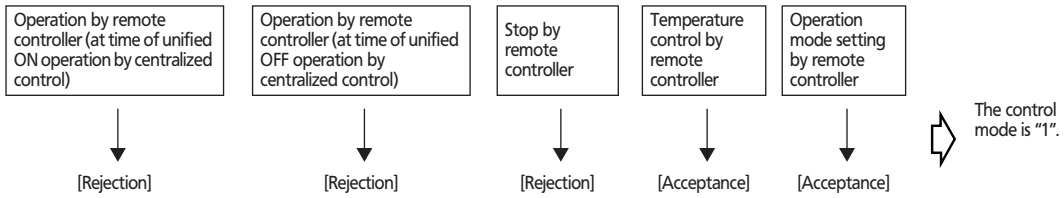
- ON/OFF control impossible by remote controller .... Use this mode when operating and stopping from the central remote controller only. (ON/OFF control by the remote controller is disabled.)
- Only OFF control possible by remote controller..... Use this mode when executing the operation only by the central remote controller, and executing only the stop by remote controller.
- Centralized..... Use this mode when executing the operation only by the central remote controller, and executing operation/stop freely by remote controller during the preset hours.
- Individual..... Use this mode when executing operation/stop both by central remote controller and remote controller.
- Timer operation possible by remote controller..... Use this mode when executing operation/stop by remote controller during the preset hours, and not starting operation by the central remote controller at the programmed time of system start.

7

HOW TO SELECT THE CONTROL MODE

Select whether to accept or to reject the operation from the remote controller regarding the operation, stop,temperature setting and operation mode setting, respectively, and determine the particular control mode from the rightmost column of the table below.

Example

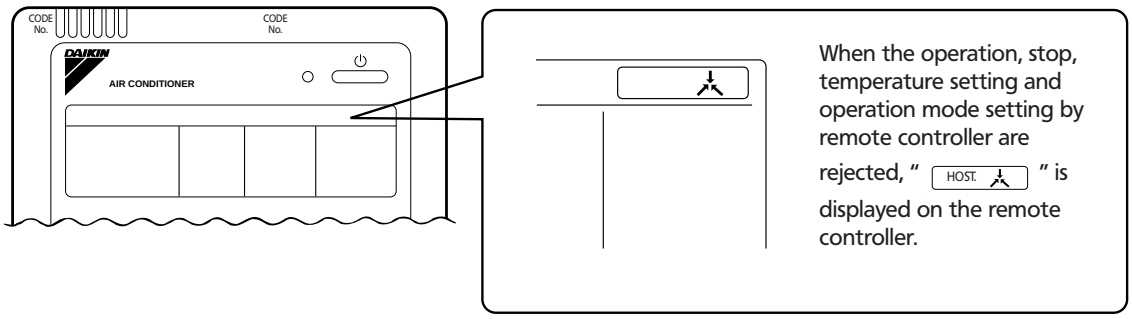


Operation mode	Control by remote controller					Control mode
	Operation					
	Unified operation, individual operation by central remote controller, or operation controlled by timer	Unified stop, individual stop by central remote controller, or timer stop	Stop	Temperature control	Operation mode setting	
ON/OFF control impossible by remote controller	Rejection (Example)	Rejection (Example)	Rejection (Example)	Rejection	Acceptance	0
					Rejection	10
				Acceptance (Example)	Acceptance (Example)	1 (Example)
					Rejection	11
Only OFF control possible by remote controller			Acceptance	Rejection	Acceptance	2
					Rejection	12
				Acceptance	Acceptance	3
					Rejection	13

(HC0165)

Operation mode	Control by remote controller					Control mode
	Operation					
	Unified operation, individual operation by central remote controller, or operation controlled by timer	Unified stop, individual stop by central remote controller, or timer stop	Stop	Temperature control	Operation mode setting	
Centralized	Acceptance	Rejection (Example)	Acceptance	Rejection	Acceptance	4
					Rejection	14
				Acceptance	Acceptance	5
					Rejection	15
Individual		Acceptance		Rejection	Acceptance	6
					Rejection	16
				Acceptance	Acceptance	7
					Rejection	17
Timer operation possible by remote controller	Acceptance (During timer at ON position only)	Rejection (During timer at OFF position only)		Rejection	Acceptance	8
					Rejection	18
				Acceptance	Acceptance	9
					Rejection	19

Note:
Do not select the timer operation possible without the remote controller. In this case, timer operation is disabled.

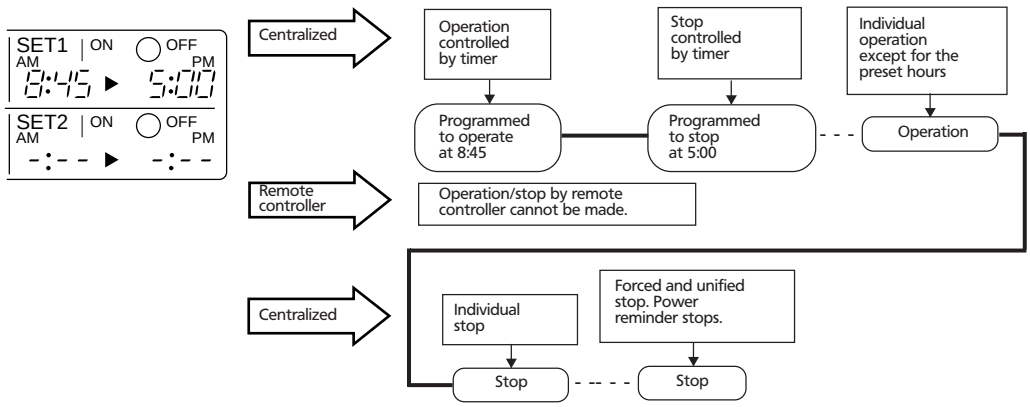


EXAMPLE OF OPERATION SCHEDULE

Operation schedule is possible only in conjunction with the schedule timer (optional accessory).

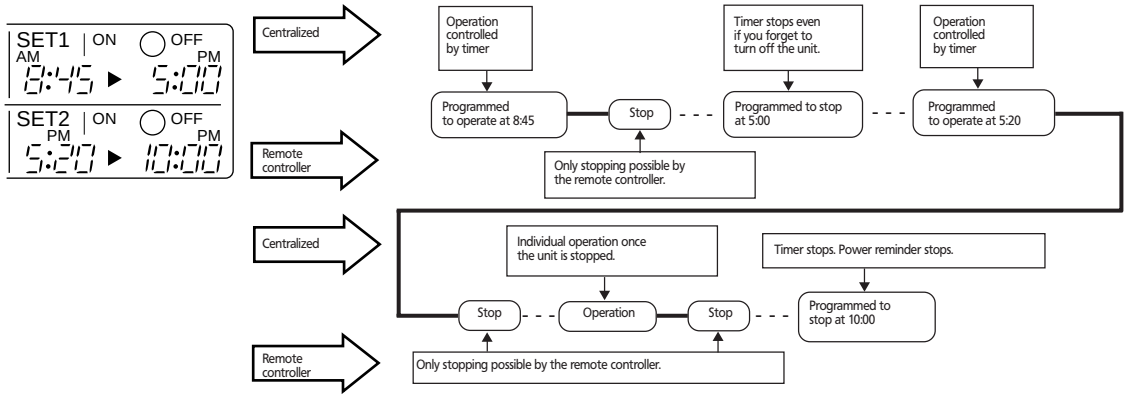
Liquid crystal display of schedule timer

ON/OFF control impossible by remote controller

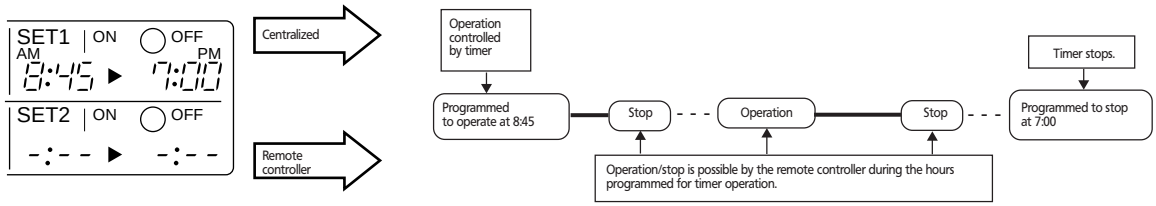


(HC0166)

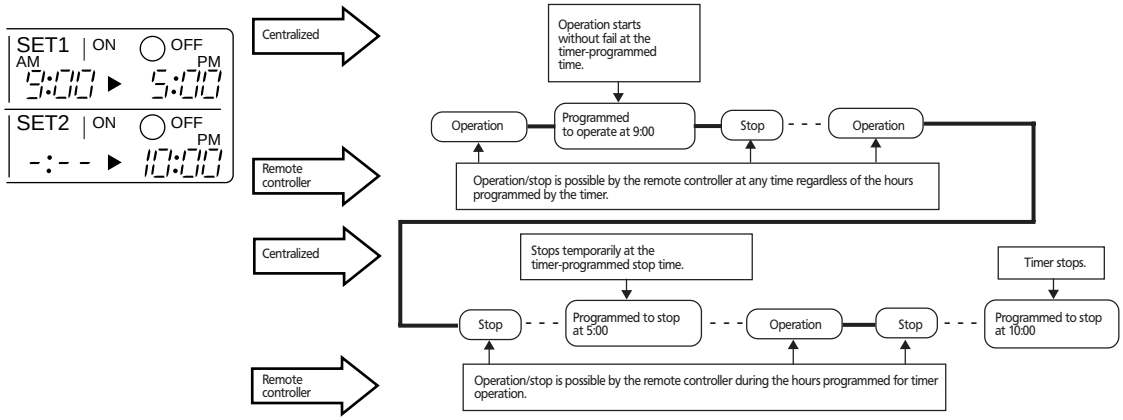
ON/OFF control possible by remote controller



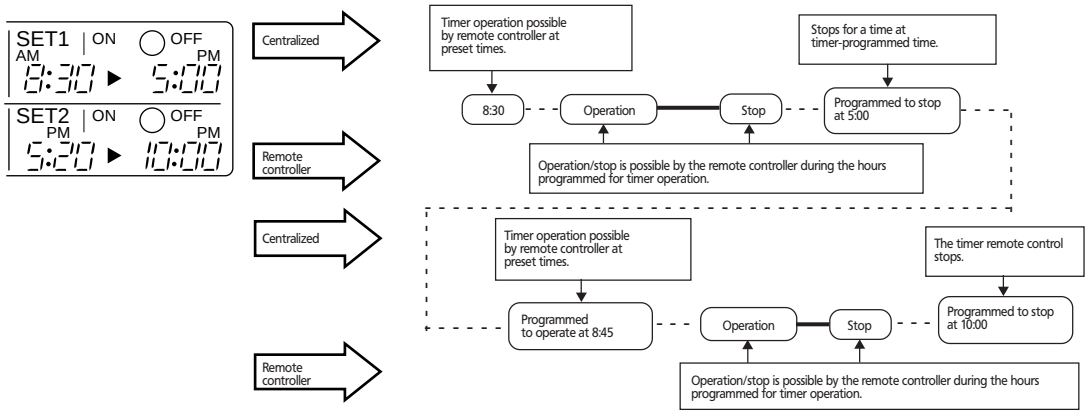
Centralized



Individual



Timer operation possible by remote controller



Air conditioner now OPERATING.
Air conditioner now stopping.
Command by central remote controller.
Command by remote controller.

(HC0167)

SETTING OPERATION MODE (Fig. 5)

- **The Zone consists of the following two cases.**

A. Zone without display " [ ] "

The group with master remote controller setting exists in this zone.
Setting the master remote controller enables cool/heat selection.
Operations other than cool/heat operations can also be set for some operations. For further details, see the list on the right.

B. Zone with display " [ ] "

No group with master remote controller setting exists in this zone.
The cool/heat selection is not available because the master remote controller has not been set.
Some operations other than cool/heat operations can be set. For further details, see the list in the right.

See page 121 if the display " [ ] " is flashing.

1 **Press the OPERATION MODE SELECTOR BUTTON. Each time you press this button, the display rotates as shown on the right list.**

NOTES:

- During cool/heat operation, this central remote controller enables FAN operation for each zone even without setting the master remote controller. Meanwhile, ventilation, ventilation/cleaning, etc. are available, if HRV etc. are connected with this unit in the zone. See the operation manual provided with the each unit.
- When the indoor unit is in heat operation, change the setting to FAN operation through the central remote controller; then, you can switch the fan speed to the extremely low fan speed. Warm air may blow if any other indoor unit belonging to the same system is in heat operation.
- The indoor fan stops during defrost/hot start.
- DRY cannot be set from the central remote controller.

- **List of setting operation**

Display	**A:** Zones not displayed	
	Setting	Contents of setting
	×	
	○	To be set by zone
	○ ❊1	To be set by zone
	○	To be set by zone
	○	To be set by zone
	○ ❊1	To be set by zone
	○ ❊1	To be set by zone
— —	○	Select this display if you don't wish to set by zone.

Display	**B:** Zones not displayed	
	Setting	Contents of setting
	○	❊2
	○	To be set by zone
	×	
	×	
	×	
	○ ❊1	To be set by zone
	○ ❊1	
— —	○	Select this display if you don't wish to set by zone.

Note:

In the above list, " ○ " refers to the acceptable setting, while " ¥ " refers to the not acceptable setting.

In the meanwhile, ❊ 1 and ❊ 2 refer to the followings.

❊ 1: Setting may not be acceptable depending on the type of indoor unit with which this unit is connected.

❊ 2: The group on FAN operation in the zone performs the temperature control operation (cool/heat) under the outdoor refrigerant system.

(HC0163)

TEMPERATURE SETTING (Fig. 6)

1 **Press the TEMPERATURE SETTING BUTTON.**

Each time you press the " ▲ ", the temperature rises by 1°C.

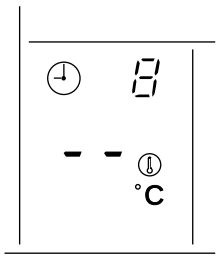
Each time you press the " ▼ ", the temperature falls by 1°C.

If you don't wish to set the temperature in a unified manner in the zone, set the temperature to " – – ".

NOTES:

- The setting temperature refers to that of the temperature sensing part. (It may differ from the room temperature.)
- The proper setting temperature is 26 – 28°C during cooling operation, and 18 – 23°C during heating operation.
- The setting temperature is not displayed in the FAN mode and Ventilation/Cleaning mode. The set temperature is not displayed either if HRV etc. form a zone without an air conditioner.

If you wish to set the temperature to "– –"



(Example)
In case where the range of temperature to be set is – 32°C
Press the **" ▼ "** when the display shows 16°C. The display " – – " appears.
Press the **" ▲ "** when the display shows 32°C. The display " – – " appears.
Set the temperature at the point 1°C higher than the upper limit and 1°C lower than the lower limit of the range subject to setting, respectively.

GROUP MONITORING (Fig. 7)

Utilize the group monitor function in each of the following cases:

1. Check the malfunction code. (See the next page.)
2. Check the group that requires cleaning of the air filter and air cleaner element. (See page 125.)
3. Change the setting of the master remote controller. (See page 124.)
4. Check the group(s) sharing the same outdoor unit. Or, check the particular group(s) with the master remote controller setting. (See page 125.)
5. Check the conditions of other individual groups.

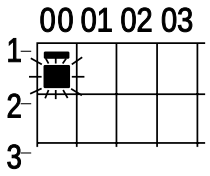
1 **Press the ZONE/GROUP CHANGEOVER BUTTON on the display of zoning, and the display "group" appears.**
Unless operated from within one minute from when the display of zoning appears, the display will automatically revert back to the "group" display.

2 **Press the ADVANCE/BACKWARD BUTTON to set the group No. Then, operation monitor display " ▬ " of group No. lights up in the displayed zone; then, the state of the above group(s) is displayed in the liquid crystal display.**

(HC0169)

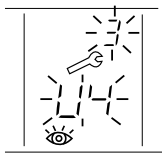
ERROR DIAGNOSING FUNCTION (Fig. 8)

This central remote controller is provided with a diagnosing function, for when an indoor unit stops due to malfunction. In case of actuation of a safety device, disconnection in transmission wiring for control or failure of some parts, the operation lamp, inspection display and unit No. start to flash; then, the malfunction code is displayed. Check the contents of the display, and contact your DAIKIN dealer because the above signs can give you the idea on the trouble area.



The display " ▬ " flashes under the group No. where the indoor unit that has stopped due to malfunction.

1 Press the RETURN/ADVANCE BUTTON to call up the group that has stopped due to malfunction.



The unit No. that has stopped due to malfunction and the malfunction code flashes. The display of control mode is replaced by that of the unit No.

SETTING MASTER REMOTE CONTROLLER (Fig. 9)

You must set the master remote controller of the operation mode for one of the indoor units, if two or more such indoor units with the remote controller are connected with the outdoor unit where the operation modes such as cool/heat operation and FAN operation can be set by remote controller and central remote controller.

1 Σ Check the particular group with the master remote controller setting for the refrigerant system you wish to reset. (See the right.)

- **Call up the group without the display " [icon] " (See page 136.) Hold the OPERATION MODE SELECTOR BUTTON down for about four seconds while the above group is being called up.**

  The display " [icon] " flashes on the liquid crystal display of the remote controller for all the groups sharing the same outdoor unit or BS unit.

  When you turn on the power switch for the first time, the display " [icon] " flashes.

2 Call up the desired group to set the master remote controller, and press the OPERATION MODE SELECTOR BUTTON. The master remote controller is set for this group, and the display " [icon] " goes out. The display " [icon] " appears for the other groups. Setting is finished now.

- **In case of operation switch**
  Call up the zone including the group with the setting of master remote controller.

  (Zone without the display " [icon] ")
  Press the OPERATION MODE SELECTOR BUTTON several times, and switch to the desired operation mode. Each time you press it, the display is switched to " [icon] " " [icon] " " [icon] "and " – – " in sequence.

NOTES

- Press the ZONE/GROUP CHANGEOVER BUTTON, and call up the display of zoning.
- However, the displays " [icon] " " [icon] " and " [icon] " may appear in some zones, depending on the type of indoor unit with which they are connected.

(HC0170)

7

FUNCTION OF REFRIGERANT SYSTEM DISPLAY (Fig. 10)

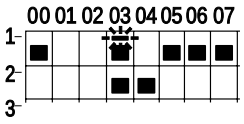
The following information becomes available by utilizing this function.

- Indoor group connected with the same outdoor unit
- Indoor group with the master remote controller setting of the given refrigerant system

1 **Press the ZONE/GROUP CHANGEOVER BUTTON, and call up the display "group" if the display of zoning appears.**
Unless operated from within one minute from when the display of zoning appears, the display will automatically revert back to the "group" display.

2 **Press the BUTTON FOR REFRIGERANT SYSTEM DISPLAY. The display " REF. CIRCUIT " appears.**

3 **Press the ADVANCE/ BACKWARD BUTTON to call up the group of which you wish to check the refrigerant system.**



The display " ▬ " of all the groups sharing the same refrigerant system as the group on display flashes. Then, the display " ▬ " of the particular group among them with the master remote controller setting flashes. Repeat the procedure 3 if you wish to check other refrigerant systems as well.
The above example shows that the groups 1-00, 1-03, 1-05, 1-06, 1-07, 2-03 and 2-04 share the same refrigerant system, and also that the master remote controller is provided with group 1-03.

4 **Press the BUTTON FOR REFRIGERANT SYSTEM DISPLAY again. The display " REF. CIRCUIT " goes out. The refrigerant system display is finished now.**

NOTES

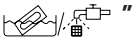
- Unless operated from within one minute from when the refrigerant system display, the display will automatically revert back to the "group" display.
- This function may not be available depending on the type of outdoor unit with which the unit is connected. In this case, the display " REF. CIRCUIT " flashes.

DISPLAY OF TIME TO CLEAN (Fig. 11)

This central remote controller displays the time to clean the air filter or air cleaner element for each group or any given group by utilizing two types of signs.
The display "  " tells the time to clean the air filter or the air cleaner element of some group.

1 **Press the ADVANCE/ BACKWARD BUTTON, and search the groups displaying "  " or "  "**
(Several groups may have this indication.)

> **Clean or change the air filter or air cleaner element.**
> For further details, see the operation manual attached to each indoor unit. (Clean or change the air filter or air cleaner element of all the groups displaying "  " or "  ".)

2 **Press the FILTER SIGN RESET BUTTON, and the display "  " disappears. (Including all the groups where the air filter has been cleaned.)**

NOTE

Be sure to check the display "  " has disappeared at this point. The appearance of the above display is a sign that the air filter or air cleaner element of some group still needs cleaning.

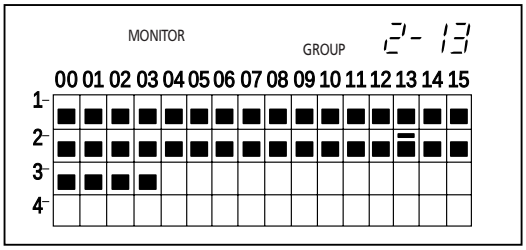
(HC0171)

UNIFIED OPERATION (Fig. 12)

Use this function when executing operation and stop of all the connected indoor units.

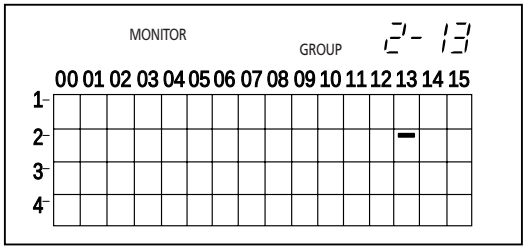
A Unified operation

Press the UNIFIED OPERATION BUTTON. All the displays " ▬ " of the group No. in operation light up at the same time, and all the groups start to operate at the same time.



B Unified stop

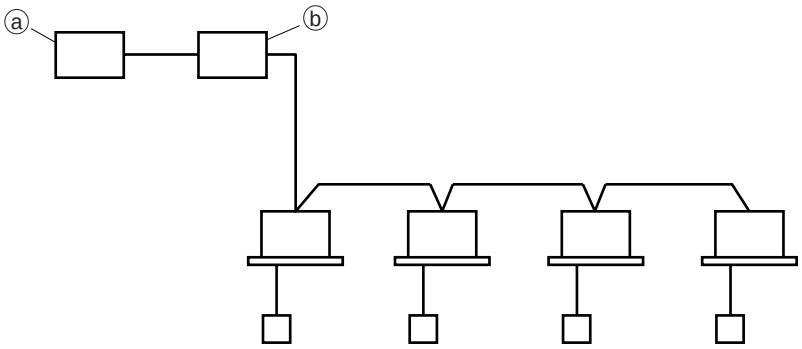
Press the UNIFIED STOP BUTTON. The lights of every display " ▬ " of group No. in operation go out at the same time; then, the lights of all the groups stop at the same time.



- When using the central remote controller in conjunction with other optional controllers for centralized control, the OPERATION LAMP on controllers which are not being used for operation may delay a few minutes before lighting or going out.
  There is nothing wrong with the equipment. The delay is due to signal exchange.

(HC0164)

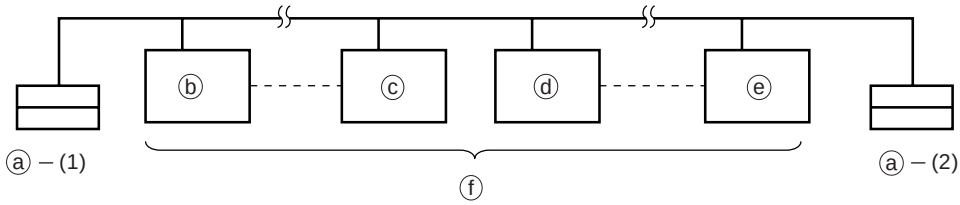
OPTIONAL ACCESSORIES



7

You can perform the normal operation, take off the malfunction contact point and unified operation/stop by contact point, all by connecting this unit with the unification adapter for computerized control. For further details, ask your DAIKIN dealer.
ⓐ Unification adapter for computerized control ⓑ Central remote controller

DOUBLE CENTRAL REMOTE CONTROLLERS



With two central remote controllers, centralized control (indoor units) is possible from different locations.
ⓐ Central remote controller ⓑ Group No. 1–00 ⓒ Group No. 1–15 ⓓ Group No. 2–00 ⓔ Group No. 4–15 ⓕ Maximum 64 groups

Note:

- For control alignment and settings for double central remote controllers, contact your DAIKIN dealer.

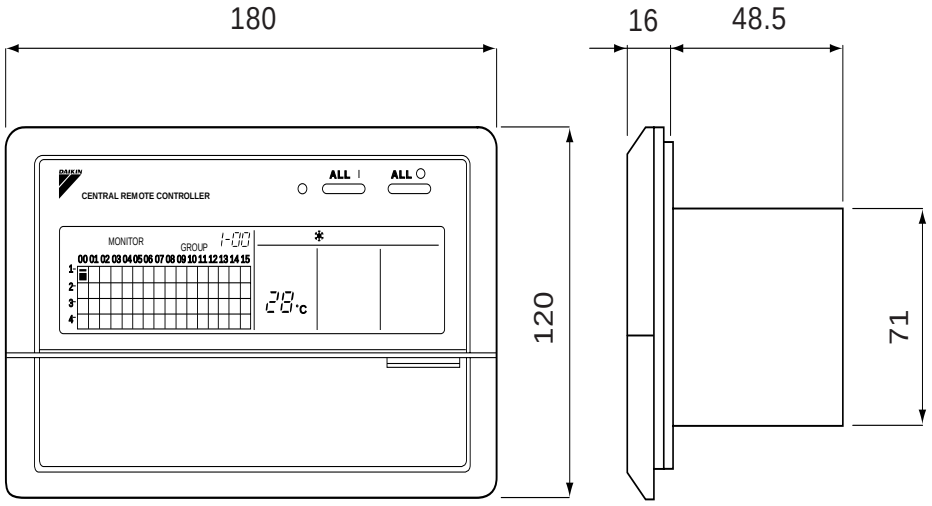
(HC0173)

SPECIFICATIONS

■ Specifications

Power supply	Single phase, 50 / 60 Hz, 220 – 240 V / 220 V
Power consumption	Max. 4.5 W
Forced ON / OFF input	Continuous “a” contact Contact current: approximately 10 mA
Size	180 (W) x 120 (H) x 64.5 (D)
Weight	430 g

■ Outline drawings

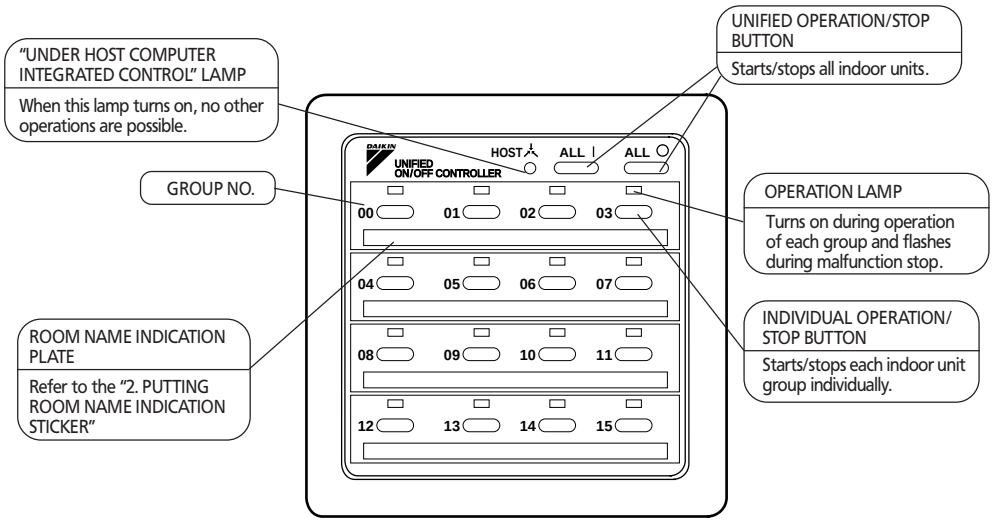


Specifications and appearance of this unit subject to change without notice.

(HC0174)
3PA63363-1
EM96A021

6.8 DCS301B61: Unified ON / OFF control

6.8.1. NAMES AND FUNCTIONS

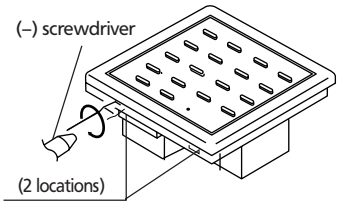


<< NOTE >>

- When using unified ON/OFF controller with other optional controllers for centralized control, "OPERATION LAMP" of the equipment which is not operated may turn on or off after several minutes.
  This state occurs due to signal communications and is not a failure.
- Do not open the upper part of remote controller except when rewriting the indication sticker or selecting control modes.

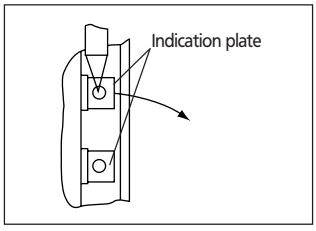
6.8.2. PUTTING ROOM NAME INDICATION STICKER

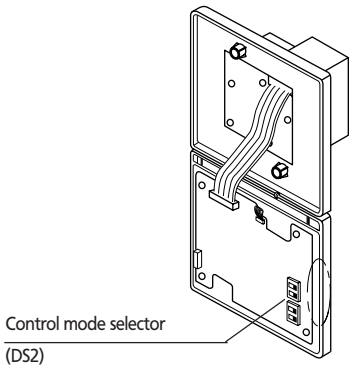
① Open the upper part of remote controller.
Insert a (–) screwdriver into the recess between the upper and lower part of remote controller (at 2 locations) and twist the screwdriver lightly.



PC board is attached both the upper and lower part of remote controller. Do not damage the board with the screwdriver.

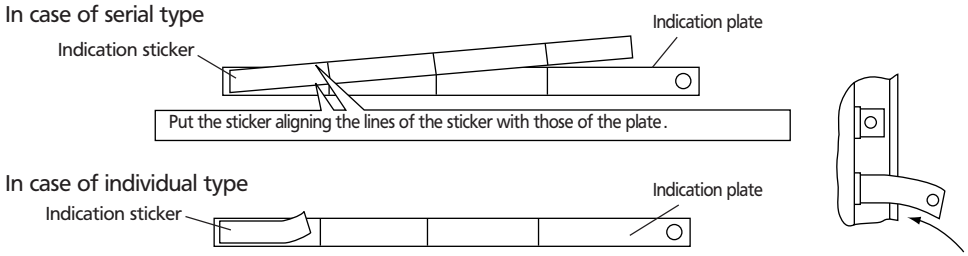
② Pull out the room name indication plate. Insert the point of a mechanical pencil etc, into the hole of the indication sticker to pull it out.





(HC0190)

③ Put the attached indication sticker on the room name indication plate.
In case of serial type



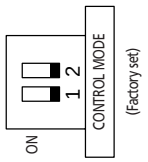
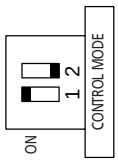
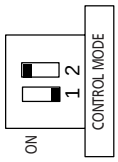
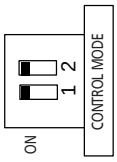
Put the sticker on the center of the frame.
Write the room name in the frame of the sticker with a ball point pen or a felt-tip pen (oil-base).

④ Reinstall the plate as it were, with checking the correct direction.
⑤ Close the upper part of remote controller.

8

6.8.3. SELECTING CONTROL MODES

The following four patterns of control mode can be set.

Control mode	Individual	Centralized	Timer operation possible by remote controller	ON/OFF control impossible by remote controller
Content	Operation/stop is controlled by both unified ON/OFF controller and remote controller.	After operated by unified ON/OFF controller, operation/stop is freely controlled by remote controller until stopped by unified ON/OFF controller.	When used in conjunction with schedule timer, operation/stop is controlled freely by remote controller during the set time but operation is not available when schedule timer is ON.	Operation/stop is controlled by unified ON/OFF controller only. Indoor units can not be operated/ stopped by remote controller.
DS2 setting				

NOTE:
- ▬ indicates the position of switches.
- Set control modes before turning power supply on.
- When used in conjunction with central remote controller, the control modes of the central remote controller has the priority.

6.8.4. DISPLAY OF MALFUNCTION

Flashing of lamps indicates malfunctions. Contact your Daikin dealer.
When turning power supply on, all lamps may light and UNDER HOST COMPUTER INTEGRATED CONTROL lamp may flash and not accept the operation for about one minute.
These conditions are not malfunctions.

States of lamps	Contents of malfunctions
Flashing of operation lamp	Indicates malfunctions in the indoor unit in the group where the operation lamp is flashing.
Flashing of UNDER HOST COMPUTER INTEGRATED CONTROL lamp	Indicates malfunctions in optional controllers for centralized control.

(HC0191)

3PA53843

6.9 DST301B61: Schedule timer

CAUTIONS DURING USE

- Do not tamper with the inner mechanism.
  Do not remove the front panel. Tampering with the inner mechanism is dangerous and may damage equipment. For inspection and adjustment, contact your DAIKIN dealer.
- Avoid places where the unit may be contacted by water.
  Water penetrating the inner mechanism may cause electrical leakage, or render electric parts defective.
- Do not press the button on the with a pointed hard tool.
  This may damage the .
- Avoid direct exposure to sunlight.
  Direct sunlight may discolor the LCD and obscure the image.
- Do not wipe the surface of the operation panel with benzene, thinner, chemically treated dust cloth, etc.
  This may cause discoloring or peeling. To clean, moisten a cloth with a neutral cleanser diluted in water, rinse and wipe. Blot adhering water with a dry cloth.
- Never pull or twist the electric wire of the schedule timer.
  It can cause the unit to malfunction.
- Never inspect or service the schedule timer by yourself.
  Ask a qualified service person to perform this work.

9

FEATURES AND FUNCTIONS

■ **Operation controlled by programmed time**
Operating time and stopping time can be set to the minute by each day of the week. The operating and stopping patterns can also be set in schedule accord-ing to the time slot given twice a day in tune with the uses.

See page 132 – 135

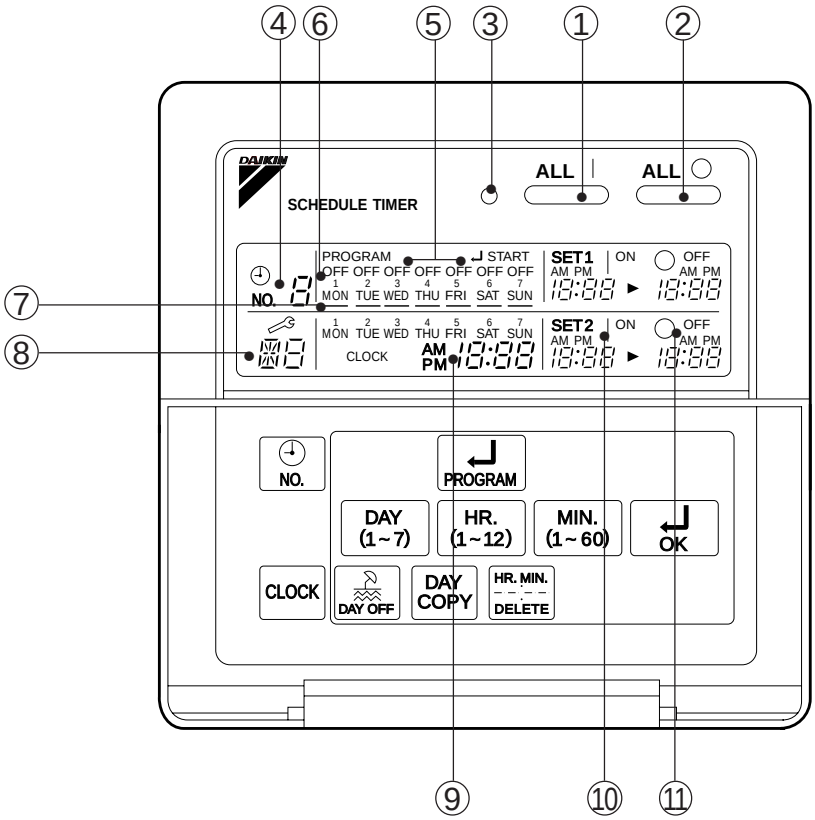
■ **Unified Operation/Stop**
By using this schedule timer, the unified operation/stop of the indoor unit can be executed manually regardless of the No. of programmed time in operation.

See page 135, 136

■ **When used in conjunction with central remote controller (Optional Accessory)**
The operation controlled by programmed time can be set for up to eight different patterns (timer No. 1 – 8). Each schedule pattern can be also selected.

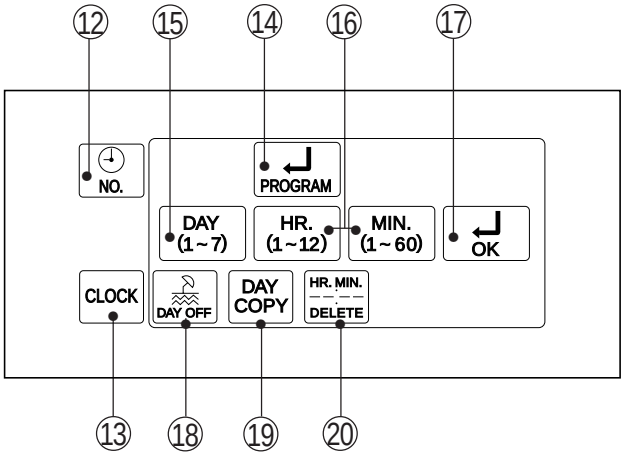
(HC0175)

Fig.1



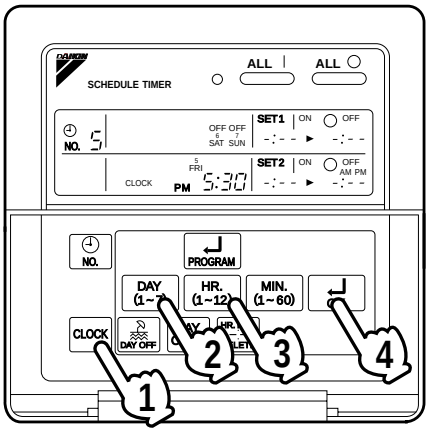
(HC0176)

Fig.2



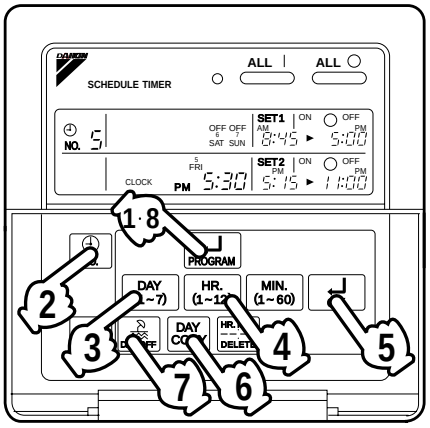
(HC0177)

Fig. 3



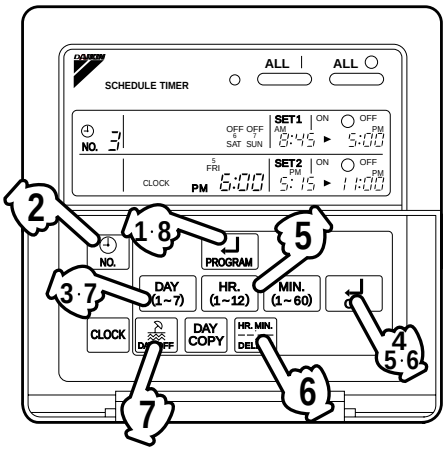
(HC0178)

Fig. 4



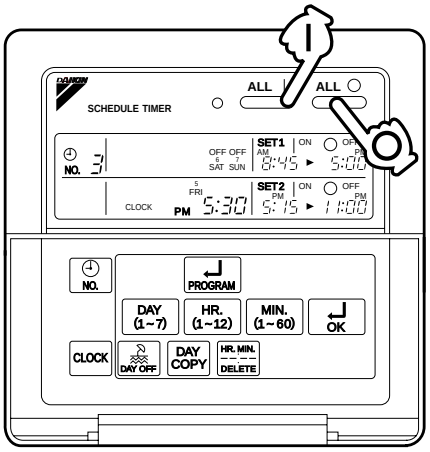
(HC0179)

Fig. 5



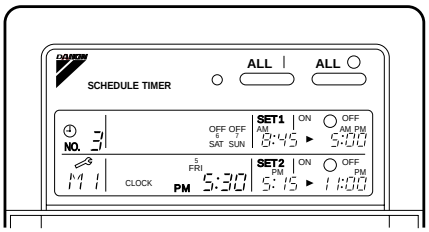
(HC0180)

Fig. 6



(HC0181)

Fig. 7



(HC0182)

NAMES AND FUNCTIONS OF THE OPERATING SECTION (Fig. 1,2)

①	**UNIFIED OPERATION BUTTON** Press this button to perform the unified operation regardless of the No. of programmed time.	⑪	**DISPLAY " OFF AM PM 10:00 " (PROGRAMMED TIME OF SYSTEM OFF)** Displays the time programmed to stop.
②	**UNIFIED STOP BUTTON** Press this button to perform the unified stop regardless of the No. of programmed time.	⑫	**TIME NO. BUTTON**
③	**OPERATION LAMP (RED)** The light turns on during the operation of the indoor unit.	⑬	**CLOCK ADJUSTING BUTTON** Press this button to set the present time.
④	**DISPLAY " NO. 8 " (TIME NO.)** Displays the time No. only when used in conjunction with the central remote controller.	⑭	**PROGRAMMING START BUTTON** Press this button to set or check the No. of programmed time. Press it again after you are through with the program.
⑤	**DISPLAY "PROGRAM ↵ START." (PROGRAMMING START)** The light turns on when the timer is programmed.	⑮	**BUTTON FOR SELECTING DAYS OF A WEEK** Press this button to select the day of the week.
⑥	**DISPLAY " OFF " (HOLIDAY SETTING)** Lights above the day of the week set as holiday. The operation controlled by timer is not available on that day.	⑯	**HOUR/MINUTE BUTTON** Press this button to adjust the present time and the programmed time.
⑦	**DISPLAY "–" (SETTING OF DAYS OF A WEEK)** Flashes below the day of the week programmed.	⑰	**TIMER ON BUTTON** Press this button to set the present time and the programmed time.
⑧	**DISPLAY " 01 " (MALFUNCTION CODE)** Displays the contents of malfunction during the stop due to malfunction.	⑱	**HOLIDAY SETTING BUTTON** Press this button to set holidays.
⑨	**DISPLAY " 1 MON 2 TUE 3 WED 4 THU 5 FRI 6 SAT 7 SUN CLOCK AM PM 10:00 " (PRESENT TIME)** Displays the present day of the week and time.	⑲	**BUTTON FOR COPYING PROGRAM OF PREVIOUS DAY** Use this button to set the No. of programmed time same as that of the previous day.
⑩	**DISPLAY " 1 MON 2 TUE 3 WED 4 THU 5 FRI 6 SAT 7 SUN CLOCK AM PM 10:00 " (PROGRAMMED TIME OF SYSTEM START)** Displays the time programmed to start.	⑳	**PROGRAM CANCELING BUTTON** Use this button to set the programmed time to cancel. The display shows "– ; – –".

Note:
Please note that all the displays in the figure appear for explanation purposes or when the cover is open.

(HC0183)

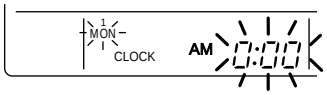
9

OPERATION SETTING PRESENT TIME (Fig. 3)

(Example) In case of setting Friday, 5:30 p.m.

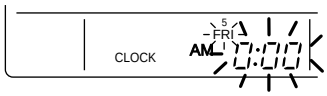
1 Press the CLOCK ADJUSTING BUTTON. The present time display flashes.

Note:
The present time needs adjusting in case of turning power supply on for the first time or the occurrence of power failure over the period of 48 hours or more.



2 Press the BUTTON FOR SELECTING DAYS OF A WEEK. Each time the button is pressed, the day display shifts to the right.

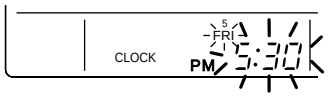
Note:
The display "MON" follows the display "SUN".



Set the day to Friday.

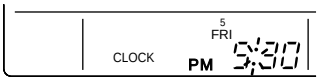
3 Set the time with the HOUR/MINUTE BUTTON. Each time the HOUR/MINUTE BUTTON is pressed, the display is put forward minute by minute and hour by hour.
When the button is kept pressed, the display is put forward continuously.

Notes:
- After becoming "AM 11:00", when the button is pressed, the display becomes "PM 0:00".
- After becoming "59" (minute), when the button is pressed, the display becomes "00" (minute).



Set the time to 5:30 p.m..

4 Press the TIMER ON BUTTON the moment the time signal of TV, radio, telephone, etc. is heard. The mark " : " flashes, and the clock starts.



Press the TIMER ON BUTTON in tune with the time signal at 5:30 p.m.

Notes:
- The clock used is of 12-hour type.
- When you turn power supply on, the system may display "88" for about one minute and not start to operate after all the liquid crystal displays appear at a time.
- If the CLOCK ADJUSTING BUTTON is pressed by mistake, press it again to return to the original state. As the clock does not stop, the time indicated by the clock is kept correct. In case of power failure within 48 hours, the clock keeps operating by utilizing the built-in battery.

(HC0184)

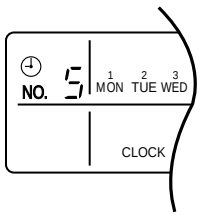
SETTING NO. OF PROGRAMMED TIME (Fig. 4)

(Example)
Time No. 5 (to be programmed only when used in conjunction with the central remote controller)
Monday to Friday:
Operating from 8:45 a.m. till 5:00 p.m.
Operating from 5:15 p.m. till 11:00 p.m.
Saturday and Sunday:
Setting the whole day stop operation (application for holidays) controlled by programmed time.

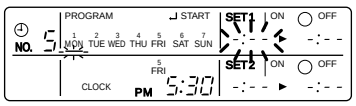
1 Press the PROGRAMMING START BUTTON. Programming is available.

The display "PROGRAM ↵ START" appears, and the display of days of a week flashes.

2 Press the TIME No. BUTTON, and select the desired number.
Note:
Unless used in conjunction with the central remote controller, The TIME No. is not displayed and can not be selected.
Select the TIME No. 5.



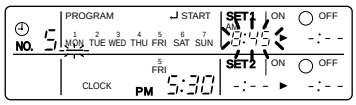
3 Press the BUTTON FOR SELECTING DAYS OF A WEEK, and set the proper day of the week. Each time you press it, the flashing display of days of a week shifts to the right.



Set to Monday.

(1) Setting programmed time

4 Set the programmed time of system start 1 by using the HOUR/MINUTE BUTTON. Each time the HOUR/MINUTE BUTTON is pressed, the display is put forward minute by minute and hour by hour. When the button is kept pressed, the display is put forward continuously.



Set the programmed time of system start 1 at 8:45 a.m.

5 Press the TIMER ON BUTTON,and set the programmed time of system start 1. Each time you press it, the next area to be set flashes.
Note:
Set the other programmed time in the same procedure.

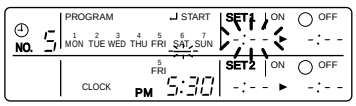
(2) Set the next day of the week.

Set the day of the week to Tuesday, and copy the program of the previous day (Monday). In the same procedure, set the day of the week to Wednesday through Friday in sequence.

6 Press the BUTTON FOR SELECTING DAYS OF A WEEK and set the following day. Press the BUTTON FOR COPYING PROGRAM OF PREVIOUS DAY. The same program as that of the immediately preceding day of the week is set.
Note:
Repeat each procedure 3 – 5 in the above when not copying the contents of the previous day.

(3) Holiday setting

7 Press the BUTTON FOR SELECTING DAYS OF A WEEK and set one or more days of the week as holiday. Press the HOLIDAY SETTING BUTTON, and the display "OFF" is displayed at the top of the day of the week. If you press it again, the display returns to the original state.



Set Saturday and Sunday as holidays.

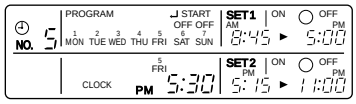
(HC0185)

9

8 **Press the PROGRAMMING START BUTTON, and finish the program setting.**

Notes:

- Unless the button is pressed within 20 minutes, the display will automatically revert back to the original state. In this case, setting contents up to the point where the TIMER ON BUTTON (or HOLIDAY SETTING BUTTON or BUTTON FOR COPYING PROGRAM OF PREVIOUS DAY) is pressed will only take effect.
- The display "PROGRAM ↵ START" and the display of days of a week " – " disappears.
- The flashing display goes off, and the No. of programmed time of the present day is displayed. Then the operation controlled by timer starts.
- The operation controlled by timer is executed even while the program is being set.



This is the end of the setting example.

9

CHANGE AND CANCELLATION OF NO. OF PROGRAMMED TIME (Fig. 5)

(Example)

Time No. 3 (to be set only when used in conjunction with the central remote controller)

A: Change/ cancel partially

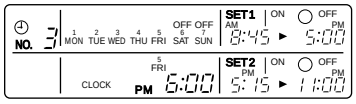
Operating from 8:45 a.m. till 5:00 p.m. → (Wednesday) After operating from 8:45 a.m. till 7:00 p.m., the operation stops.

B: Cancel the whole

Operating from 5:15 p.m. till 11:00 p.m. → (Thursday) Whole day stop.

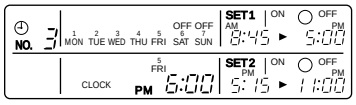
1 **Press the PROGRAMMING START BUTTON. The program setting is ready. The display "PROGRAM ↵ START" appears, and the display of days of a week flashes.**

2 **Press the TIME No. BUTTON, and select the desired No.**



Select the time No. 3.

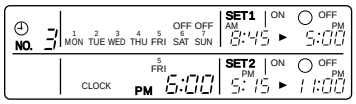
3 **Press the BUTTON FOR SELECTING DAYS OF A WEEK, and set the day of the week to be changed. The set No. of programmed time of the day of the week is displayed.**



Set the day to Wednesday.

A. Change/cancel partially

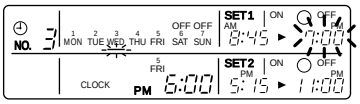
4 **Press OK button if you do not want to change the timer on. The display of the next programmed time flashes. Each time you press it, the next area to be set flashes.**



Shift to the display "PROGRAMMED TIME OF SYSTEM OFF".

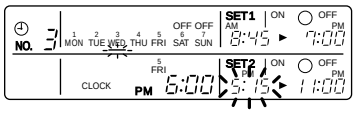
5 **Press the HOUR/MINUTE BUTTON and change the programmed time. Press the OK BUTTON, and finalize the setting of change.**

(HC0186)

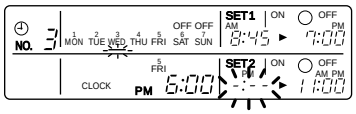


Change the programmed time of system OFF p 1 to 7:00 p.m.

6 Press the PROGRAM CANCELING BUTTON, and cancel the programmed time. If you press it again, display returns to the original state. Press the TIMER ON BUTTON to finalize the cancellation.



Shift to the programmed time of system start 2.

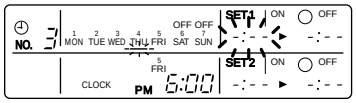


Set the programmed time of system start 2 to program cancellation.

In the same procedure, cancel the programmed time of system off 2.

B. Cancel the whole

7 Press the BUTTON FOR SELECTING DAYS OF A WEEK, and shift to the day of the week to be canceled. Then, press the HOLIDAY SETTING BUTTON; the display "OFF" appears at the top of the particular day of the week. The programmed time is canceled. If you press the button again, the display returns to the original state.



Shift the day of the week to Thursday to set as a holiday.

7 Press the PROGRAMMING START BUTTON. The program setting is now finished.

Notes:

- Unless the button is pressed within 20 minutes, the display will automatically revert back to the original state. In this case, setting contents to the point where the TIMER ON BUTTON (or HOLIDAY SETTING BUTTON or BUTTON FOR COPYING PROGRAM OF PREVIOUS DAY) is pressed will only take effect.
- To continue the change/cancellation, do not press the PROGRAMMING START BUTTON until all change/ cancellation are completed.
- The operation controlled by timer is executed even while the program is being set.

MANUAL OPERATION (Fig. 6)

This schedule timer enables the operation/stop by pressing the UNIFIED OPERATION/STOP BUTTON in addition to the operation controlled by timer (operation/stop according to the programmed time) at any time.

Press the UNIFIED OPERATION BUTTON, and the OPERATION LAMP turns on.

Press the UNIFIED STOP BUTTON, and the OPERATION LAMP is turned off.

Notes:

- The operation automatically stops according to the programmed time of system off even during the manual operation. In the meantime, the operation starts automatically according to the programmed time of system start even during the stop of operation.
- If the unit is used in conjunction with other optional controllers for centralized control, the OPERATION LAMP of the unit that is not under operation control may be turned on or off a few minutes behind schedule. This shows that the signal is being exchanged, and does not indicate any failure.

(HC0187)

Operation lamp
○ Turn on: The light turns on when any of the indoor units is in operation whether the operation is controlled by timer or by hand.
● Turn off: The light turns off when all the indoor units stop.

OPERATION CONTROL CODE

Two different types of operation control codes can be selected when this kit is used independently (when not used in conjunction with the centr al remote controller, unified ON/OFF controller, etc.).

■ Individual

In case where the operation/stop is controlled by both schedule timer and remote controller.

■ Centralized

The operation is controlled by the schedule timer alone, and the operation/stop is controlled freely with the remote controller during the programmed time.

Notes:

- For current settings, contact your DAIKIN dealer.
- To change settings, contact your DAIKIN dealer. Do not change settings yourself.

ERROR DIAGNOSING FUNCTION (Fig. 7)

This schedule timer is provided with the malfunction diagnosing function. The malfunction code flashes if there occurs any malfunction in communication, etc. between and among the optional controllers for centralized control. In addition, the operation lamp also flashes if there occurs any malfunction in communication with the indoor unit. Check the contents of the display and contact your DAIKIN dealer because the signals give you the idea of the trouble area.

Operation lamp	Malfunction code	Contents of malfunction
Turn off	M1	Failure of PC board of schedule timer.
Turn on or off	M8	Malfunction of transmission between each optional controllers for centralized control.
Turn on or off	MA	Improper combination of optional controllers for centralized control.
Turn on or off	MC	Address failure of schedule timer.
Flash	UE	Malfunction of transmission between indoor unit and optional controllers for centralized control.
Flash	–	Malfunction in indoor unit (Refer to the malfunction codes of the indoor remote controller, while also read the "CAUTION FOR SERVICING" attached to the indoor unit.)

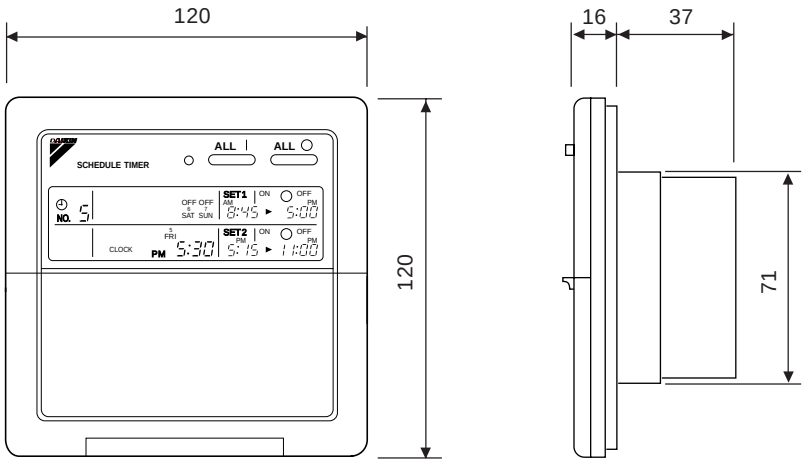
(HC0188)

SPECIFICATION

■ SPECIFICATIONS

Display of time	12-hour digital display
Clock cycle type	Quartz clock type
Clock accuracy	Within ± 30 sec. / month (environmental temperature from 15°C to 35°C)
Timer programming	Two pairs of programmed time for both system start and system off can be set in units of minute for each day of the week
Power failure compensation time	Approximately 48 hours for a single occurrence of power failure (clock with No. of programmed time)
Size (Width ¥ Height ¥ Depth)	120(W) ¥ 120(H) ¥ 53(D) mm
Weight	Approximately 210g

■ OUTLINE DRAWINGS



Specifications and appearance subject to change without notice. (HC0189)

6.10 K-DGL100A, K-DGL150A, K-DGL200A, K-DGL250A: Air suction / discharge grill

Model name	K-DGL100A	K-DGL150A	K-DGL200A	K-DGL250A
Applicable model	VAM150FA7VE	VAM250FA7VE VAM350FA7VE	VAM500FA7VE VAM650FA5/7VE	VAM 800FA5/7VE VAM1000FA5/7VE VAM1500FA5/7VE VAM2000FA5/7VE
Nominal pipe diameter (mm)	f 100	f 150	f 200	f 250
Noise reducing effect (dB)	approx. 6	approx. 6	approx. 11	approx. 11
Effective opening area (cm^2)	187	257	333	438
Weight (kg)	2.4	3.3	4.5	5.2

Applications and features

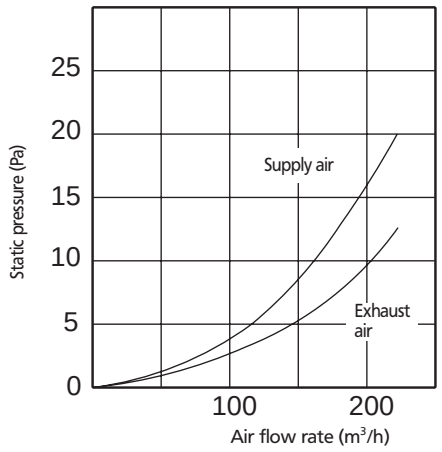
- The grille can be installed at any location, using a duct.
- The grille effectively reduces the total heat exchanger noise transmitted from the duct.

Cautions

- Do not install the grille in a place of excessive high temperature.
- Do not install the grille in a place of much oil and smoke and of high humidity.

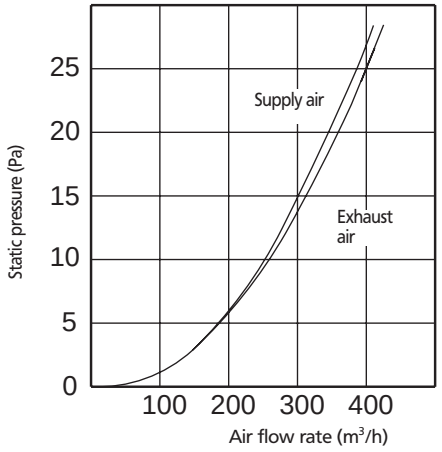
Pressure loss curve

K-DGL100A



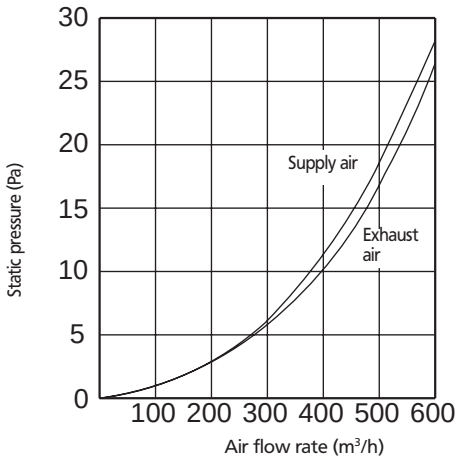
(HC0193)

K-DGL150A



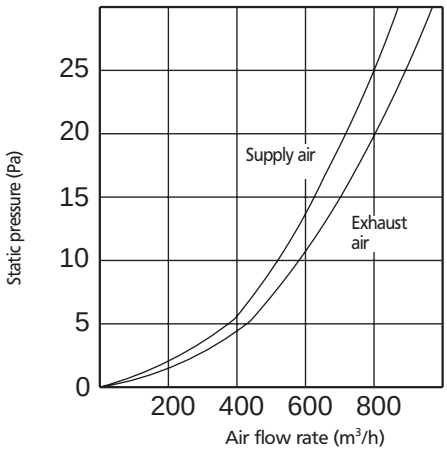
(HC0194)

K-DGL200A



(HC0239)

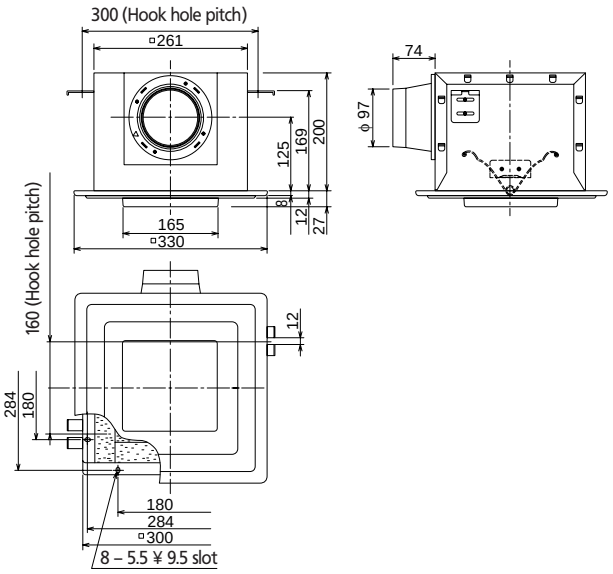
K-DGL250A



(HC0240)

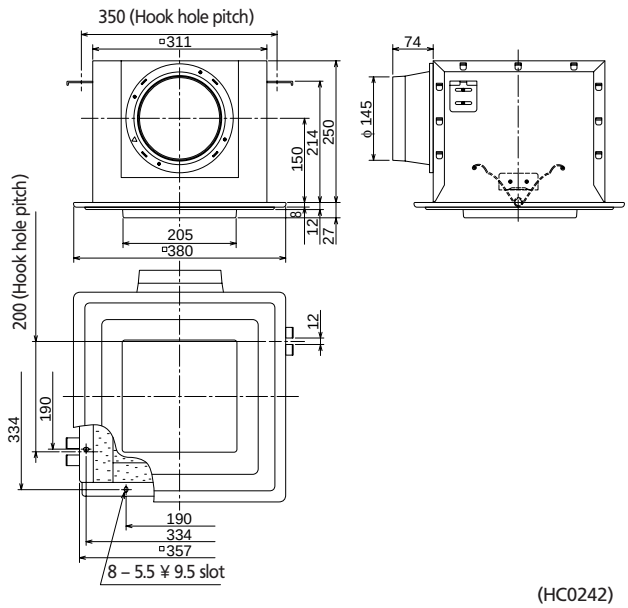
Dimensions

K-DGL100A



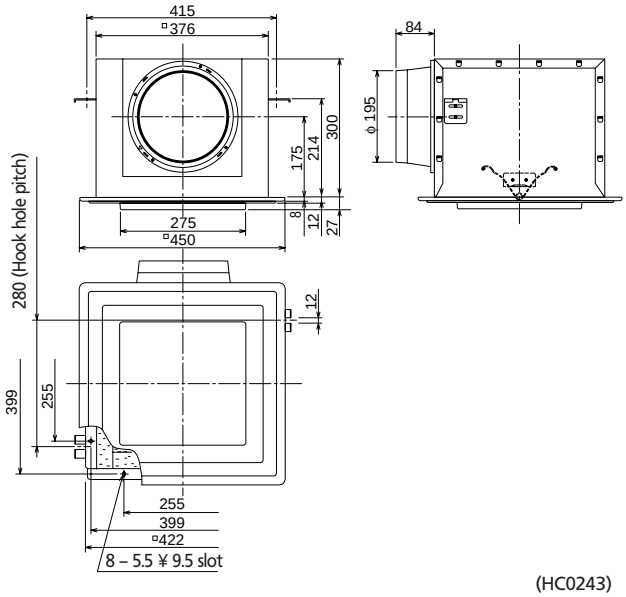
(HC0241)

K-DGL150A



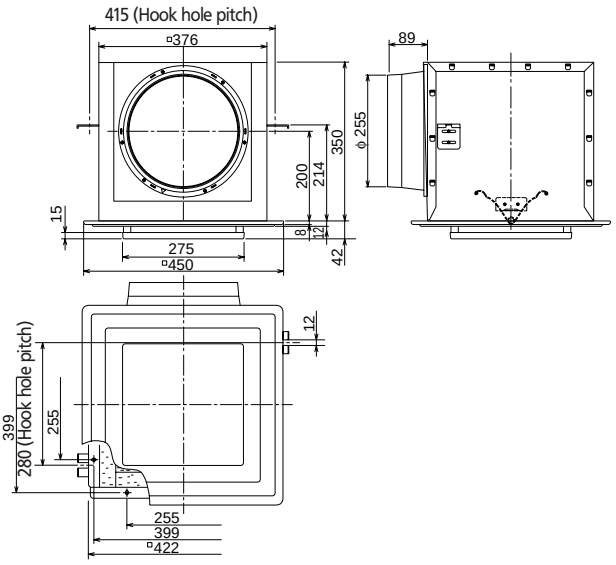
(HC0242)

K-DGL200A



(HC0243)

K-DGL250A

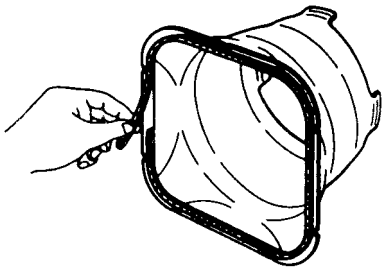


(HC0244)

10

Installation procedure

Before starting installation, attach the supplied packing to the adapter provided in the same package.
(Attach the packing to the adapter flange so that it will be set within the periphery of the flange.)



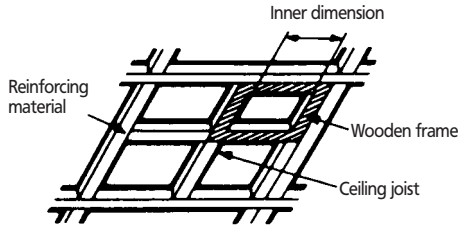
(HC0198)

6.10.1. For installing on a wooden frame (Using ceiling joist)

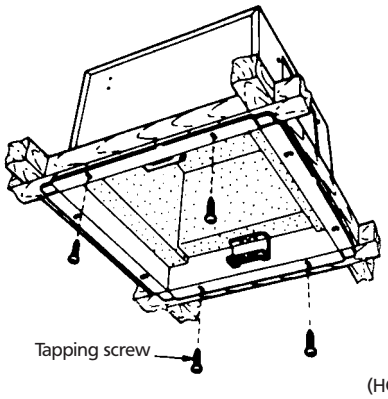
1. Fabricate the wooden frame and attach it to the ceiling joist.
   *If the joist is not strong enough to support the unit, use hanging bolts as well.

	K-DGL100A	K-DGL150A	K-DGL200A K-DGL250A
Inner dimension	□270	□320	□385
Wooden frame	Approx. 30 mm (square)		

2. Put the unit inside the wooden frame and fix the unit using the provided tapping screws (long ones).
3. Attach the adapter to the body using the provided tapping screws (short ones).



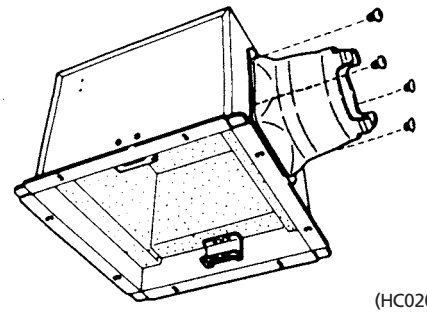
(HC0199)



(HC0200)

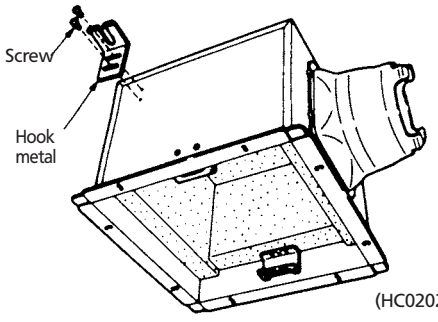
6.10.2. For suspending on anchor bolts

1. Attach the adapter to the body using the provided tapping screws (short ones).



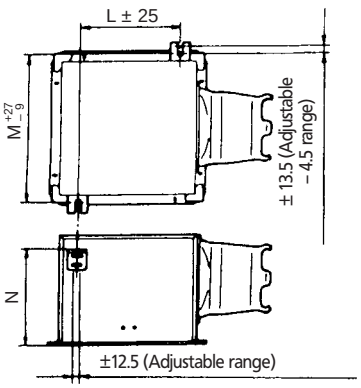
(HC0201)

2. Fix the provided hook metals (2 pcs.) to the body using the four tapping screws (short ones).
3. Fix the body to the anchor bolts so that it stays horizontally level. (M8 or M10)



(HC0202)

Hook metal fixing position



(HC0197)

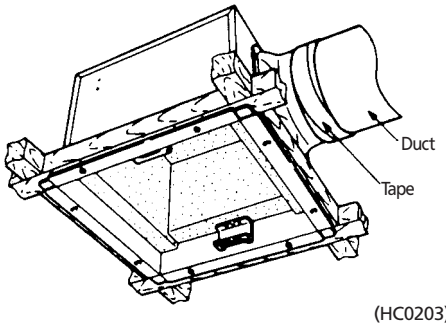
Dimension table Unit: mm

Part No.	L	M	N
K-DGL100A	160	300	169
K-DGL150A	200	350	214
K-DGL200A	280	415	214
K-DGL250A	280	415	214

6.10.3. Common works

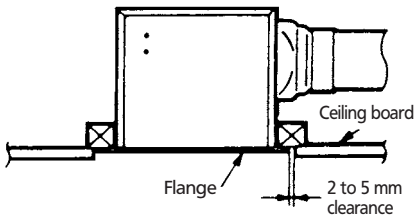
Duct connection and ceiling board installation

1. Put the duct into the adapter and fix them by winding tape around the joint.
   (Suspend the duct from the ceiling to prevent any load from being applied to the body.)



(HC0203)

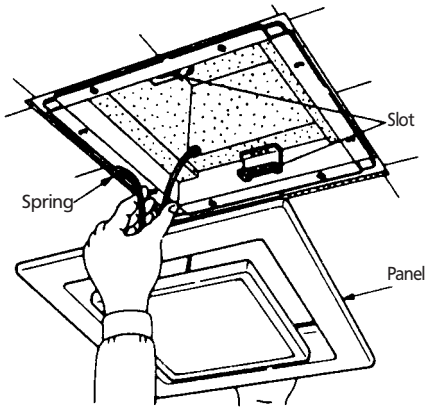
2. Install the ceiling board, providing a clearance of 2 to 5 mm between the flange and the board.
   (If no clearance is provided, maintenance of the unit cannot be performed.)



(HC0204)

Installation of the panel

Contract the panel spring and put it in the panel holder slot to fix the panel.

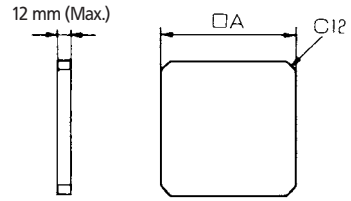


(HC0205)

6.10.4. Installing the ceiling material and gluing the wall paper

For installing the ceiling material

1. Cut the ceiling material to the following dimensions.

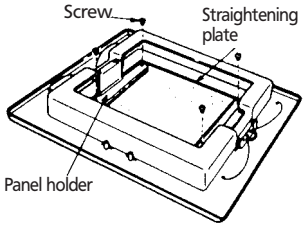


(HC0206)

	K-DGL100A	K-DGL150A	K-DGL200A, 250A
A	157	197	267

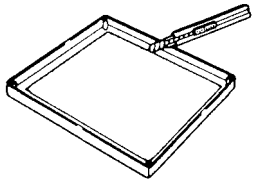
- Avoid using heavy (0.7 kg or more) or fragile material as the ceiling material.

2. Remove the four screws and detach the panel.



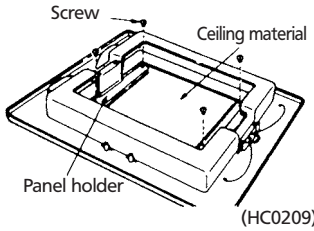
(HC0207)

3. Cut the panel along the groove.



(HC0208)

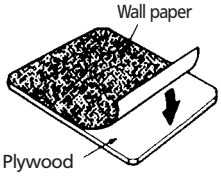
4. Put the cut ceiling material and reassemble the panel.
   (If the ceiling material thickness is not more than 12 mm, attach the provided packing to the rear side of the panel holder.)



(HC0209)

For gluing the wall paper

1. Prepare a piece of plywood of the same size as the ceiling material.
2. Glue the wall paper to the plywood.
   (The thickness after gluing the wall paper should not be more than 12 mm.)



(HC0210)

C: 3K074171-1A

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6.11 KDDM24A50, KDDM24A100: Silencer

Part No.	KDDM24A50	KDDM24A100	
Applicable model	VAM500FA7VE	VAM650FA5/7VE	VAM800FA5/7VE, VAM1000FA5/7VE, VAM1500FA5/7VE, VAM2000FA5/7VE
Nominal pipe diameter	f 200 mm	f 200 mm	f 250 mm
Noice suppression effect	Approx. 6 dB		

Applications and features

- The silencer effectively reduces the noise of the HRV units.
- Air flow rate should be lower than 600 m^3 / h for the model KDDM24A50 and lower than 1000 m^3 / h for the model KDDM24A100.

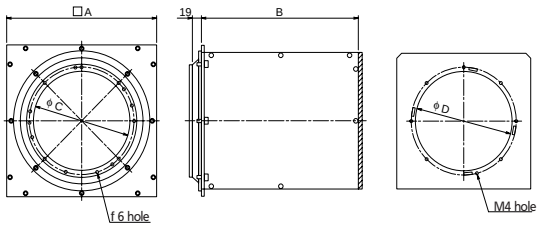
Caution

The silencer cannot be used on different model. Confirm the model before installation.

Dimensions

KDDM24A50

KDDM24A100



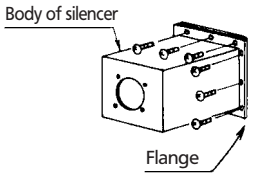
(HC0245)

Dimension table (unit: mm)

Part name	A	B	C	D
KDDM24A50	320	340	206	210
KDDM24A100	380	480	250	260

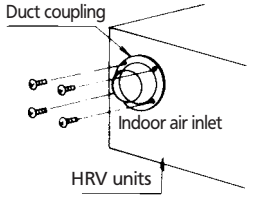
Installation procedure

1. Remove the flange from the silencer.



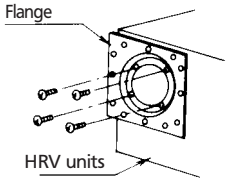
(HC0212)

2. Remove the duct coupling of the air inlet provided on the body of HRV units.



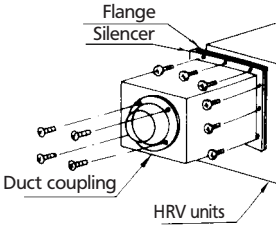
(HC0213)

3. Use the provided screws and install the flange on the HRV units.



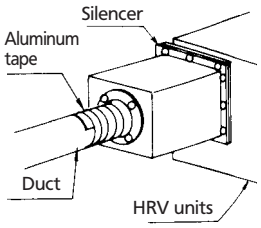
(HC0214)

4. Install the silencer on the flange. Then, install the duct coupling.



(HC0215)

5. Insert the duct into the duct coupling and wind round the commercially available aluminum tape, etc. to prevent the air leakage.

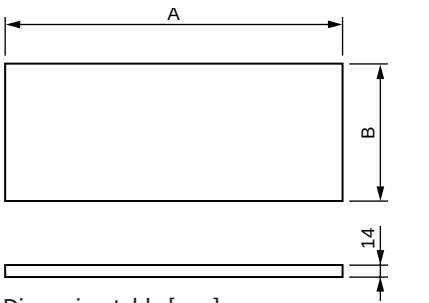


(HC0216)

6.12 YAFF323F15, YAFF323F25, YAFF323F35, YAFF323F50, YAFF323F65, YAFF323F100: Air filter replacement

Part No.	Applicable model	Q'ty
YAFF323F15	VAM150FA7	2
YAFF323F25	VAM250FA7	2
YAFF323F35	VAM350FA7	2
YAFF323F50	VAM500FA7	2
YAFF323F65	VAM650FA5/7, VAM800FA5/7	2
	VAM1500FA5/7	4
YAFF323F100	VAM1000FA5/7	2
	VAM2000FA5/7	4

Dimension



(HC0219)

Specification

Working ambient temperature	– 10 to 50 °C
Working ambient humidity	Less than 85% RH
Pressure loss	Initialloss: Less than 1.5 mm H_2O Finalloss: 8 mmH_2O
Life	Over 2500 hours (Dust density: 0.10 mg / m^3.h
Average dust collecting efficiency	Over 82% (Gravimetric method)

Dimension table [mm]

Part No.	A	B
YAFF323F15	362	147
YAFF323F25	435	147
YAFF323F35	621	167
YAFF323F50	725	167
YAFF323F65	757	202
YAFF323F100	1016	202

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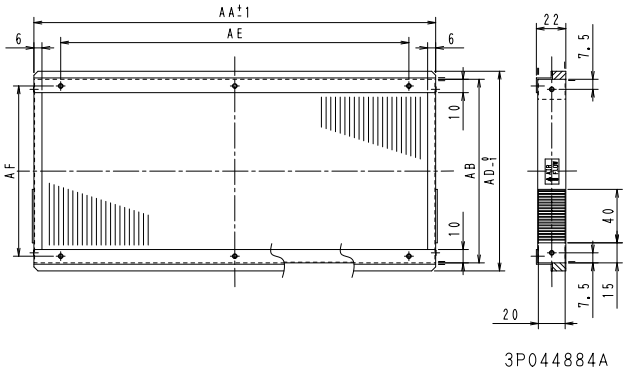
6.13 YAFM323F15, YAFM323F25, YAFM323F35, YAFM323F50, YAFM323F65, YAFM323F100: High efficiency filter

Part No.	Applicable Model	Q'ty / Set	Required set
YAFM323F15	VAM150FA7VE	1	1
YAFM323F25	VAM250FA7VE	1	1
YAFM323F35	VAM350FA7VE	2	1
YAFM323F50	VAM500FA7VE	2	1
YAFM323F65	VAM650FA5/7VE, VAM800FA5/7VE	2	1
	VAM1500FA5/7VE		2
YAFM323F100	VAM1000FA5/7VE	2	1
	VAM2000FA5/7VE		2

Dimension



3P044884A

Dimension table [mm]

Part No.	AA	AB
YAFM323F15	362	138
YAFM323F25	435	138
YAFM323F35	311	152
YAFMF323F50	363	152
YAFM323F65	379	193
YAFM323F100	508	193

Specification

Filters material	Non woven cloth
Available conditions	Ambient temperature (0 – 50°C) Relative humidity (40 – 95%)
Initial pressure loss	24.5 Pa (2.5 mmH_2O) or less.
Final pressure loss	78.4 Pa (8 mmH_2O) or less.
Average dust collecting efficiency	65% (Colorimetric method)
Life time	Over 2500 hours (Outdoor dust density: 0.15 mg / m^3)
VAM1500, 2000 need 2 sets per one unit.	

6.14 K-FDS101C, K-FDS151C, K-FDS201C, K-FDS251C, K-FDS102C, K-FDS152C, K-FDS202C, K-FDS252C: Flexible Duct

Part Name: 1 m	K-FDS101C	K-FDS151C	K-FDS201C	K-FDS251C
Part Name: 2 m	K-FDS102C	K-FDS152C	K-FDS202C	K-FDS252C
Applicable model	VAM150FA7VE	VAM250FA7VE VAM350FA7VE	VAM500FA7VE VAM650FA5/7VE	VAM 800FA5/7VE VAM1000FA5/7VE VAM1500FA5/7VE VAM2000FA5/7VE
Nominal diameter	f 100	f 150	f 200	f 250
Duct length	1 m (101C, 151C, 201C, 251C)			
	2 m (102C, 152C, 202C, 252C)			

Applications and features

- Flexible duct is used for the outdoor supply air / exhaust air.
- The flexible duct can be bent according to the place of installation and is suitable for installation involving a height difference between the body and the supply air / exhaust air opening. The flexible duct helps simplify installation and construction.
- The flexible duct can be extended by using provided joints.

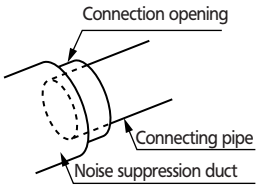
Cautions

- Do not use the flexible duct in a place of mush oil and smoke or high humidity such as bathroom and kitchen.
- Broken flexible duct and surface sheet cause air leakage. Pay particular attention to them.
- Maintain the wind speed at 15 m / sec. inside the flexible duct. Working static pressure must be within –13 mmH_2O to 50 mmH_2O.

Installation procedure

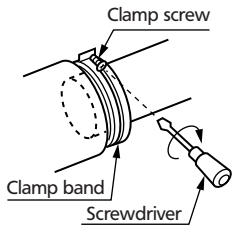
- Use the nominal diameter of the connecting pipe according to the noise suppression duct diameter.
- Use the provided clamp band to secure the noise suppression duct. Insert the connection opening of the noise suppression duct into the connecting pipe and tighten with clamp band.

1. Insert the connection opening of the noise suppression duct into the connecting pipe.



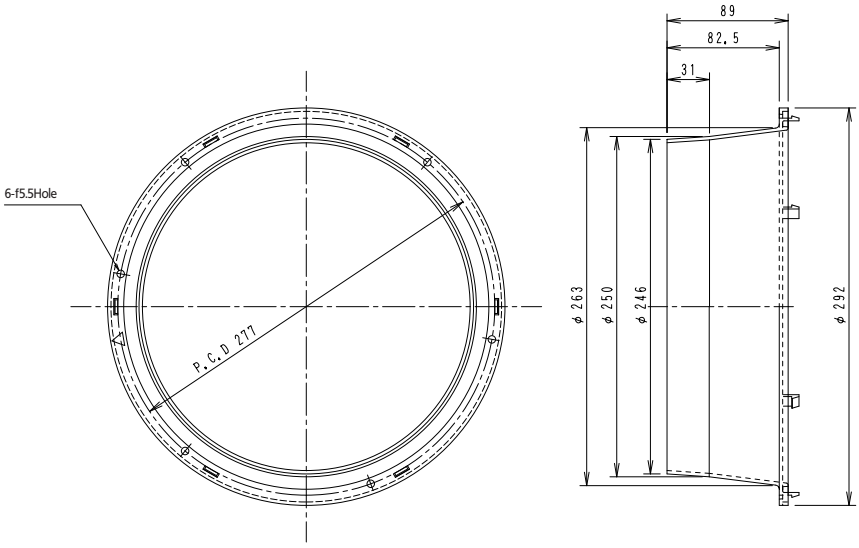
(HC0221)

2. Install the clamp band on the connection opening of the noise suppression duct. Use a screwdriver to turn the clamp screw to securely clamp the duct.



(HC0222)

6.15 YDFA25A1: Duct adapter



Material: Polystylene (Flammability: UL94V – O)

3D013345

6.16 BRP4A50: Heater control kit

Operation range of the HRV is " –10°C to 50°CDB 80% RH or below."
When operating the HRV units at or below –10°C of the outdoor air temperature, use preheater (field supplied) to preheat outdoor air.
This kit is required to have ON / OFF delay control when preheater is used. (Initial setting is required.)

Cautions

- For electric heater, safety devices and installation location, follow the standards or regulations of each country.
- Use nonflammable duct for the electric heater. Be sure to keep 2 m or more between the heater and HRV unit for safety.
- For the HRV units, use a different power supply from that of the electric heater and install a circuit breaker for each.

Electric heater capacity formula

Heat capacity P (kW) = 0.29 ¥ Air flow rate ¥ Temp. / 860

For VAM500FJVE when Air flow rate = 500m^3 / h (Ultra-high) and preheater so that the outdoor temp. rise from –20°C to –10°C (Temp. = 10 deg)

P = (0.29 ¥ 500 ¥ 10) / 860 = 1.68 (kW)

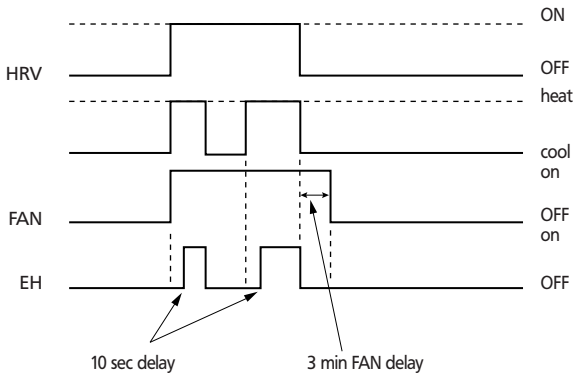
Check the temperature rise at low notch.
For 2kW heater, when 300m^3 / h
T = (860 ¥ P) / (0.29 ¥ Air flow rate)
= (860 ¥ 2) / (0.29 ¥ 300) = 19.7 deg
Therefore – 20 + 19.7 = –0.3°C

Cautions at initial setting

- Make sure to set remote control of HRV at initial setting as follows:

(for ON / OFF delay)

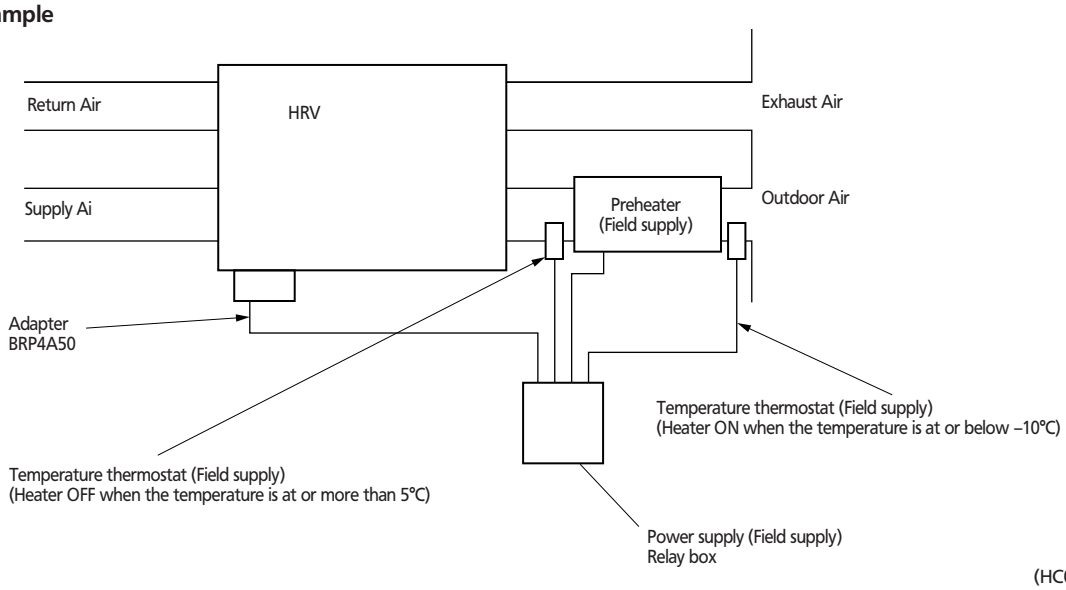
	Setting mode	Setting switch no.	Setting position
Heat setting	19	8	03 or 04



(HC0097)

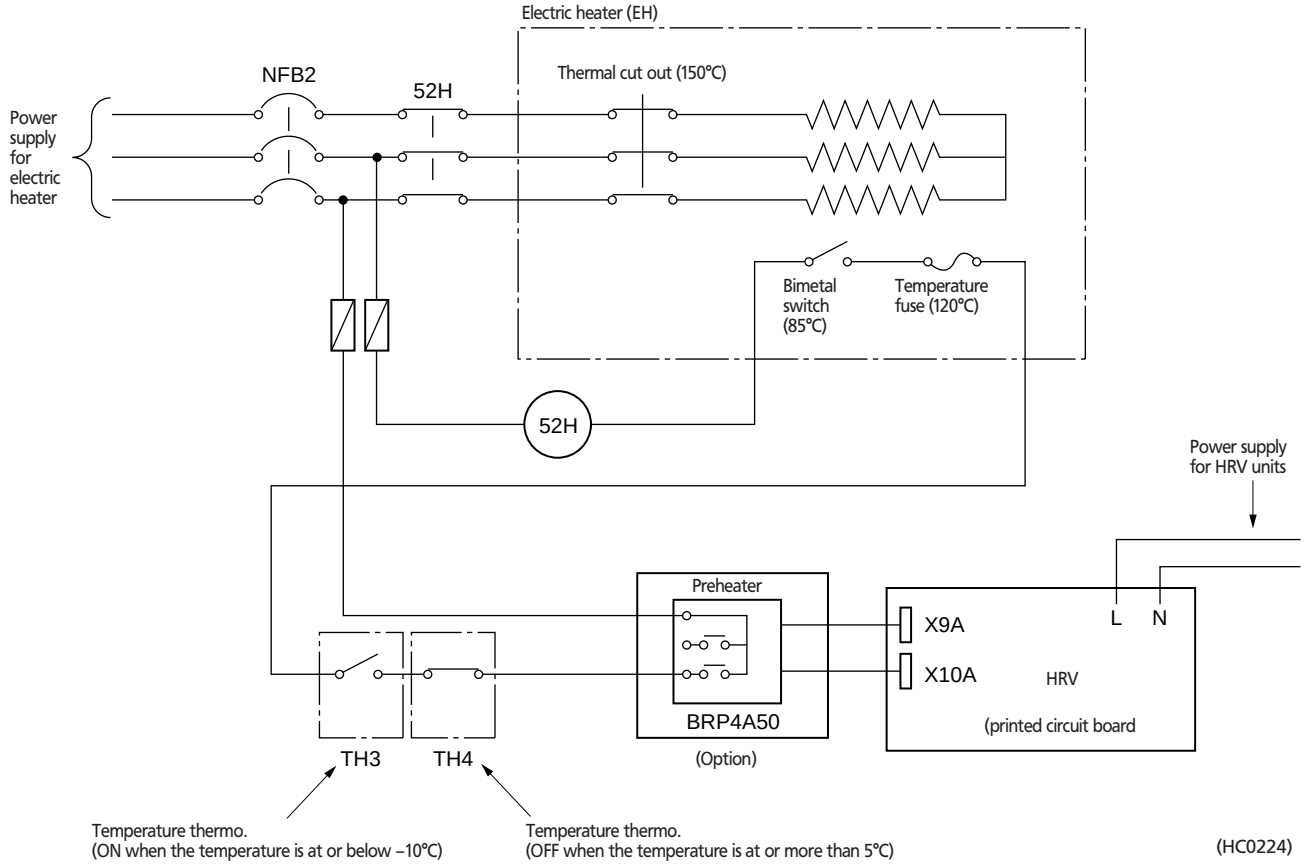
- Heater operating condition
  Heater starts operation when it is judged as Heating operation.
  (Judged from VRV signal of heating operation or HRV signal of thermostat.)
- **ON / OFF delay**
  Heater starts 10 seconds after HRV starts operation.
  Fan stops 3 minutes later after HRV stops operation.

Installation example



(HC0223)

Wiring



(HC0224)

Symbol	Part	Installation Place	
52H	Relay	Install a relay box at site	Field supply
EH	Electric heater (Bimetal switch, Temperature fuse, Thermal cut out etc. (built in)	Duct	Field supply
TH3	Temperature thermostat (ON when the temperature is at or below –10°C)	Duct (Front of EH)	Field supply
TH4	Temperature thermostat (OFF when the temperature is at or more than 5°C)	Duct (behind of EH)	Field supply

Note:

Make sure to install TH3 and TH4 for safety.

Test run

After completing the installation of the system, check again to make sure that no error was made in wiring or switch setting on the printed circuit boards of the HRV units.

Then, turn on the power of the HRV units. Refer to the manual of the remote control of each unit (remote control for air conditioner, central control unit, etc.) for conducting a trial operation.

Heater control kit

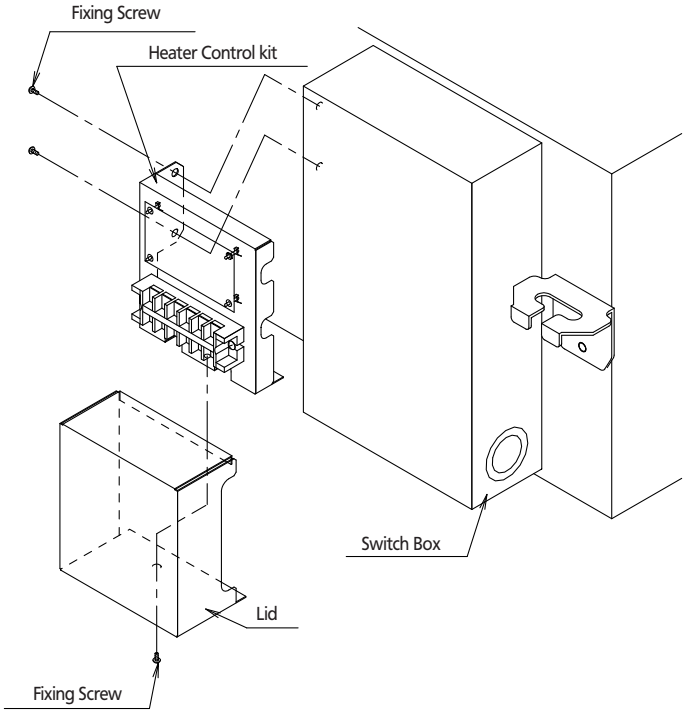
Accessories

See the right for componens.

Fixing Screw	2 pcs.
Clamp	2 pcs.

Installation

Install the Heater control kit to the outside of switch box for HRV unit as shown below.



<< Cautions >>

< Switch setting of the HRV unit >

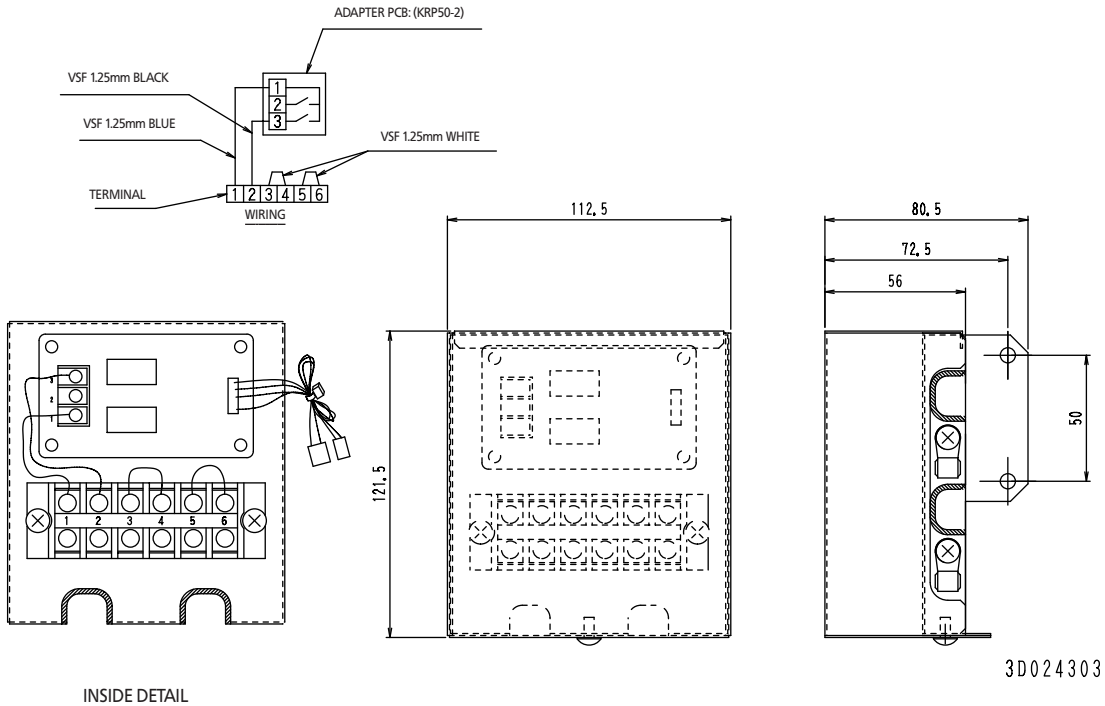
The initial setting is required by remote controller for indoor unit or HRV unit.

See the INSTALLATION MANUAL of HRV (Local setting) Electric heater setting ON, OFF delay [19 (29 • 8 • 03]

❊ The initial setting is necessary for safety.

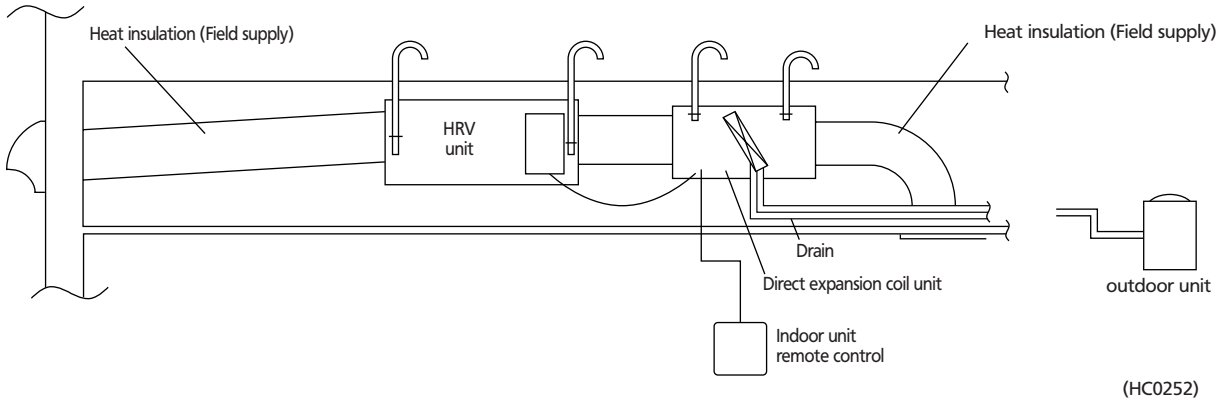
3P055038

Switch box



6.17 BHDM50AJVE, BHDM80AJVE, BHDM100AJVE: Direct Expansion Coil Unit (Refrigerant R-407C: standard/Refrigerant R-22: special order)

6.17.1. How to use this unit



(HC0252)

The direct expansion coil functions to heat or cool the supply air from HRV. It keeps the room temperature near to the set point when using 100% fresh air intake to maintain the comfort, when de control sensor is present and activated.

6.17.2. Specifications

Capacity Index			25	40	50
Model	*1		BHDM50AJVE(R)	BHDM80AJVE(R)	BHDM100AJVE(R)
Power Supply		VE	1 ~ 50 Hz 220 – 240V · 60 Hz 220V		
Cooling capacity	*2	kW	2.8 (※3.0)	4.5 (※4.8)	5.6 (※6.1)
Heating capacity	*3	kW	3.2 (※3.2)	5.0 (※5.0)	6.3 (※6.3)
Casing / color			Galvanised steel plate		
Dimensions: (H ¥ W ¥ D)		mm	300 ¥ 550 ¥ 800	300 ¥ 700 ¥ 800	
Coil (cross fin coil)	Rows ¥ Stages ¥ Fin pitch		3 ¥ 14 ¥ 1.75		
	Face area	m^2	0.088	0.132	
Air flow rate		m^3 / h	540	690	900
Air flow rate range		m^3 / h	330 – 600	480 – 780	540 – 930
Normal input		W	16		
Temperature control			Microprocessor thermostat for cooling and heating		
Weight		kg	24	25	
Piping connections	Liquid	mm	f 6.4 (flare connection)		f 9.5 (flare connection)
	Gas	mm	f 12.7 (flare connection)		f 15.9 (flare connection)
	Drain	mm	VP25 (External dia. 32, internal dia. 25)		
Safety devices			Fuse		
Refrigerant control			Electronic expansion valve		
Standard accessories			Operation manual, Installation manual, Drain hose, Clamp metal, Insulation for fitting, Sealing pads, Clamps, Screws, Washers		

Notes:

*1. BHDM-AJVE Æ R-407C, (R) BHDM-AJVER Æ R-22

*2. Nominal cooling capacities are based on:
Indoor temperature: 27°CDB. 19°CWB, Outdoor temperature: 35°CDB
Equivalent refrigerant piping: 5 m (Horizontal)

*3. Nominal heating capacities are based on:
Indoor temperature: 20°CDB, Outdoor temperature: 7°CDB, 6°CWB
Equivalent refrigerant piping: 5 m (Horizontal)

*4. Cooling and Heating capacities marked with ※ are in case of connecting HRV unit.
Cooling capacities are based on:
Indoor air condition: 27°CDB, 50 RH%, Outdoor condition: 35°CDB, 60 RH%
Equivalent refrigerant piping: 5 m (Horizontal)

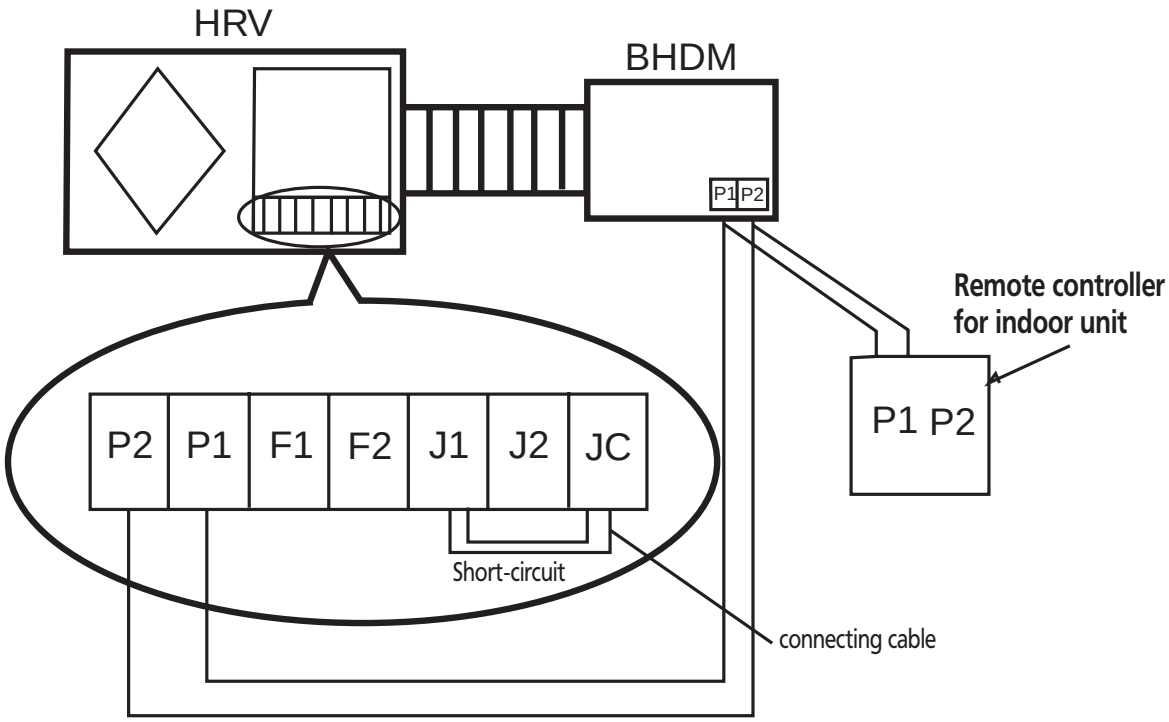
Air flow rate under the condition of nominal capacities are as follows:
HRV performance
Temperature exchanging efficiency: 74% Enthalpy exchange efficiency: 58%
Heating capacities are based on:
Indoor temperature: 20°CDB, 40 RH%, Outdoor temperature: 7°CDB, 70 RH%
Equivalent refrigerant piping: 5 m (Horizontal)
HRV performance
Temperature exchanging efficiency: 74% Enthalpy exchange efficiency: 62%

6.17.3. HRV Fan Speed for various combinations of BHDM and HRV

Fan Speed tap of HRV is restricted to ensure the working airflow range of BHDM in any combination of BHDM and HRV.

	(1)		(2)		(3)		(4)	
HRV Fan Speed	BHDM50AJVE VAM500FA7VE		BHDM80AJVE VAM650FA5/7JVE		BHDM80AJVE VAM800FA5/7VE		BHDM100AJVE VAM1000FA5/7VE	
	50Hz	60Hz	50Hz	60Hz	50Hz	60Hz	50Hz	60Hz
U-H	○	○	○	○	○	○	○	○
H	○	○	○	○	○	○	○	○
L	¥ Inapplicable	¥ Inapplicable	¥ Inapplicable	¥ Inapplicable	○	○	○	○

In the case of the combination (1) or (2), be sure to conduct initial setting of the HRV Fan Speed limit.



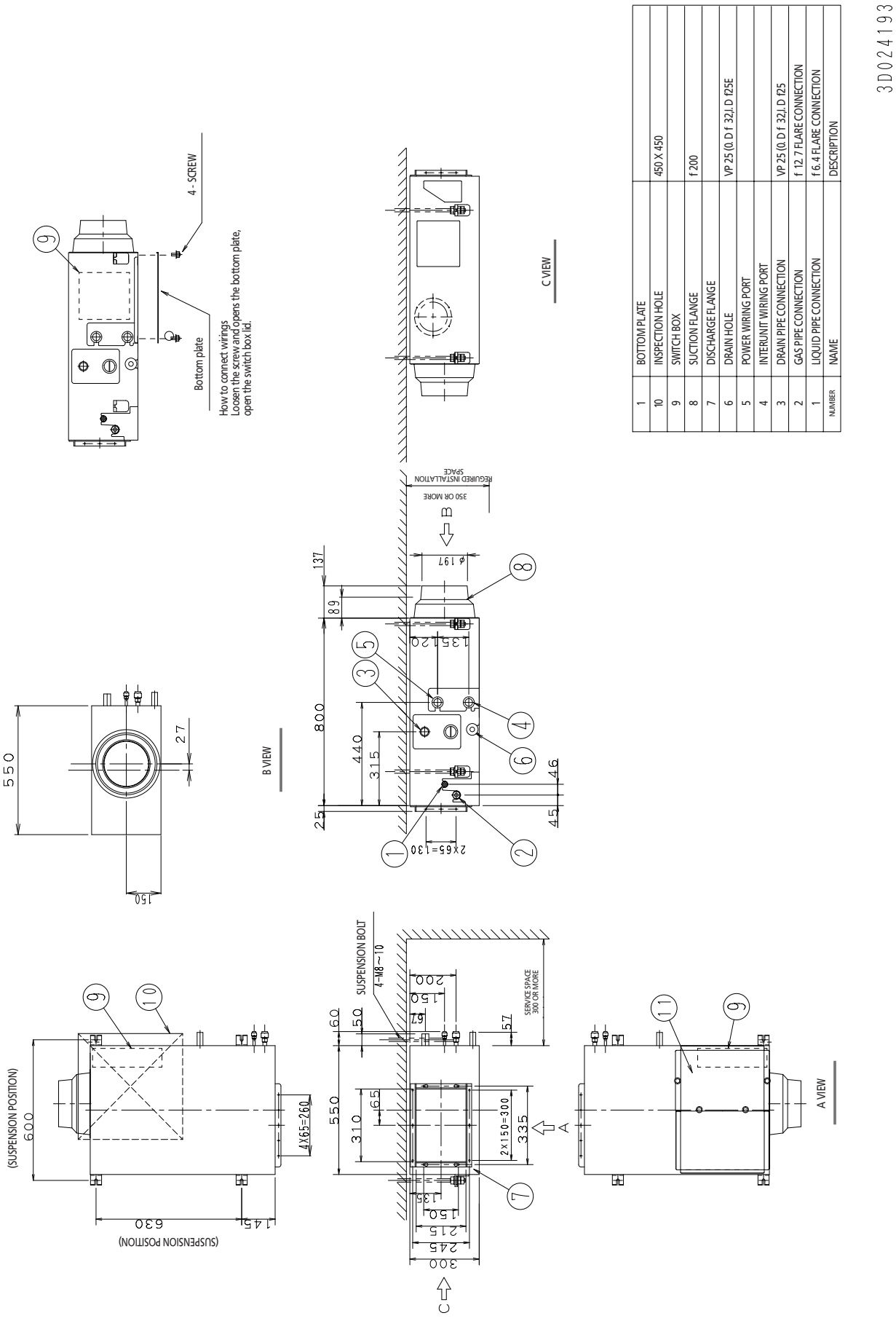
Switch setting for Direct expansion coil unit.

- Limitation on HRV airflow tap ·····"ON" [28 • 8 • 06]
- Short-circuit J1 and JC on the PCB of HRV.

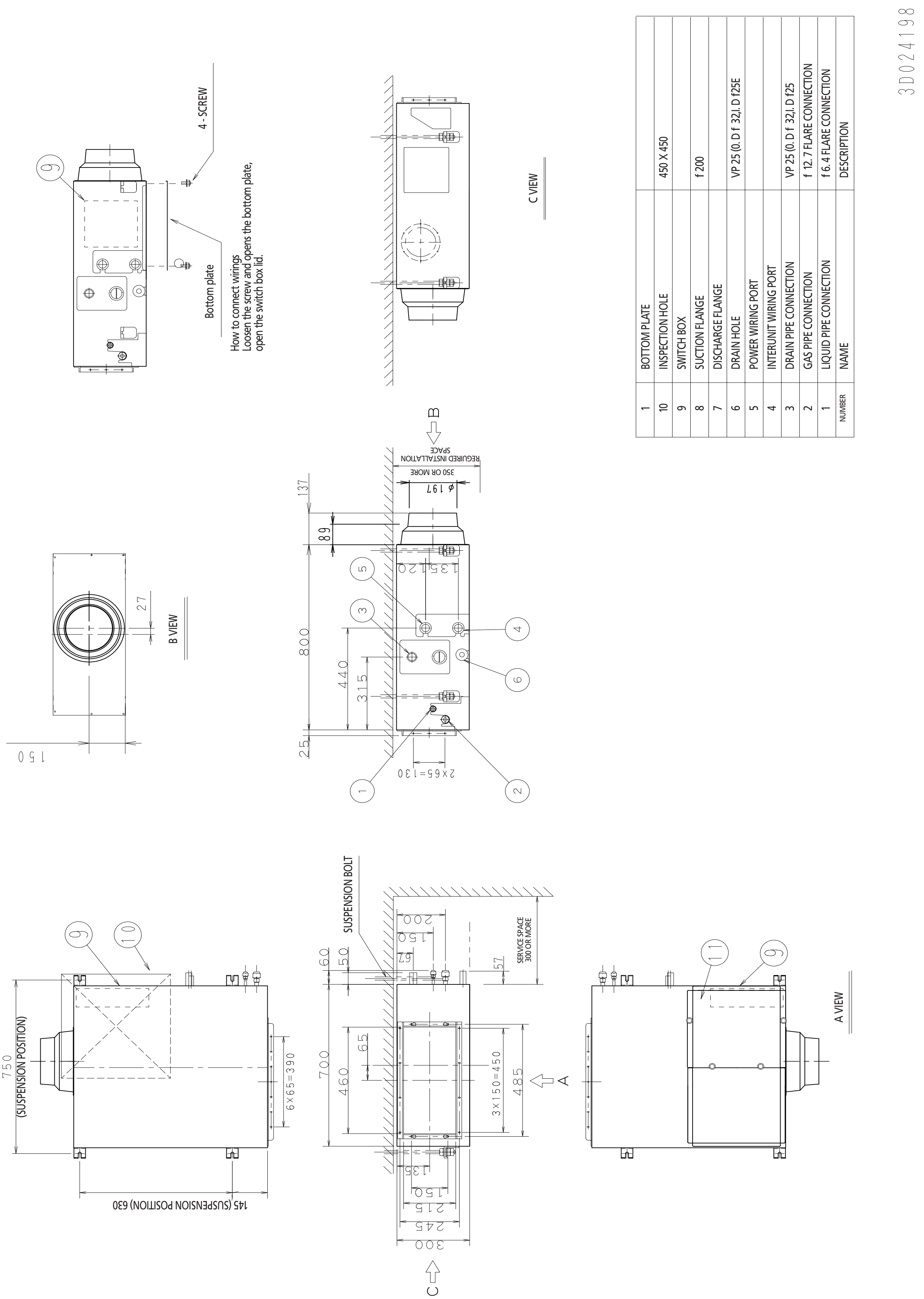
In the case of the combination (1) or (2), this setting sets the U-H tap of HRV to H and the H tap of HRV to L.

6.17.4. Dimensions

BHDM50AJVE

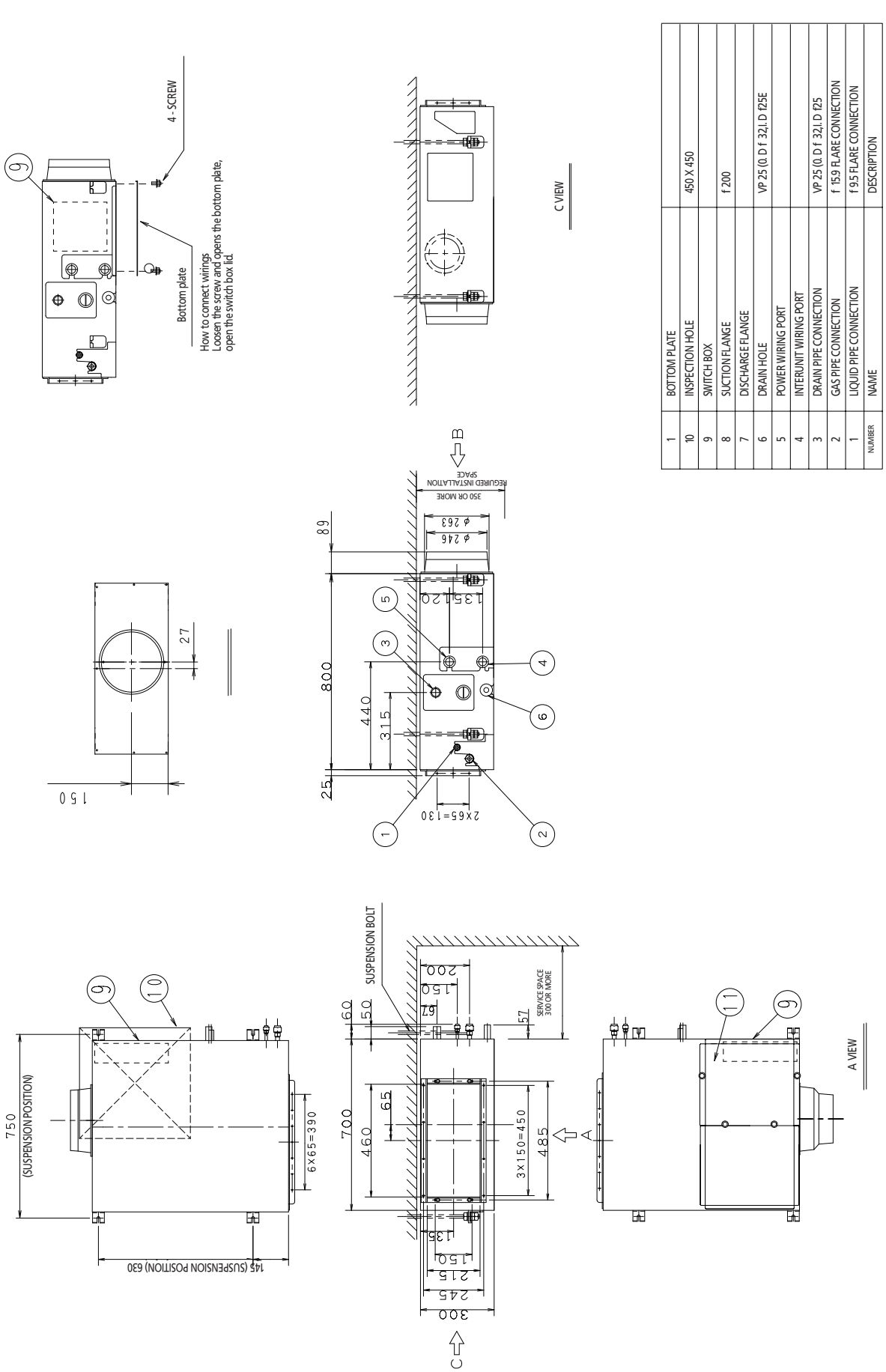


BHDM80AJVE



NUMBER	NAME	DESCRIPTION
1	BOTTOM PLATE	
10	INSPECTION HOLE	450 X 450
9	SWITCH BOX	
8	SUCTION FLANGE	f 200
7	DISCHARGE FLANGE	
6	DRAIN HOLE	VP 25 (0. D f 32,I. D f25E
5	POWER WIRING PORT	
4	INTERUNIT WIRING PORT	
3	DRAIN PIPE CONNECTION	VP 25 (0. D f 32,I. D f25
2	GAS PIPE CONNECTION	f 12. 7 FLARE CONNECTION
1	LIQUID PIPE CONNECTION	f 6. 4 FLARE CONNECTION

BHDM100AJVE



NUMBER	NAME	DESCRIPTION
1	BOTTOM PLATE	450 X 450
10	INSPECTION HOLE	
9	SWITCH BOX	f 200
8	SUCTION FLANGE	
7	DISCHARGE FLANGE	VP 25 (O.D f 32,I.D f25E
6	DRAIN HOLE	
5	POWER WIRING PORT	
4	INTERUNIT WIRING PORT	VP 25 (O.D f 32,I.D f25
3	DRAIN PIPE CONNECTION	f 15.9 FLARE CONNECTION
2	GAS PIPE CONNECTION	f 9.5 FLARE CONNECTION
1	LIQUID PIPE CONNECTION	

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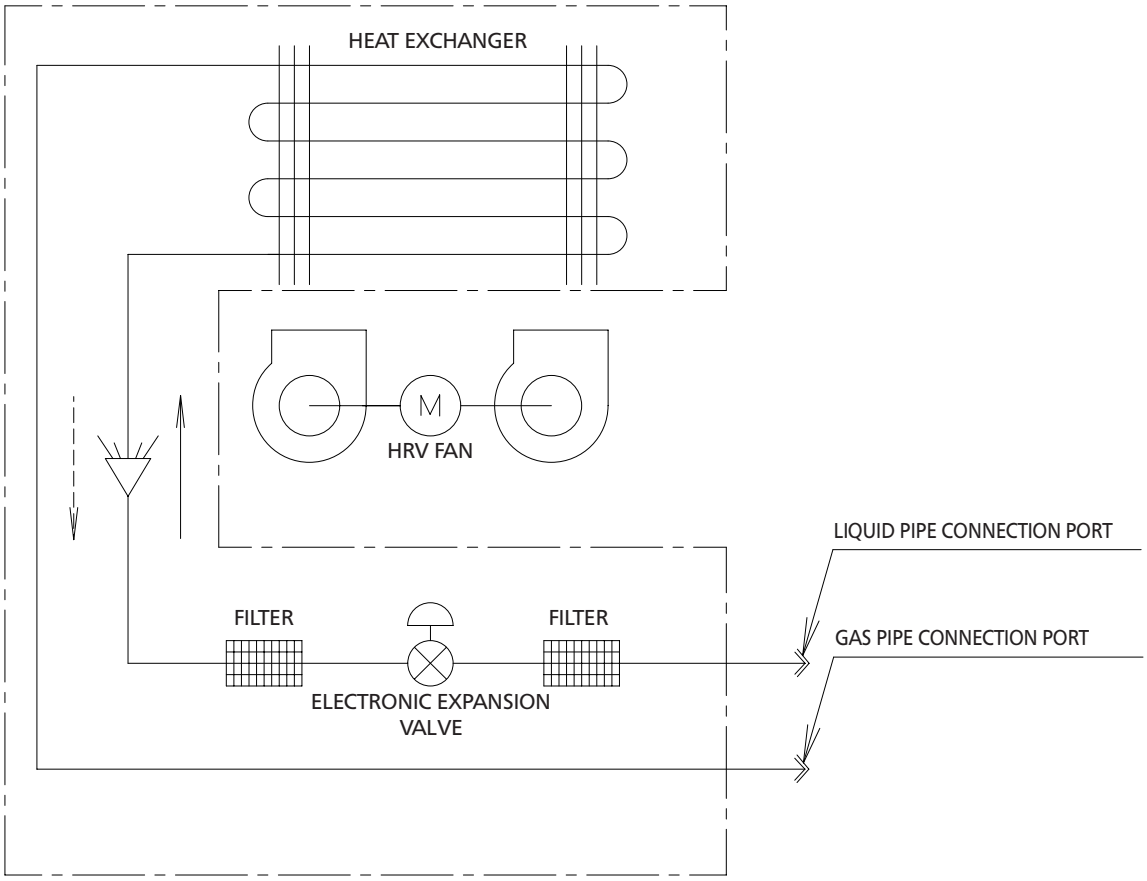
6.17.5. Piping Diagrams



REFRIGERANT PIPE CONNECTION PORT DIAMETERS

REFRIGERANT FLOW

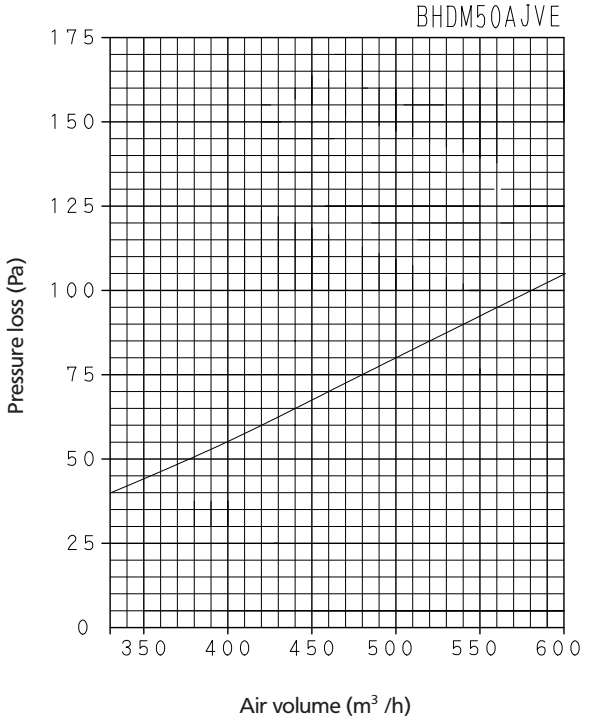
COOLING ——→

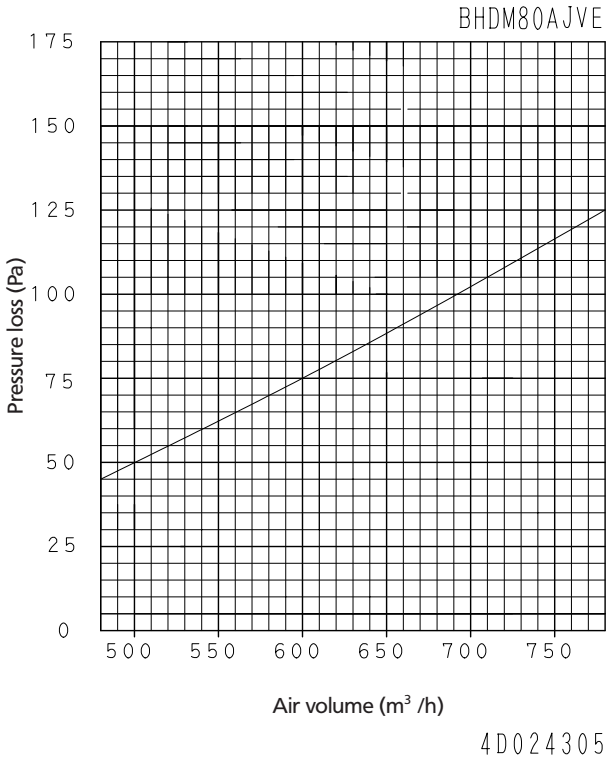
HEATING - - - - →

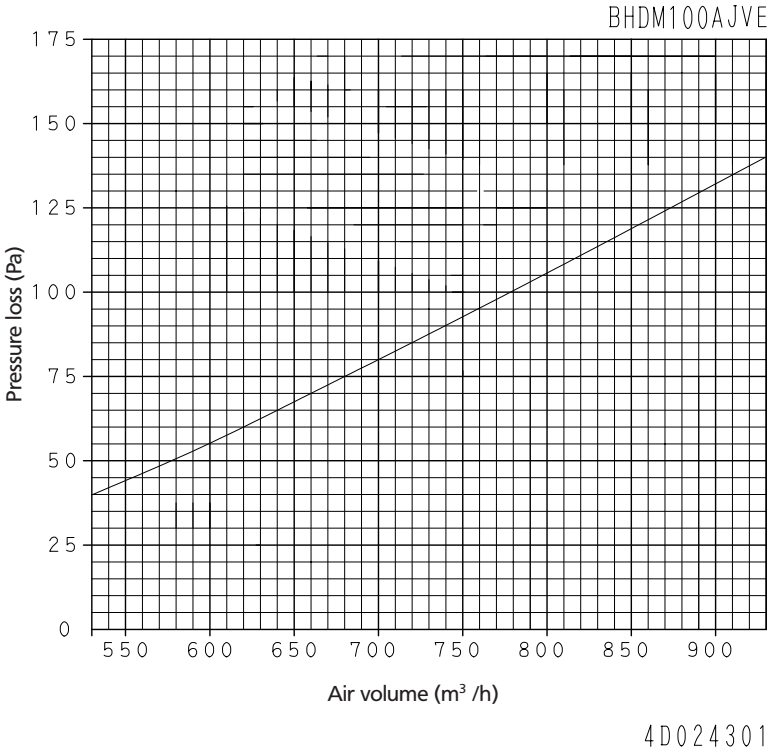
MODEL	GAS	LIQUID
BHDM50, 80AJVE	f 12.70	f 6.4
BHDM100AJVE	f 15.90	f 9.5

4D024300

6.17.6. Pressure loss







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6.17.7. Installation

BEFORE INSTALLATION

The direct expansion coil helps to recover approx. 100% of exhaust air heat and prevents unpleasant draft. It can also operate as an air conditioner.
Connectable unit: VRV and HRV.

- Decide upon a line of transport.
- Leave the unit inside its packaging while moving, until reaching the installation site. Use a sling of soft material, where unpacking is unavoidable or protective plates together with a rope when lifting, to avoid damage or scratches to the unit.
- Refer to the installation manual of the outdoor unit for items not described in this manual.

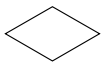
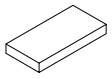
CAUTION CONCERNING NEW REFRIGERANT SERIES

- The connectable outdoor units must be RSXYP~K, the outdoor units designed exclusively for R-407C. If outdoor units for R-22 are connected, the system will not work properly.

PRECAUTIONS

- Be sure to read this manual before installing the indoor (the directexpansion coil unit) unit.
- Entrust installation to the place of purchase or a qualified serviceman. Improper installation could lead to leaks and, in worse cases, electric shock of fire.
- When installing the unit in a small room, take measures against to keep refrigerant concentration from exceeding allowable safety limits in the event of refrigerant leakage. Contact the place of purchase for more information. Excessive refrigerant in a closed ambient can lead to oxygen deficiency.
- Use only parts provided with the unit or parts satisfying required specifications. Unspecified parts could cause the unit to fall out of place, or could lead to leaks and, in worse cases, electric shock or fire.
- 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 unitto fall out of place, or could lead to leaks.)**
  - **Where corrosive gas like sulfurous gas exists. (Copper tubing and brazed spots may corrode which could eventually lead to refrigerant leaks.)**
  - **Where exposed to combustible 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.**
- When selecting installation site, refer to the paper pattern.
- 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.

ACCESSORIES Check the following accessories are included with your unit.

Name	Clamp metal	Paper pattern for installation	Drain hose	Insulation for fitting	Sealing pad	Screws for duct flanges
Quantity	1	1	1	1	Large and small 1 each	1 set
Shape				 for gas pipe  for liquid pipe	 Large  Small	
						BHDM50AJVE
						BHDM80 • 100AJVE

Name	Washer for hanging bracket	Clamp	Screws for fixing the paper Pattern for installation	[Other]
Quantity	8	4	6	∑Operation manual ∑Installation manual ∑Sealing material (35 ¥ 150)
Shape				

(HC0254)

OPTIONAL ACCESSORIES

Remote controller
Wired type

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

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

NOTES TO THE INSTALLER

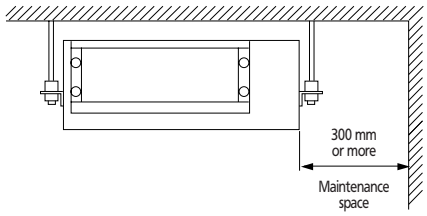
- Read this manual carefully to ensure correct installation. Be sure to instruct the customer how to operate the system showing him/her the enclosed operation manual.
- Explain to the customer what system is installed on the site and be sure to fill in what is required in the column shown on "WHAT TO DO BEFORE OPERATION" of the operation manual.
-

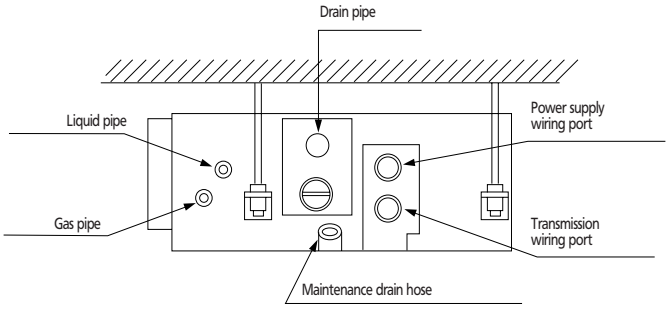
SELECTING INSTALLATION SITE

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

- Where optimum air distribution can be ensured.
- Where nothing blocks air passage.
- Where condensate can be properly drained.
- If supporting structural members are not strong enough to take the unit's weight, the unit could fall out of place and cause serious injury.
- Where the false ceiling is not noticeably on an incline.
- Where sufficient clearance for maintenance and service can be ensured.
- Where piping between indoor and outdoor units is possible within the allowable limit. (Refer to the installation manual for the outdoor unit.)
- Keep the indoor and outdoor units, power cable and transmission wiring, at least 1 m from TVs and radios, to prevent distorted pictures and static. (Depending on the type and source of the electrical waves, static may be heard even when more than 1 m away.)

② Select Use suspension bolts for installation. Check whether the ceiling is strong enough to support the weight of the unit or not. If there is a risk, reinforce the ceiling before installing the unit.

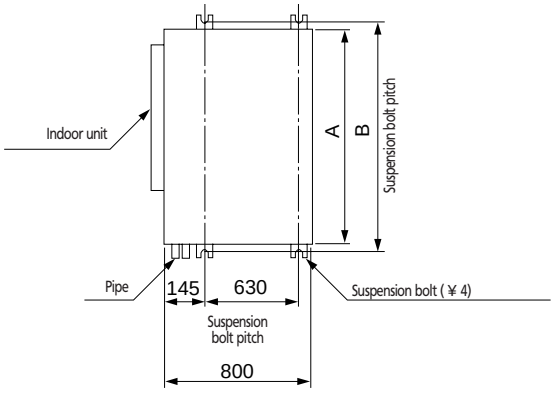




PREPARATIONS BEFORE INSTALLATION

① Relation of ceiling opening to suspension bolt position

Model	A	B
BHDM50AJVE	550	600
BHDM80 • 100AJVE	700	750



(HC0255)

Adaptor for discharge KDAJ25K36 • 56

■ Specifications

Item \ Kit name	KDAJ25K36	KDAJ25K56
Connection Dia. (fmm)	f200 ¥ 1 port	f200 ¥ 2 port
Applicable models.	BHDM 50AJVE	BHDM 80 • 100AJVE

■ Tools required for the installation

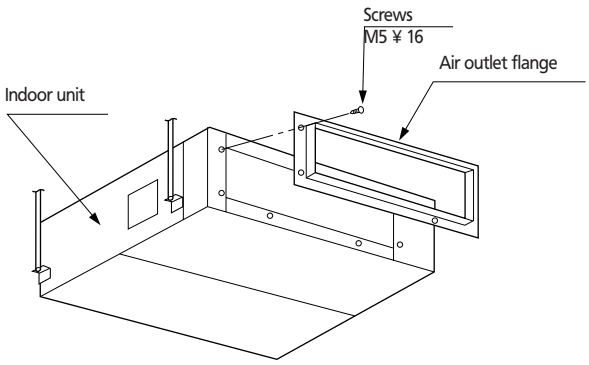
Screw driver ≈

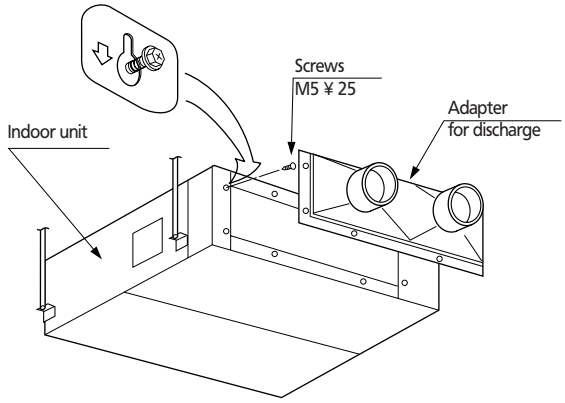
■ Installation of the adapter for discharge

1. Remove the air outlet flange from the indoor unit.
2. Attach the adapter for discharge to the indoor unit.
   - ① Set the screws at 2 location of the indoor unit and fasten temporarily. (leave 20 mm)
   - ② Hook the adapter for discharge temporarily on the screws and fasten all the screws.

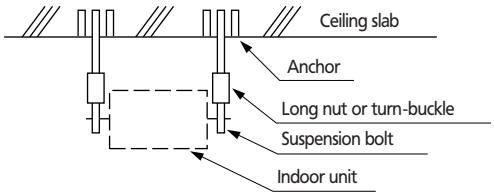
■ Cautions for the installation

Fasten the screws tightly so as no gap between the indoor unit and the adapter for discharge.





② Install suspension bolts. (Use bolts of 10 mm diameter.) Use a hole-in-anchor, sunken insert, sunken anchor or other field supplied part to reinforce the ceiling for bearing the unit weight.

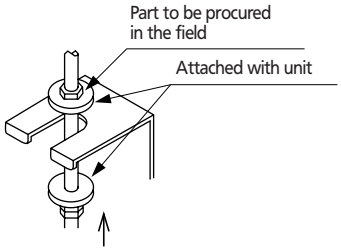


INDOOR UNIT INSTALLATION

<< When installing optional accessories (except for the air inlet panel), read also the installation manual for optional accessories. Depending on the field conditions, it may be easier to install optional accessories before the indoor unit is installed. >>

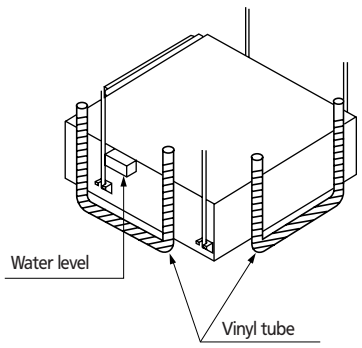
① Install the unit temporarily.

- Fix the hanger bracket to the suspension bolt. Tighten both upper and lower nuts firmly using washers.



② ICheck the unit is horizontally level.

- **Do not install the unit inclined. The indoor unit is equipped with a built-in drain pump and float switch.** (If the unit is tilted against condensate flow, the float switch may malfunction and cause water to drip.)
- Check the unit's level at all four corners with a water-level or a water-filled vinyl tube as shown in the drawing.



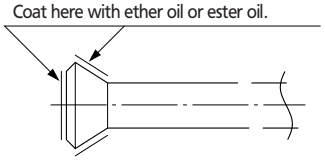
(HC0256)

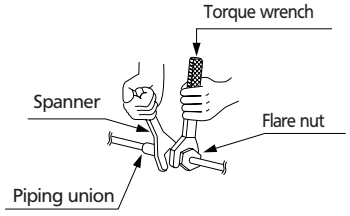
REFRIGERANT PIPING WORK

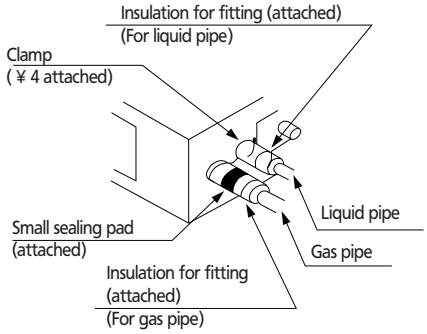
<< For refrigerant piping of outdoor unit, see the installation manual attached to the outdoor unit. >>
<< Before rigging tubes, check which type of refrigerant is used. (This unit uses R407C.) >>

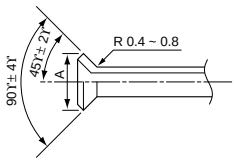
CAUTION

- **Use a pipe cutter and flare suitable for R407C.**
- **Apply ether oil or ester oil around the flare portions before connecting.**
- **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, as shown in the drawing, when connecting or disconnecting pipes to/from the unit.
- Refer to the table below for flare measurements.
- When connecting the flare nut, coat the flare both inside and outside with ether oil or ester oil and initially tighten by hand 3 or 4 turns before tightening firmly.
- Refer to the table below for tightening torque.
  Overtightening may damage the flare.
- Check the pipe connector for gas leaks, then insulate it as shown in the drawing.
- Wrap only the gas line side with the sealing pad. Bend the pad over the insulation for fitting (union) from above.







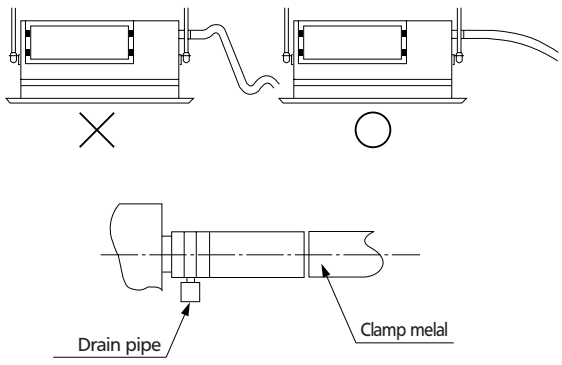
Pipe gauge	Tightening torque	Flare dimension A (mm)	Flare shape
f 6.4	1420 – 1720N • cm (144 – 176 kgf • cm)	8.3 – 8.7	
f 9.5	3270 – 3990N • cm (333 – 407 kgf • cm)	12.0 – 12.4	
f 12.7	4950 – 6030N • cm (504 – 616 kgf • cm)	15.4 – 15.8	
f 15.9	6180 – 7540N • cm (630 – 770 kgf • cm)	18.6 – 19.0	
f 19.1	9720 – 11860N • cm (990 – 1210 kgf • cm)	22.9 – 23.3	

DRAIN PIPING WORK

<< Rig the drain pipe as shown below and take measures against condensation. Improperly rigged piping could lead to leaks and eventually wet furniture and belongings. >>

① Install the drain pipes.

- Keep piping as short as possible and slope it downwards so that air may not remaine trapped inside the pipe.
- Keep pipe size equal to or greater than that of the connecting pipe (Vinyl pipe of 25 mm nominal diam. and 32 mm outer diam.)
- Use the attached drain hose and clamp.
- Tighten the clamp firmly.
- Insulate the clamp with the attached sealing pad.
- Insulate the drain hose inside the building.
- If the drain hose cannot be sufficiently set on a slope, fit the hose with drain raising piping as shown in the drawing (part to be procured in the field).



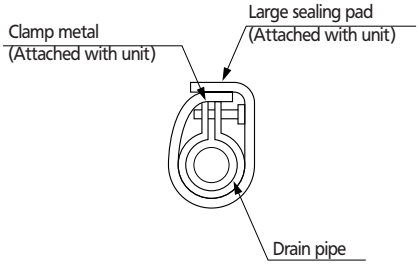
(HC0257)

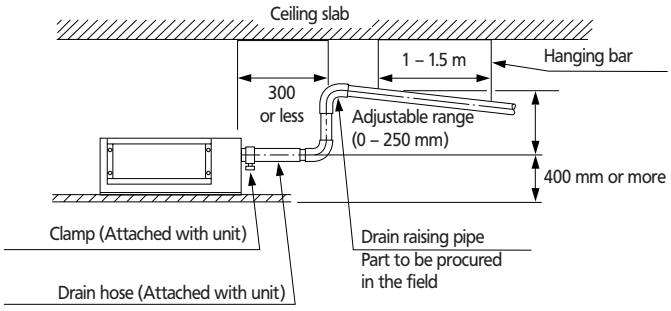
< HOW TO INSTALL PIPING >

① Connect the drain hose to the drain raising pipes, and insulate them.

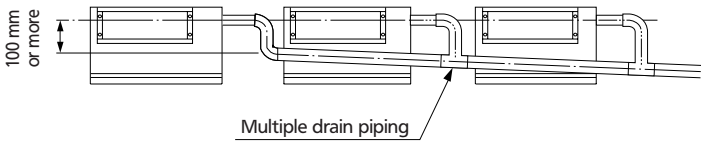
② Connect the drain hose to the drain outlet on the indoor unit, and tighten it with the clamp.

③ Insulate both metal clamp and drain hose with the attached sealing pad.



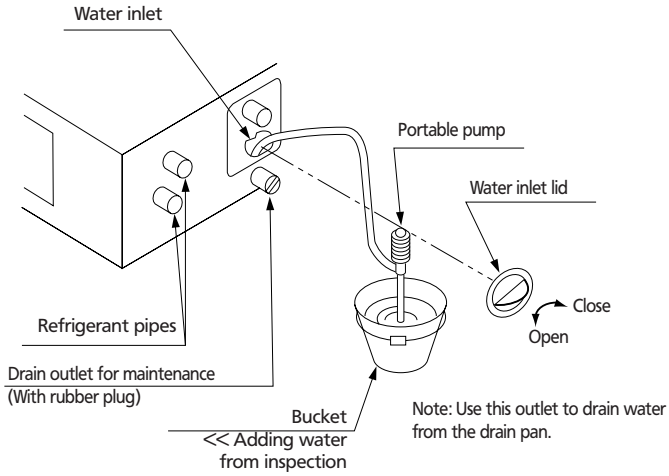


- To ensure a downward slope of 1:100, install hanging bars every 1 to 1.5 m.
- If unifying multiple drain pipes, install pipes shown right.



② After piping work is finished, check drainage flows smoothly.

- Open the water inlet lid, add approximately 1000 cc of water gradually and check drainage flow.



WHEN ELECTRIC WIRING WORK IS FINISHED

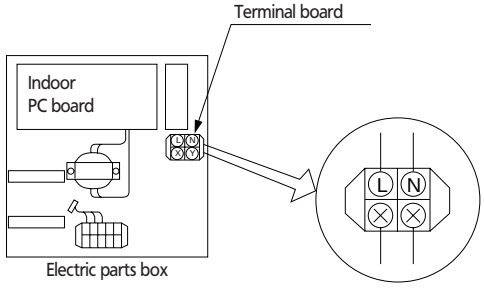
- Check drainage flow during COOL running, explained under "TEST OPERATION".

WHEN ELECTRIC WIRING WORK IS NOT FINISHED

- Remove the electric parts box lid, connect a power supply and remote controller to the terminals. (Refer to the HOW TO CONNECT WIRINGS (P.8))

  Next, press the inspection/test operation button " TEST " on the remote controller. The unit will engage the test operation mode. Press the operation mode selector button " ". Then, press the ON/OFF button " ". The indoor unit fan and drain pump will start up. Check that the water has drained from the unit. Press " TEST " to go back to the first mode.

  * FAN OPERATION " " can not be.



(HC0258)

ELECTRIC WIRING WORK

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, indoor units and the remote controller. For details on hooking up the remote controller, refer to the "INSTALLATION MANUAL OF REMOTE CONTROLLER."
- All wiring must be performed by an authorized electrician.
- This system consists of multiple indoor units. Mark each indoor unit as unit A, unit B..., and be sure the terminal board wiring to the outdoor
- unit and BS unit are properly matched. If wiring and piping between the outdoor 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.

ELECTRICAL CHARACTERISTICS

Units					Power supply	
Model	Type	Hz	Volts	Voltage range	MCA	MFA
BHDM50AJVE	VE	50/60	220 ~ 240/220	Max. 264 Min. 198	0.13	15
BHDM80AJVE						
BHDM100AJVE						

MCA: Min. Circuit Amps (A);
KW: Fan Motor Rated Output (kW);
MFA: Max. Fuse Amps (A)
FLA: Full Load Amps (A)

SPECIFICATIONS FOR FIELD SUPPLIED FUSES AND WIRE

Model	Type	Power supply wiring			Transmission wiring	
		Field fuses	Wire	Size	Wire	Size
BHDM50AJVE	VE	15A	H05VV-U3G	Wire size must comply with local codes.	Sheathed wire (2 wire)	0.75 – 1.25 mm^2
BHDM80AJVE						
BHDM100AJVE						

- Allowable length of transmission wiring between indoor/outdoor units and between the indoor unit and the remote controller is as follows.

(1) Outdoor unit – Indoor unit: Max. 1000 m (Total wiring length: 2000 m)
(2) Indoor unit – Remote controller: Max. 500 m

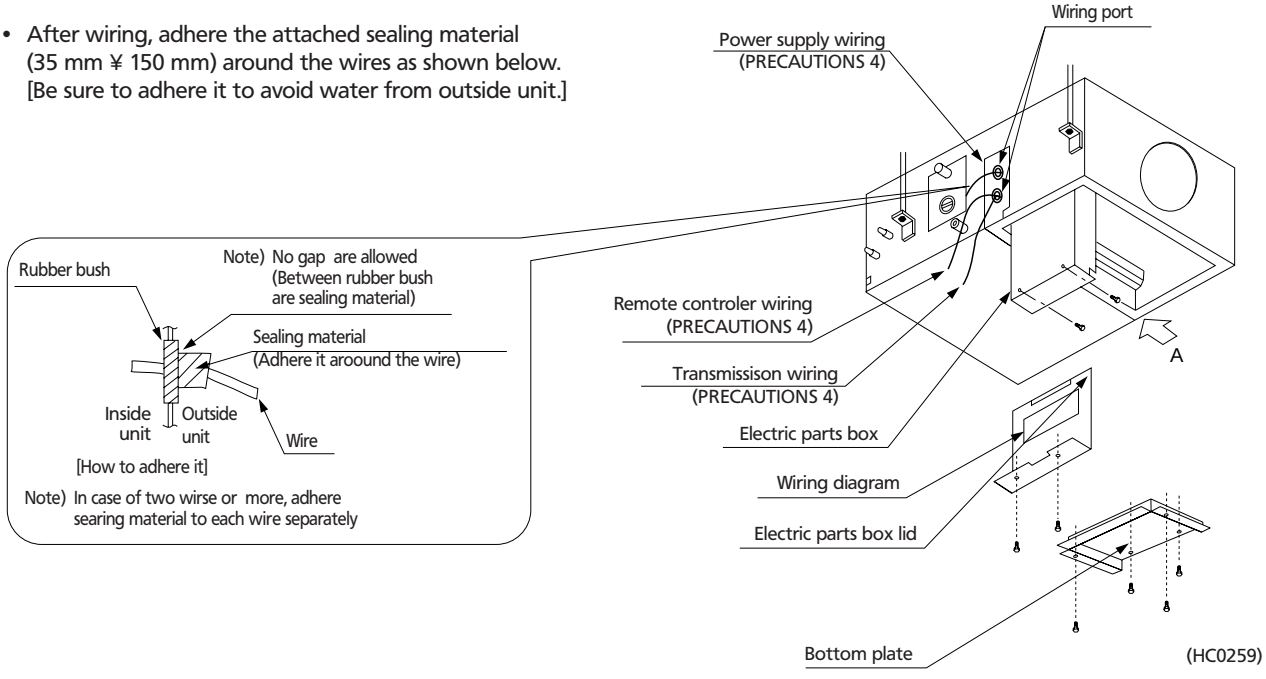
WIRING EXAMPLE AND HOW TO SET THE REMOTE CONTROLLER

HOW TO CONNECT WIRINGS

- Lower the electric parts box, as shown in the drawing, to make connections.

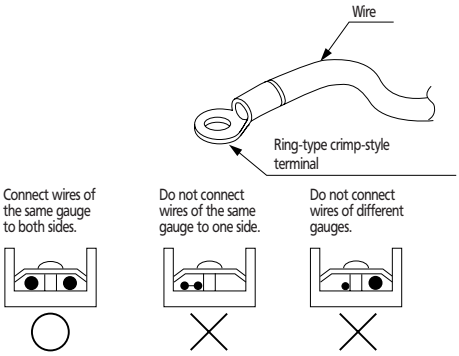
CAUTION

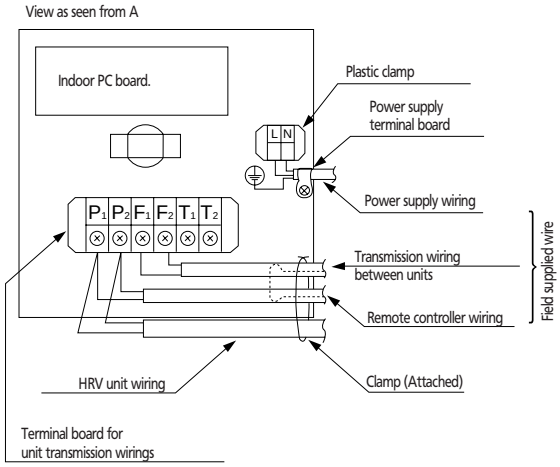
- After wiring, adhere the attached sealing material (35 mm ¥ 150 mm) around the wires as shown below. [Be sure to adhere it to avoid water from outside unit.]



PRECAUTIONS

1. 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.)

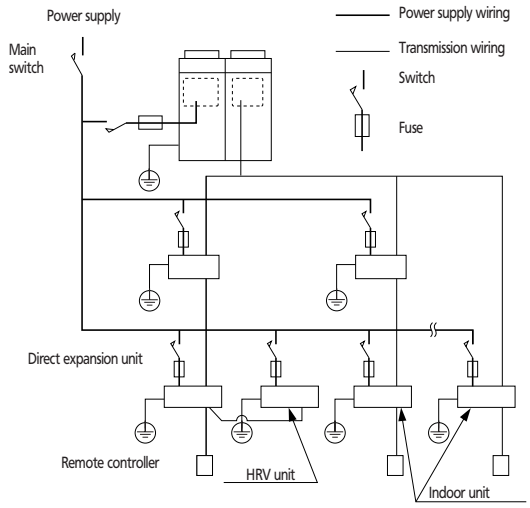




   - When connecting wires of the same gauge, connect them according to the righthand figure.
   - Use the specified electric wire. Connect the wire securely to the terminal. Lock the wire down without applying excessive force to the terminal.
2. Keep total current of crossover wiring between indoor units 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 2 mm^2 (f1.6). The branch must be sheathed to provide an equal or greater degree of insulation as the power supply wiring itself.
3. Do not connect wires of different gauge to the same grounding terminal. Looseness in the connection may deteriorate protection.
4. Keep transmission wiring at least 50 mm away from power supply wiring. The equipment may malfunction if subjected to electrical (external) noise.
5. For remote controller wiring, refer to the "INSTALLATION MANUAL OF REMOTE CONTROLLER" attached to the remote controller.
6. **Never connect power supply wiring to the terminal board for transmission wiring. A mistake of the sort could damage the entire system.**
7. 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.

WIRING EXAMPLE

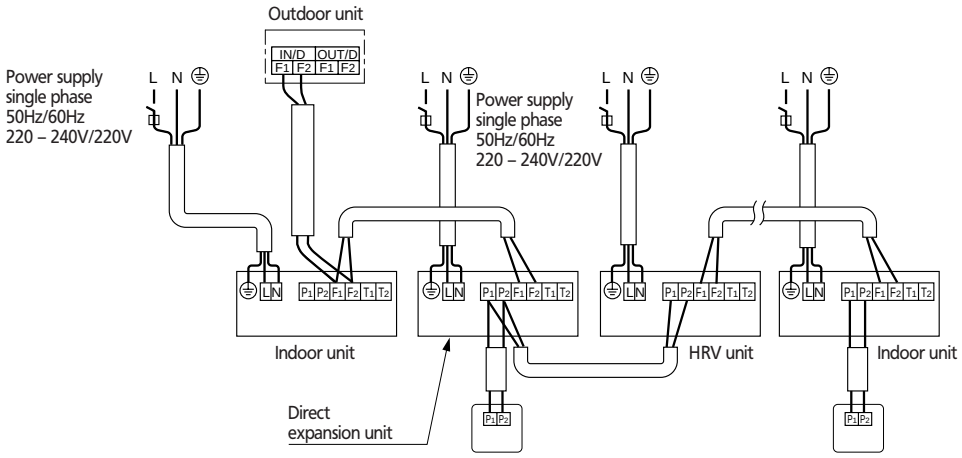
- Fit the power supply wiring of each unit with a switch and fuse as shown in the drawing.



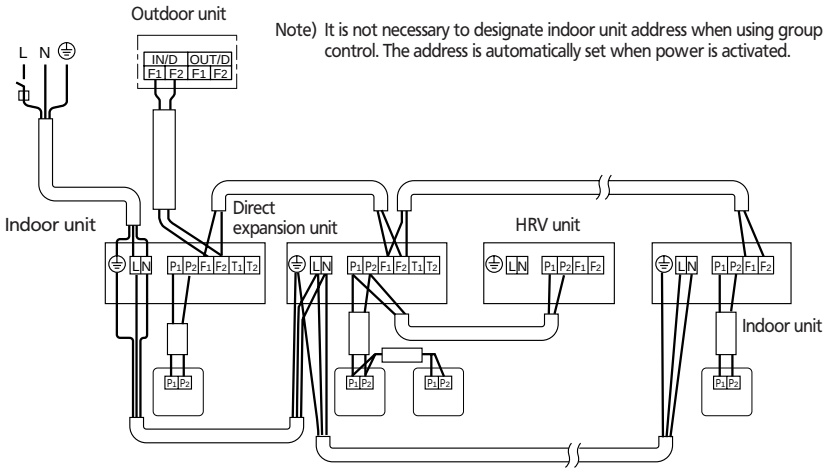
(HC0260)

COMPLETE SYSTEM EXAMPLE (2 systems)

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



2. For group control or use with 2 remote controller.



< PRECAUTIONS >

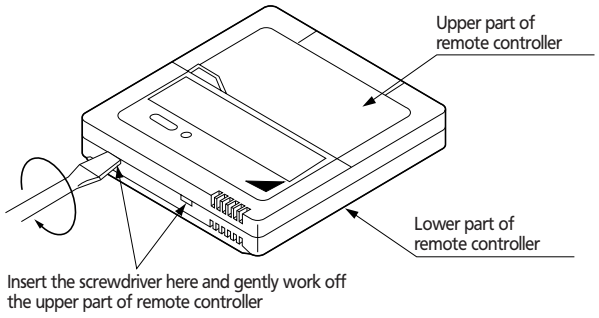
1. A single switch can be used to supply power to units on the same system. However, branch switches and branch circuit breakers must be selected carefully.
2. Do not ground the equipment on gas pipes, water pipes or lightning rods, or crossground with telephones. Improper grounding could result in electric shock.

CONTROL BY 2 REMOTE CONTROLLERS (Controlling 1 indoor unit by 2 remote controllers)

- When using 2 remote controllers, one must be set to "MAIN" and the other to "SUB".

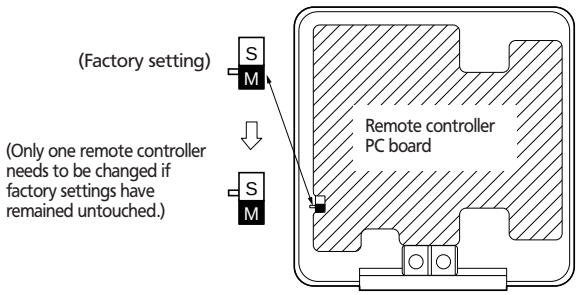
MAIN/SUB CHANGEOVER

① Insert a wedge-head screwdriver into the recess between the upper and lower part of remote controller and, working from the 2 positions, remove carefully the upper part.
The remote controller PC board is attached to the upper part of remote controller.



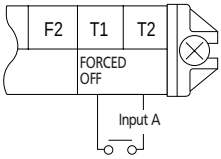
(HC0261)

② the MAIN/SUB changeover switch on one of the two remote controller PC boards to "S".
(Leave the switch of the other remote controller set to "M".)



COMPUTERISED CONTROL (FORCED OFF AND ON/OFF OPERATION)

① Wire specifications and how to perform wiring
- Connect input from outside to terminals T1 and T2 of the terminal board (remote controller to transmission wiring).

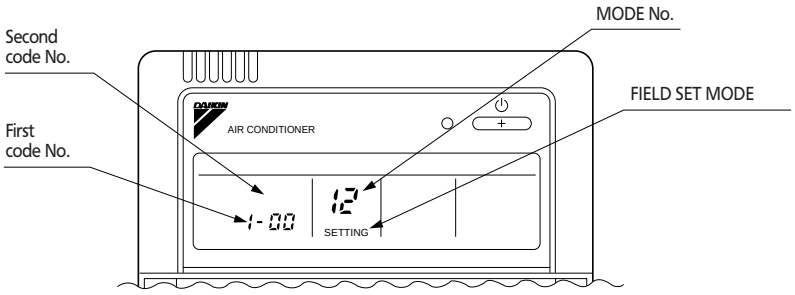


Wire specification	Sheathed vinyl cord or cable (2 wire)
Gauge	0.75 – 1.25 mm ^{2}
Length	Max. 100 m
External terminal	Contact that can ensure the minimum applicable load of 15V DC, 10 mA.

② Actuation
- The following table explains FORCED OFF and ON/OFF OPERATIONS in response to Input A.

FORCED OFF	ON/OFF OPERATION
Input "ON" stops operation (impossible by remote controllers).	Input "OFF" Æ "ON" turns ON unit.
Input "OFF" enables control by remote controller.	Input "ON" Æ "OFF" turns OFF unit.

③ How to select FORCED OFF and ON/OFF OPERATION
- Turn the power on and then use the remote controller to select operation.
- Set the remote controller to the field set mode. For details, refer to the "HOW TO SET IN THE FIELD", in the remote controller manual.
- When in the field set mode, select mode No.12, then set the first code (switch) No. to "1". Then set second code (position) No. to "01" for FORCED OFF and "02" for ON/OFF OPERATION. (FORCED OFF at factory set)



CENTRALIZED CONTROL
- For centralized control, it is necessary to designate the group No. For details, refer to the manual of each optional controllers for centralized control.

TEST OPERATION

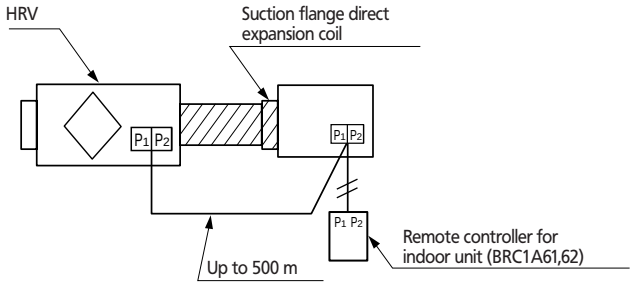
Refer to the installation manual of the outdoor unit.
- The operation lamp of the remote controller will flash when an error occurs. Check the error code on the liquid crystal display to identify the point of trouble. An explanation of error codes and the corresponding trouble is provided in "CAUTION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

(HC0262)

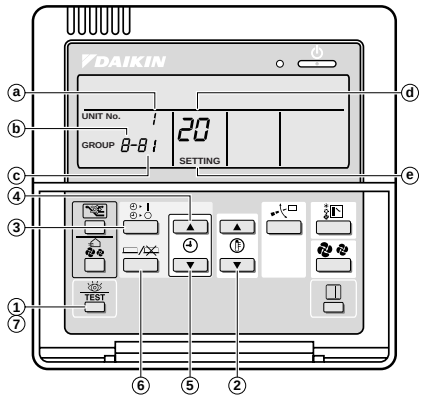
< Operation >

Operate the direct expansion coil unit in unison with the HRV.
The direct expansion coil unit cannot be operated independently. Be sure to connect it to the HRV unit using a duct connection.

Initial setting



Initial setting by the remote controller for direct expansion coil unit and HRV unit

Controller	Operating procedure for initial setting
• Remote control for indoor unit 	**The following describes the operating procedure and settings.** ① When in the normal mode, press the "TEST" button for a minimum of four seconds, and the FIELD SET MODE is entered. ② Select the desired MODE NO. with the "▲▼" button. ③ During group control, when setting by each indoor unit (mode No. 20, 21, 22 and 23 have been selected), push the "▲▼" button and select the INDOOR UNIT NO. to be set. (This operation is unnecessary when setting by group.) ④ Push the "▲" upper button and select FIRST CODE NO. ⑤ Push the "▼" lower button and select the SECOND CODE NO. ⑥ Push the "▭" button once and the present settings are SET. ⑦ Push the "TEST" button to return to the NORMAL MODE.

Direct duct connection

Purposes and functions

- The operation of DIRECT EXPANSION COIL UNIT is linked to the HRV unit connected by the duct, which has supply air flange.
- In winter, when defrosting, prevent drafts by stopping the HRV fan.

Switch setting for DIRECT EXPANSION COIL UNIT

- The initial setting by the remote controller for direct expansion unit.
- Direct duct setting ..... "ON" [27 • 5 • 02]

Optional accessories required

- None

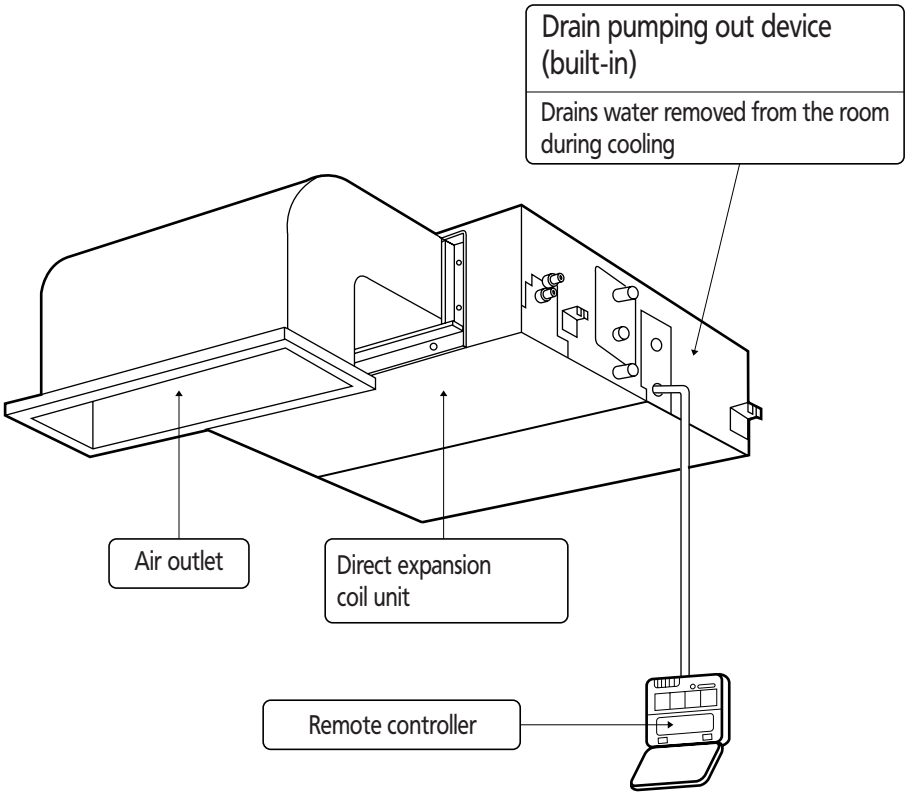
Precautions

< DIRECT EXPANSION COIL UNIT >

- The DIRECT EXPANSION COIL UNIT is only a coil, and is displayed because there is a fan operation button on the remote control, but since there is no fan, there is no point in setting it.
- Use the HRV connected to the DIRECT EXPANSION UNIT without setting the preheating or precooling controls.

(HC0263)
3P034928-3

6.17.8. Operation



(HC0264)

OPERATION

- **Remote controller: BRC1C517**
  - Lets you individually program by timer the respective times for operation start and stop within a maximum of 72 hours.
  - Equipped with a thermostat sensor in the remote controller that makes possible more comfortable room temperature control.
  - Monitors room temperature and preset temperature by microcomputer, and can select cool/heat operation mode automatically.
  - Enables you to select cool/heat with the indoor remote controller of your choice without using the cool/heat selector.
  - Constantly monitors malfunctions in the system for 80 items, and is equipped with a "self-diagnosis function" that lets you know by message immediately when a malfunction occurs.
  - Lets you carry out various field settings by remote controller.

IMPORTANT

* There is a fan operation button on the BRC1C517, but no fan operation is possible with the direct expansion coil unit.

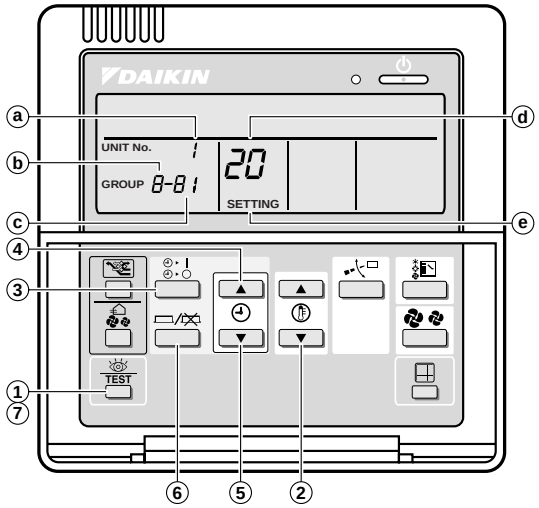
* Use the HRV and the direct expansion coil with a direct duct connection. (Refer to p18.)
In winter, when defrosting, prevent drafts by stopping the HRV fan.

* Do not set for preheating and precooling operation.

When operating the HRV independently in spring or autumn, follow the procedure as outlined below:

Operating the HRV unit using the remote controller of the VRV-system DIRECT EXPANSION COIL UNIT

When the direct expansion coil unit is connected with the HRV unit with a direct duct, the remote controller of the DIRECT EXPANSION COIL UNIT cannot be used to select the VENTILATION mode. To use the HRV unit without operating the DIRECT EXPANSION COIL UNIT, set the DIRECT EXPANSION COIL UNIT in the FAN VENTILATION mode.

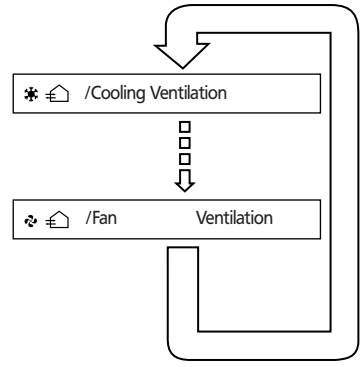


Remote controller for indoor unit

① Operation lamp
② Operation/stop button
③ Operation mode display
- Every time the operation mode selector is pressed,the operation mode display changes as shown below.

Example)

When direct expansion coil unit and HRV unit are connected by duct



- When the  "FILTER" indication appears on the display, clean the filter of the HRV unit. (Refer to the HRV operation manual)

(HC0265)
3P034927-3

3

Heat Recovery Ventilation

ISO14001 assures an effective environmental management system in order to help protect human health and the environment from the potential impact of our activities, products and services and to assist in maintaining and improving the quality of the environment.

Daikin units comply with the European regulations that guarantee the safety of the product.

Daikin Europe N.V. is approved by LRQA for its Quality Management System in accordance with the ISO9001 standard. ISO9001 pertains to quality assurance regarding design, development, manufacturing as well as to services related to the product.

VRV products are not within the scope of the Eurovent certification programme.

Specifications are subject to change without prior notice

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