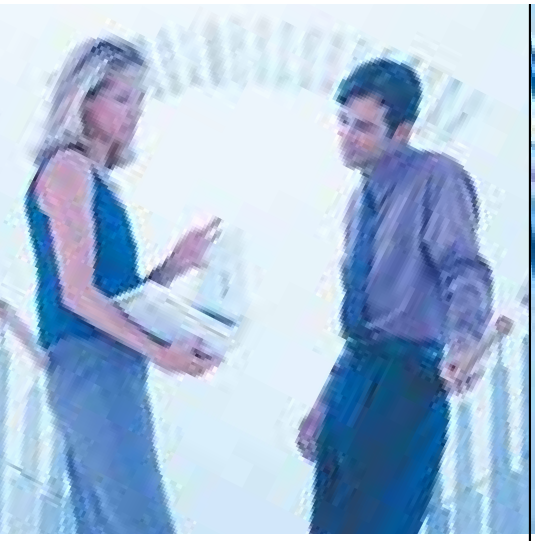
DAIKIN

EPCE02-20

HRV

Heat Recovery Ventilation

VAM - FA(5) series



Combined

Air Conditioning

and Ventilation

for Energy Efficiency

and Comfort

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Introduction

The HRV creates a high-quality environment by interlocking with the air conditioner

Daikin's HRV (Heat Recovery Ventilation) recovers heat energy lost through ventilation and holds down room temperature changes caused by ventilation, thereby maintaining a comfortable and clean environment. This also curbs the load on the air conditioning system and conserves energy.

In addition, the HRV is interlocked to Daikin's VRV system, Sky Air and other air conditioning systems and automatically switches over ventilation mode,further increasing the effects of energy conservation. HRV operation has been centralised on the air conditioner remote control allowing total control over air conditioning and ventilation with a simple configuration.

VAM-FA(5) Series Released !
9 MODELS TO CHOOSE FROM !

- **First-class compactness in the industry**

  Has been achieved by employing a newly developed High Efficiency Paper (HEP) element, and using an optimized fan and airflow passage design.

- **First-class energy conservation in the industry**

  A total of 28% reduction of air conditioning load has been achieved through a combined use of total heat exchange mode, linked operation with an air conditioner, and pre-heat/pre-cool control.

- **Standard operation down to -15°C**

  The new operation mode is activated when outdoor temperature goes down to -10°C or below, preventing freezing or condensation in the unit. Standard models can now be used in cold climate regions.

LCD remote control
for indoor unit
BRC1C517

DAIKIN INDOOR UNIT

- Operating mode signal
- Filter cleaning signal
- Failure detection signal

HRV UNIT

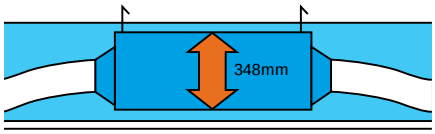
- ON/OFF signal
- Cooling/Heating mode signal
- Set temperature signal
- Ventilation signal
- Humidifier ON/OFF signal

Features of Daikin HRV VAM-FA(5) series

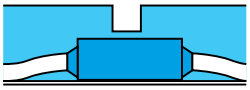
First-class compactness in the industry

First-class compactness in the industry, yet incorporating the same performance and functions, 9 models of the VAM-FA series have been released.

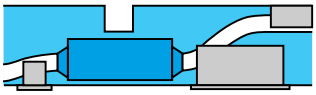
- Installation under the floor of a small building



- Installation under a beam



- Installation in an irregular space



30%

• Over 30% size reduction

The use of the specially developed High Efficiency Paper (HEP) element and optimized design of the fan and airflow passages, has enabled first-class compactness in the industry while maintaining some 28% reduction of air conditioning load as before. The height of the main unit has been reduced by up to 40mm and easily fits in limited spaces, such as in ceilings.

The VAM1000FAVE is 348mm high and can be installed in narrow ceiling voids.

• Specially developed HEP element

The heat exchange element uses a High Efficiency Paper (HEP) that has superior moisture-absorption and humidifying properties and doubles the current efficiency of moisture-absorption. This heat exchange unit speedily recovers heat contained in latent heat (vapor) and its volume has been reduced about 25% while maintaining the same heat recovery efficiency.
This element employs a material with superior flame-resistant properties and is treated with an anti-molding agent.

First-class energy conservation in the industry

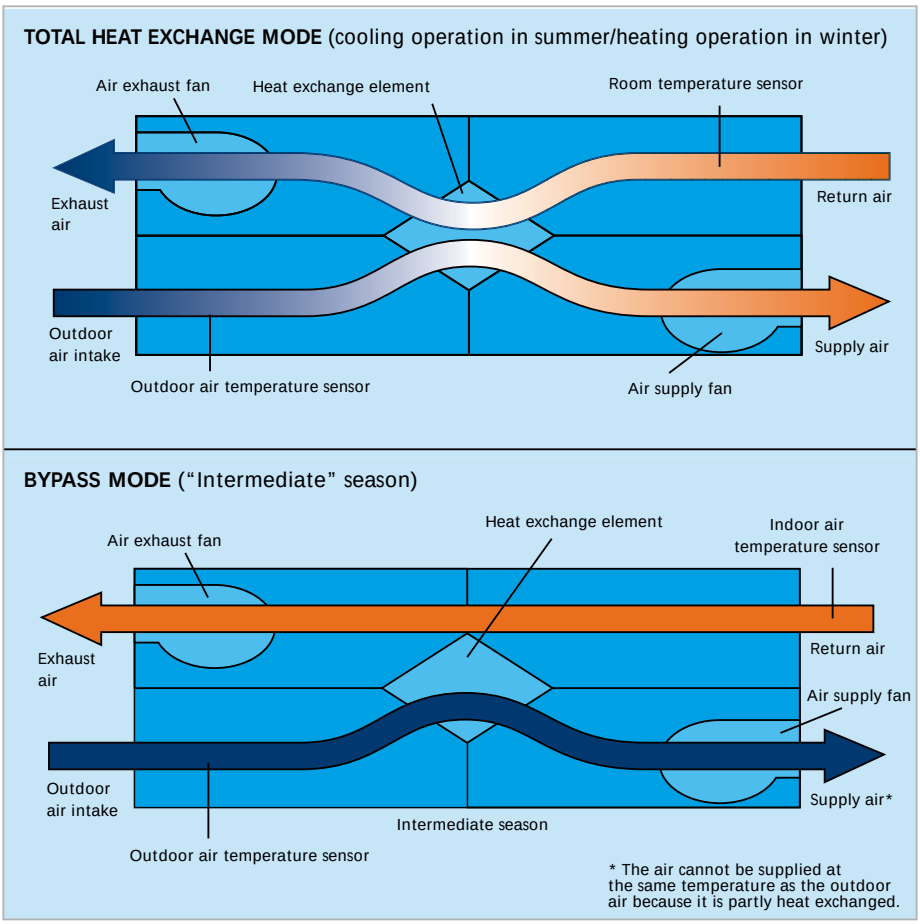
- **Air Conditioning Load Reduced by 28% on Average (maximum 40%)**

1. 20% by operating in total heat exchange mode (in comparison with normal ventilation fans)
2. Another approximately 6% gained by auto-ventilation mode changeover switching
3. Yet another approximately 2% by pre-cool, pre-heat control

Note
The values mentioned above may vary according to weather and other environmental conditions at the location of the unit's installation.

- **Auto-ventilation mode changeover switching**

Automatically switches the ventilation mode (Total Heat Exchange Mode/Bypass Mode) according to the operating status of the air conditioner.

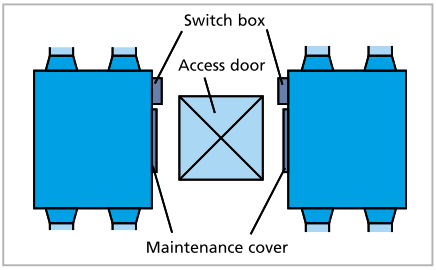


- **Pre-cool, Pre-heat control**

Reduces air conditioning load by not running the HRV while air is still clean soon after the air conditioner is turned ON.

Features of Daikin HRV VAM-FA(5) series

Simple design and construction



The unit can be installed upside down in accordance with the conditions of the location.

With only one 450mm square inspection aperture, maintenance and heat exchange element replacement can be performed with ease.

Cleanliness

- **Fresh-up Operation**

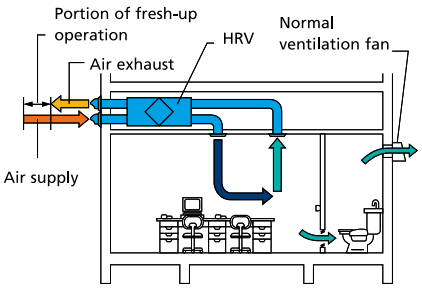
  The user can select between two fresh-up modes using the remote control.

- **Prevents dust from falling with directly mounted ducts**

- **A sign is displayed on the remote control when the air filter needs cleaning**

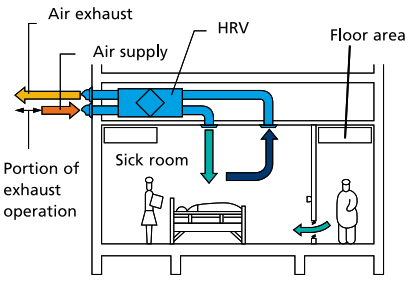
1 Supply rich mode:

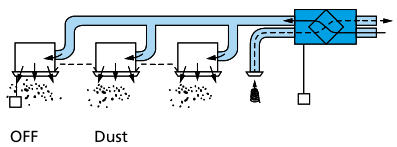
Raising the air supply maintains proper room pressure to prevent back-flow of toilet/kitchen odours or moisture inflow.



2 Exhaust rich mode:

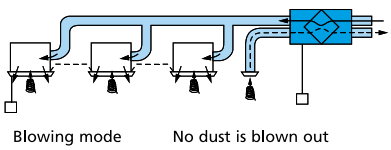
Raising exhaust air decreases room pressure to prevent the leaking of odours or floating bacteria into other rooms.





With Competitors' Products

When conventional total heat exchange units, which are independently operated using a dedicated remote control, are directly connected by a duct, there is a possibility of dust falling from the air filter of the indoor unit when the air conditioner is OFF.



With HRV

When the HRV is operating independently, the fan in a interlocked indoor unit continues turning, so dust does not fall from the air filter.

Control systems

Centralised control of air conditioning and ventilation

The operation of the air conditioner using its remote control is interlocked to the operation of the HRV, greatly simplifying overall system operation. In addition, installation work associated with the HRV remote control is not necessary because operations for air conditioning and ventilation are completely centralised on the air conditioner remote control.
Also, the use of such a centralised remote control allows the user to choose a wide range of control systems that integrate air conditioning and ventilation. Furthermore, by using a variety of centralised control equipment, the user can build a large, high-grade centralised control system.

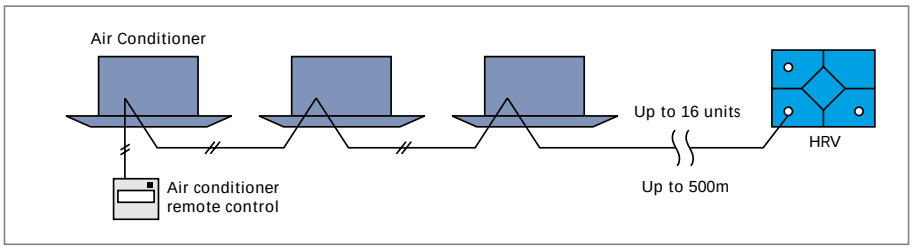
- **Operations and control with the air conditioner remote control - BRC1C517**

  - Simultaneous ON/OFF of the HRV and air conditioner
  - Fan speed and ventilation mode can be altered by a simple push on the button. After a few seconds, the HRV display will return to the standard display showing the settings of the indoor unit
  - Independent operation of the HRV
  - Self-diagnosis functions
  - Filter sign display and reset
  - Timer settings (simultaneous control with air conditioner)
  - Pre-cool, pre-heat control settings (initial setting)
  - Fresh-up mode switching (Selectable: supply rich mode, exhaust rich mode; Initial setting)

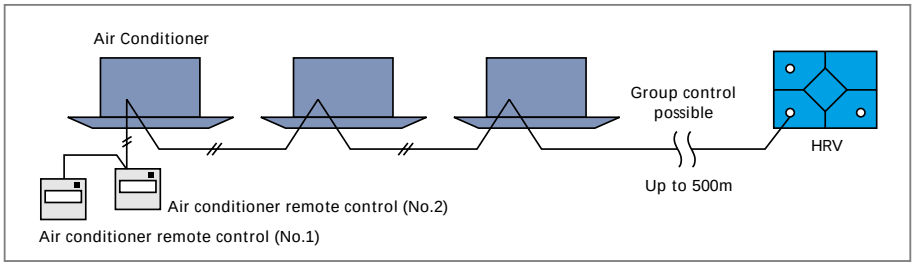
Control systems

- **A variety of control systems can be controlled using only the air conditioner remote control**

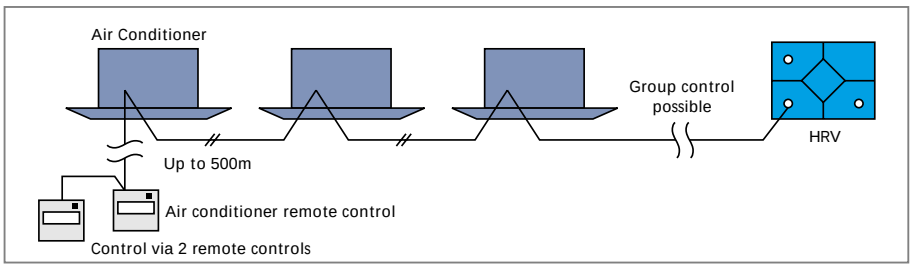
▪ **Group Control**
One air conditioner remote control simultaneously controls up to 16 air conditioners and 1 HRV unit.



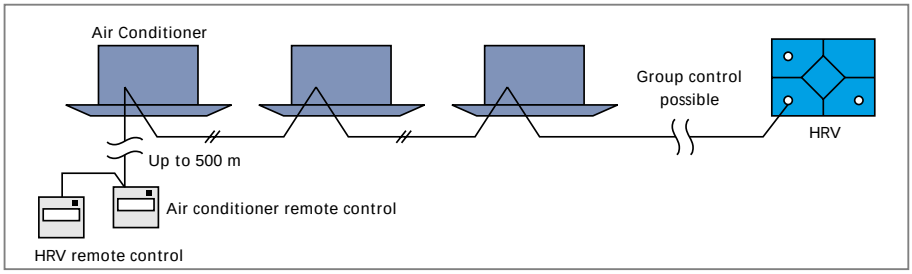
▪ **Control via 2 remote controls**
Allows control of air conditioner and HRV units from two places by connecting two air conditioner remote controls. (Group control possible)



▪ **Long-distance remote control**
Operation control from afar, i.e., a distant control room, is possible thanks to wiring of up to 500m. (Group control and control via 2 remote controls possible)

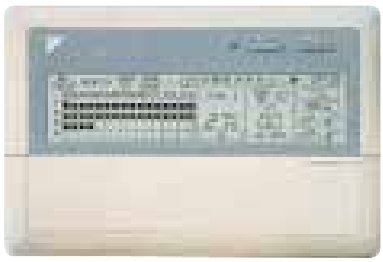


▪ **Control with 2 remote controls (for HRV and air conditioner)**
System with dual use of the HRV remote control and air conditioner remote control can be achieved. Changes in initial setting functions are always possible.
(Group control possible)



• Centralised control systems

By combining the centralised control systems (available as accessory) below, the user can achieve a wide range of comprehensive centralised control systems for air conditioning and ventilation.



Centralised remote control DCS302B51

- One unit can operate and monitor up to 64 groups (128 units) of HRV and air conditioner units individually or in batch.
- Allows the user to divide connected HRV or air conditioner units into zones (up to 64) and control any or all of them.
- Two units of this control can be linked, thereby allowing centralised control of up to 128 groups (128 units).
- Centralised control from two places is possible using two units of this control.

Unified ON/OFF control DCS301B51

- One unit can turn ON/OFF up to 16 groups (128 units) of HRV and air conditioner units individually or in a batch.
- Lamps display operation and failure status of the connected HRV and air conditioner units.
- Up to 8 units can be linked to allow centralised control of up to 128 units.

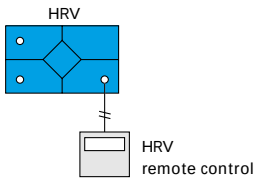
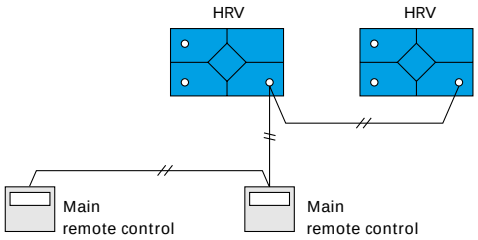
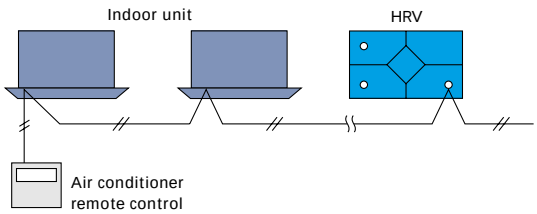
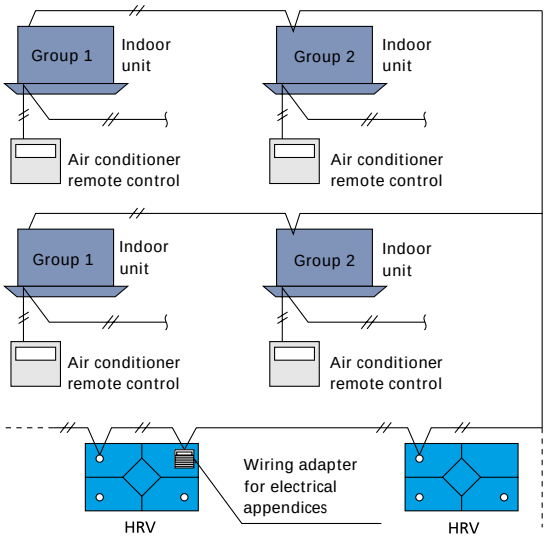
Schedule timer DST301B51

- One unit can control the operation of up to 128 HRV and air conditioner units on a weekly schedule.
- Can set two ON/OFF operations per day for a period of one week.

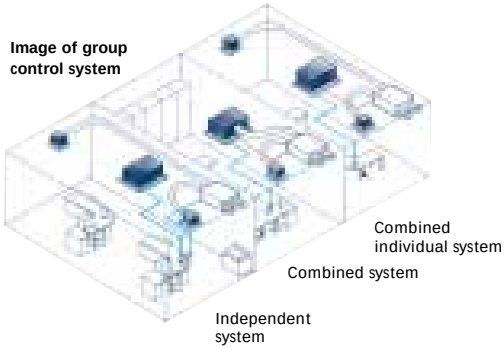
Number of units that can be connected per system

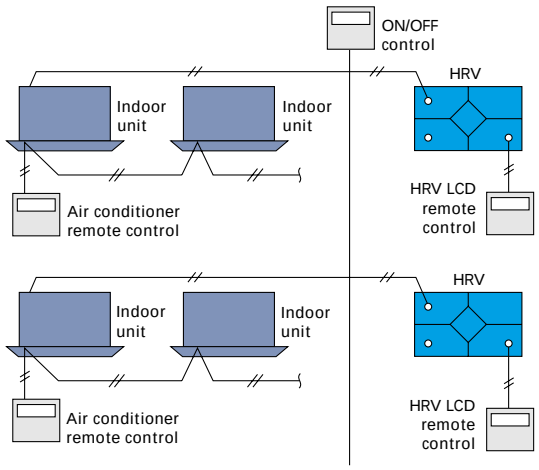
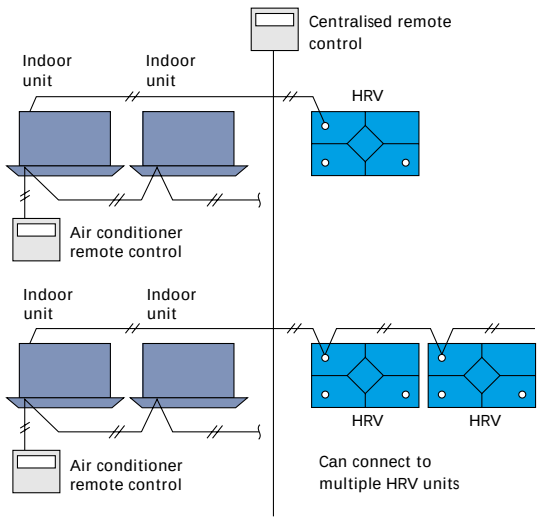
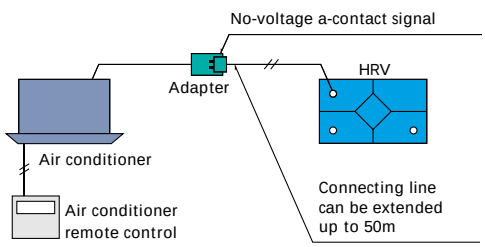
Centralised remote control	2 units
Unified ON/OFF control	8 units
Schedule timer	1 unit

Major HRV control systems

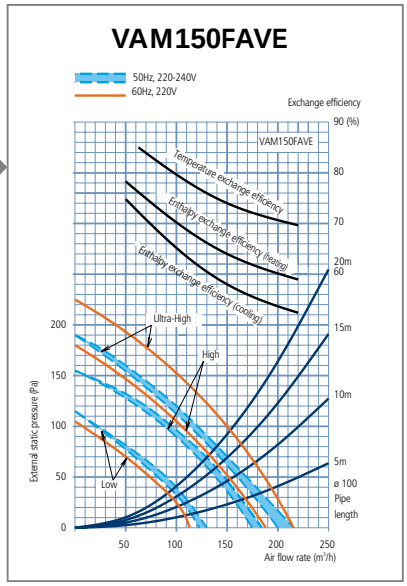
System construction			System characteristics	Necessary accessories
INDEPENDENT OPERATION SYSTEM	INDEPENDENT OPERATION		• Independent operation of HRV is possible.	HRV remote control
	SIMULTANEOUS OPERATION OF MULTIPLE UNITS		• Operation is possible using 2 HRV remote controls. • Multiple HRV units can be simultaneously controlled in batch.	HRV remote control
AIR CONDITIONING INTERLOCKED CONTROL VRV, SKY AIR SYSTEM	STANDARD SYSTEM		• HRV remote control does not have to be used. • Up to 16 VRV indoor units or HRV units can be connected and controlled in batch, with interlocked operation of HRVs and air conditioners by using the air conditioner remote control.	Air conditioner remote control
	MULTIPLE GROUPS INTERLOCKED OPERATION SYSTEM		• Can control interlocked operation of multiple groups of VRV or Sky Air indoor units. • When one of the multiple groups operates, HRVs are interlocked and operate simultaneously.	Air conditioner remote control

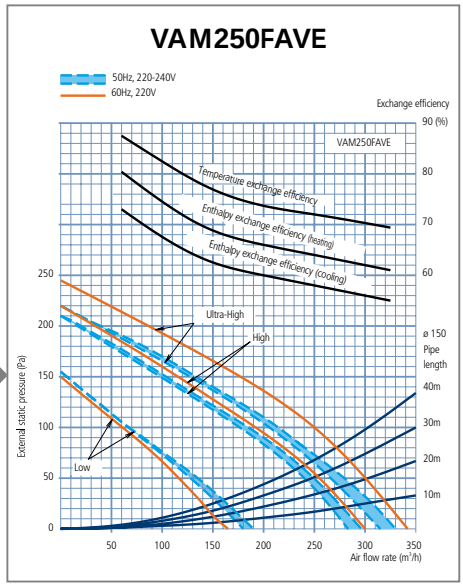
Various control systems according to applications and conditions

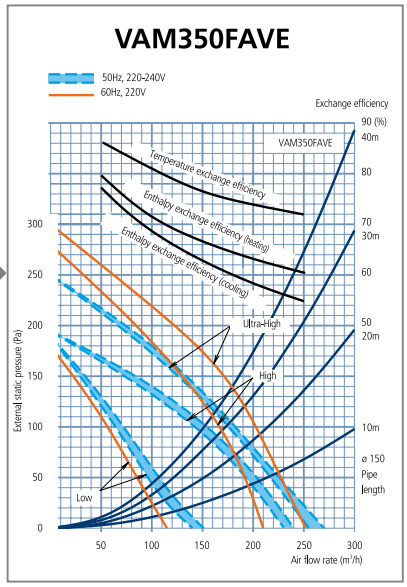


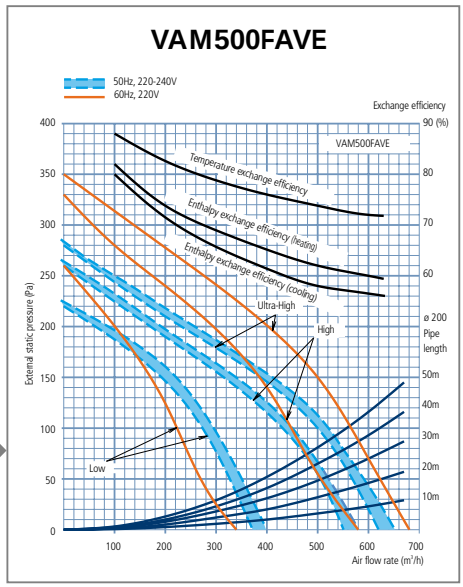
		System construction	System characteristics	Necessary accessories
AIR CONDITIONING INTERLOCKED CENTRALISED CONTROL SYSTEM	BATCH/INDIVIDUAL CONTROL SYTEM		• Up to 128 VRV, Sky Air and HRV units can be centrally controlled over a centralised line (Special adapter is required to connect the Sky Air to the centralised line.) • HRV remote control can set the individual operation of each HRV unit. • Control system can be expanded depending on its purposes by combining a variety of centralised control equipment.	Unified ON/OFF control, air conditioner remote control. When necessary, centralised remote control, schedule timer, HRV remote control, and Sky Air connection adapter
	ZONE CONTROL SYSTEM		• Centralised remote control has setting and monitoring functions equivalent to those of a remote control and can centrally control up to 128 VRV, Sky Air and HRV units. (Special adapter is required to connect the Sky Air to the centralised line.) • Control is possible in three different patterns: individual/batch/zone. • Can independently operate multiple HRV units. • System without air conditioner and HRV remote controls can be constructed. • Control system can be expanded depending on its purposes by combining a variety of central control equipment.	Unified ON/OFF control, air conditioner remote control. When necessary, centralised remote control, schedule timer, HRV remote control, and Sky Air connection adapter
COMBINATION WITH OTHER TYPES OF AIR CONDITIONERS			• Simultaneous operation of HRVs and air conditioners is possible using the air conditioner remote control. • Use of the HRV remote control enables to change settings or operate HRVs independently.	Connection adapter (No-voltage a-contact signal)

Model Line-up

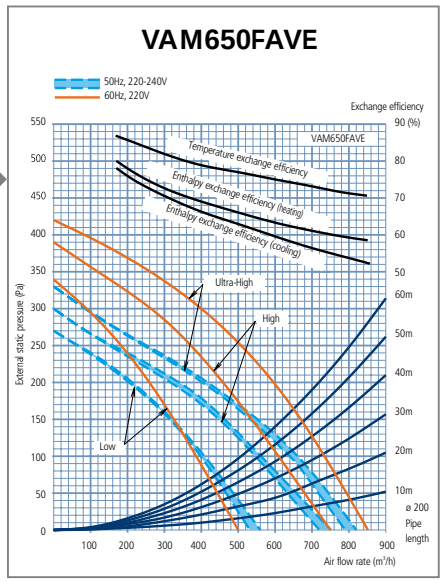




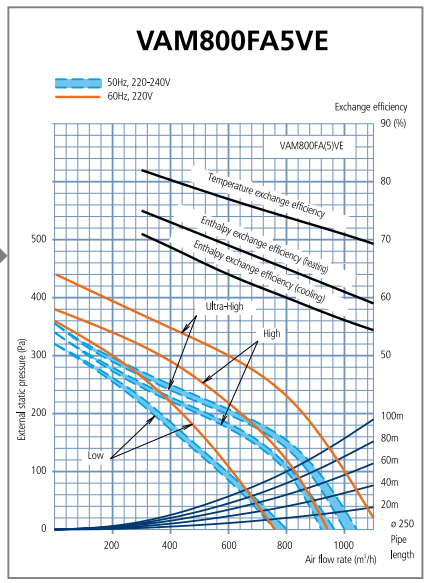




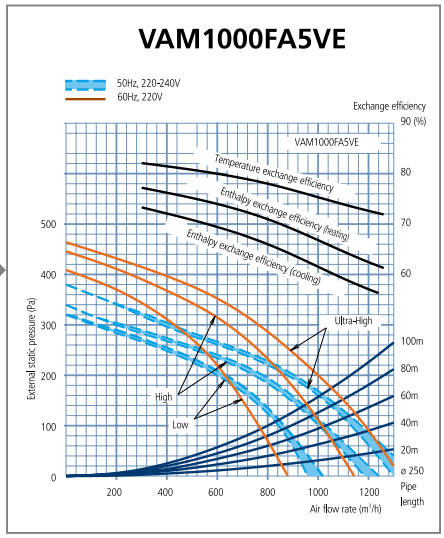
VAM650FAVE



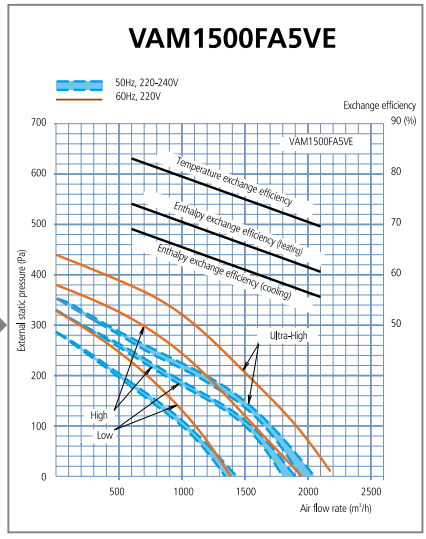
VAM800FA5VE



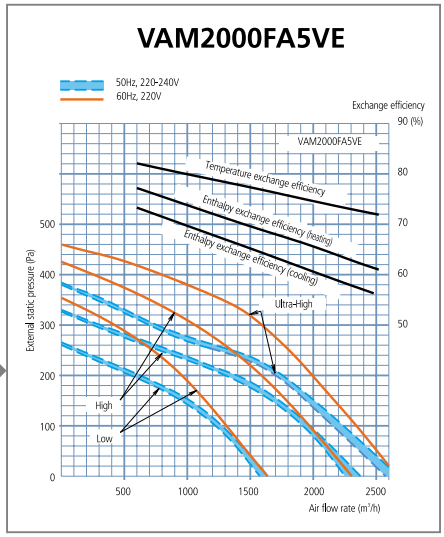
VAM1000FA5VE



VAM1500FA5VE

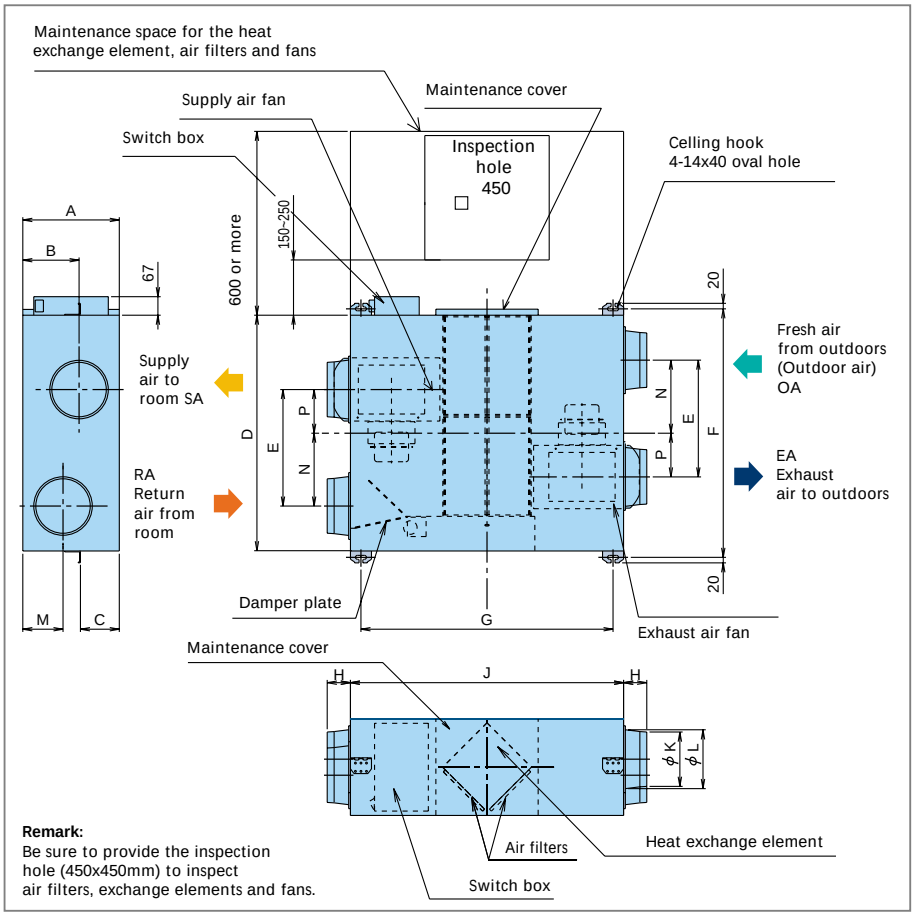


VAM2000FA5VE



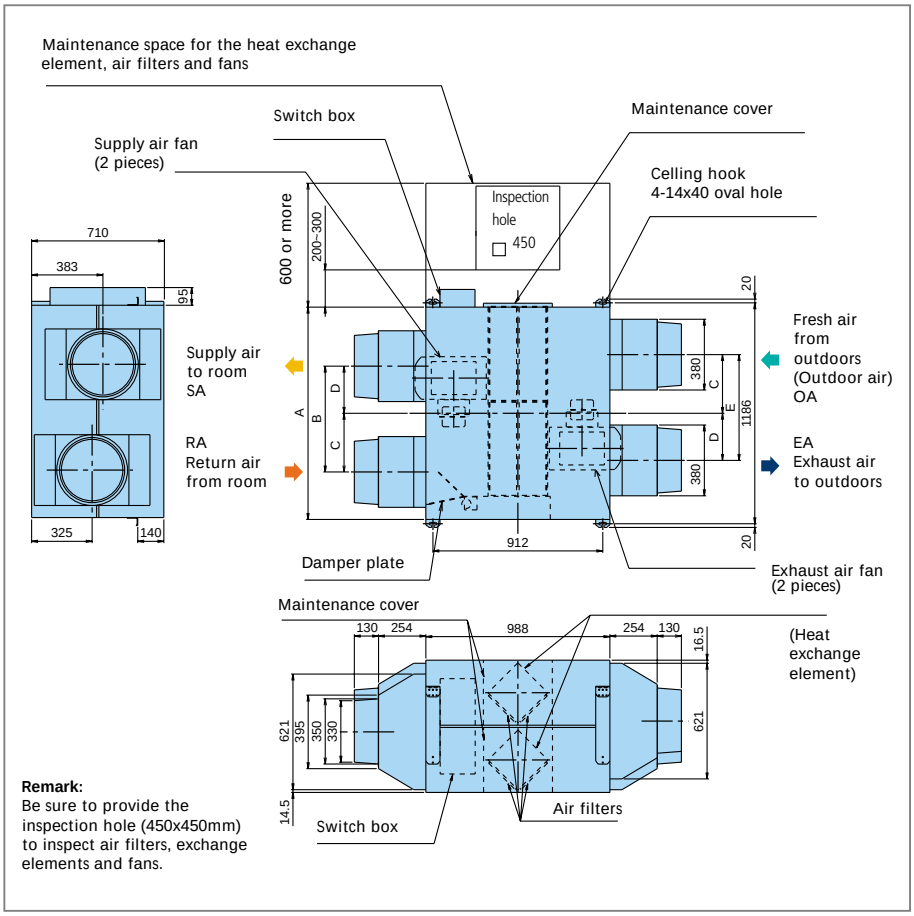
DIMENSIONS

VAM150~650FAVE
VAM800~1000FA5VE



DIMENSIONS	A	B	C	D	E	F	G	H	J	K	L	M	N	P
VAM150FAVE	269	149	104	509	288	560	718	145	760	97	200	120	124	164
VAM250FAVE								132		146				
VAM350FAVE	285	161	112	800	416	850	758	132	812			121	263	153
VAM500FAVE								84		197				
VAM650FAVE	348	204	140	852	421	902	912	137	988	196	250	146	264	157
VAM800FA5VE								89		246	263			
VAM1000FA5VE				1,140	568	1,190					–		379	189

VAM1500~2000FA5VE



DIMENSIONS	A	B	C	D	E
VAM1500FA5VE	852	421	199	222	898
VAM2000FA5VE	1,140	568	315	253	1,186

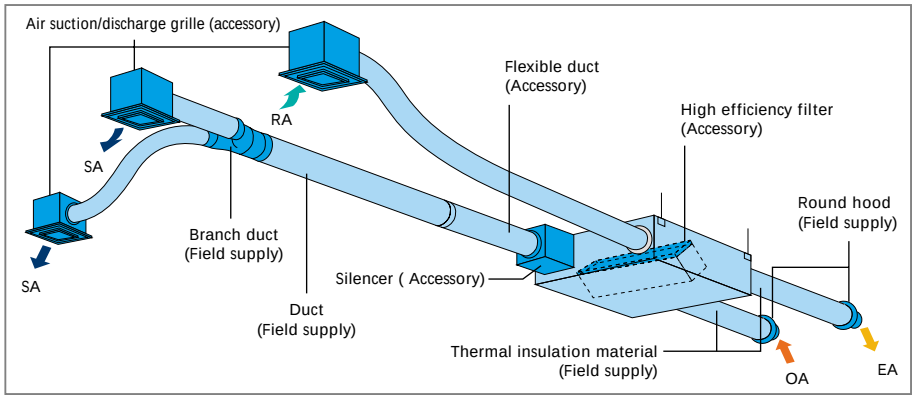
SPECIFICATIONS

Models				VAM-FAVE					VAM-FA5VE			
				150	250	350	500	650	800	1000	1500	2000
Temperature exchange efficiency (%)		ultra-high		74	72	75	74	74	74	75	75	75
		high		74	72	75	74	74	74	75	75	75
		low		79	77	80	77	77	76	76.5	78	78
Enthalpy exchange efficiency (%)	for heating	ultra-high		64	64	65	62	63	65	66	66	66
		high		64	64	65	62	63	65	66	66	66
		low		69	68	70	67	66	67	68	68	70
	for cooling	ultra-high		58	58	61	58	58	60	61	61	61
		high		58	58	61	58	58	60	61	61	61
		low		64	62	67	63	63	62	63	64	66
Power Supply		VE		1 ~, 220~240V, 50Hz								
Sound pressure level dB(A)	Heat exchange mode	ultra-high		27-28.5	28-29	32-34	33-34.5	34.5-35.5	36-37	36-37	39.5-41.5	40-42.5
		high		26-27.5	26-27	31.5-33	31.5-33	33-34	34.5-36	35-36	38-39	38-41
		low		20.5-21.5	21-22	23.5-26	24.5-26.5	27-28	31-32	31-32	34-36	35-37
Bypass mode		ultra-high		27-28.5	28-29	32-34	33.5-34.5	34.5-35.5	36-37	36-37	40.5-41.5	40-42.5
		high		26.5-27.5	27-28	31-32.5	32.5-33.5	34-35	34.5-36	35.5-36	38-39	38-41
		low		20.5-21.5	21-22	24.5-26.5	25.5-27.5	27-28.5	31-33	31-32	33.5-36	35-37
Casing				galvanised steel plate								
Insulation Material				self-extinguishable urethane foam								
Dimensions	HxWxD		mm	269 x 760 x 509		285 x 812 x 800		348 x 988 x 852	348x988x1,140	710x1,498x852	710x1,498x1,140	
Weight			kg	24		33		48	61	132	158	
Heat Exchange System				air to air cross flow total heat (sensible heat + latent heat) exchange								
Heat Exchange Element Material				specially processed nonflammable paper								
Air Filter				multidirectional fibrous fleeces								
Fan	Type			sirroco fan								
	Air Flow Rate (m^3/h)	ultra-high		150	250	350	500	650	800	1,000	1,500	2,000
		high		150	250	350	500	650	800	1,000	1,500	2,000
		low		110	155	230	350	500	670	870	1,200	1,400
	External static pressure (Pa)	ultra-high		69	64	98	98	93	137	157	137	137
		high		39	39	70	54	39	98	98	98	78
		low		20	20	25	25	25	49	78	49	59
Motor Output			kW	0.030 x 2		0.090 x 2		0.140 x 2	0.230 x 2		0.230 x 4	
Connection Duct Diameter			mm	ø100	ø150		ø200		ø250		ø350	
Unit ambient condition				-15°C ~ +50°CDB, 80% RH or less								

Notes:
- Air flow rate can be changed over to Low mode or High mode.
- Sound pressure level is measured at 1.5m below the center of the body.
- Sound pressure level is measured in an anechoic chamber.
  Sound pressure levels generally become greater than this value depending on the operating conditions, reflected sound, and peripheral noise.
- The sound pressure level at the air discharge port is about 8dB higher than the unit's sound level.
- Even when the outdoor temperature is below -15°C, the system is operable down to -20°C with the pre-heater installed at the outdoor air intake side.

ACCESSORIES

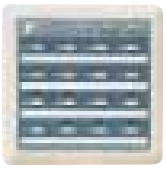
Installation of accessories



List of accessories


HRV remote control

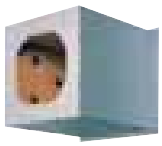

Centralised remote control


Unified ON/OFF control


Schedule timer

Item			Model	VAM-FAVE					VAM-FA5VE			
				150	250	350	500	650	800	1000	1500	2000
Controlling device	HRV remote control			BRC301B61								
	Centrallsed control system	Centralised remote control		DCS302B51								
		Unified ON/OFF control		DCS301B51								
		Schedule timer		DST301B51								
	PC Board Adapter	Wiring adapter for electrical appendices		KRP2A61								
		For humidifier		KRP50-2								
		Installation box for adapter PCB		KRP50-2A90 (mounted electric component assembly of HRV)								
		For heater control kit		BRP4A50								
		For wiring	VRV indoor unit	FXYCP	FXK	FXYFP	FXYSP	FXH	FXYAP/FXA	FXL	FXN	FXM
			reference	KRP1B61*	KRP1B61	KRP1B59*	KRP1B61		KRP1B3	KRP1B61		
		Installation box for adapter PCB*		KRP1B96 *2, 3	–	KRP1D98*4	–		KRP1B93*3	–		

Notes:
- *1 Installation box is necessary for each adapter marked with *.
- *2 Up to 2 adapters can be fixed per installation box.
- *3 Only 1 installation box can be installed per indoor unit.
- *4 Up to 2 installation boxes can be installed per indoor unit.



Silencer

Air suction/discharge grille
(Noise suppression type)

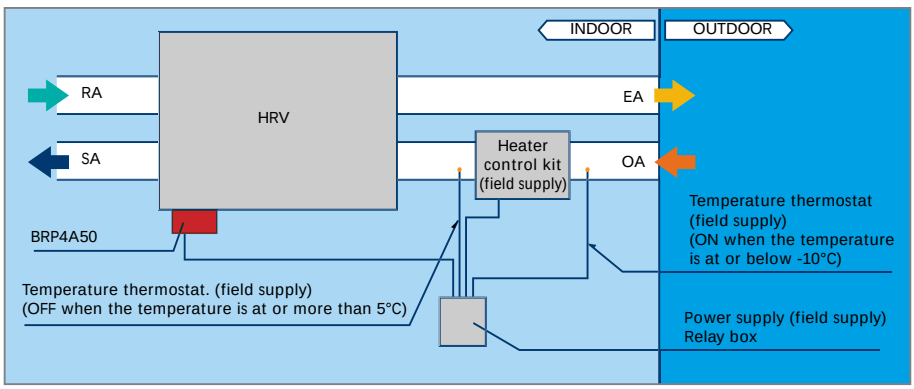
Flexible duct
(Noise suppression type)

Duct adapter

Item		Model	VAM-FAVE					VAM-FA5VE			
			150	250	350	500	650	800	1000	1500	2000
Additional function	Silencer	reference	–			KDDM24A50	KDDM24A100			KDDM24A100X2	
		nominal pipe ø (mm)	–			ø200	ø250				
	Air suction /	white	K-DGL100A	K-DGL150A		K-DGL200A	K-DGL250A				
	Discharge grille	nominal pipe ø (mm)	ø100	ø150		ø200	ø250				
	High efficiency filter		YAFM323F15	YAFM323F25	YAFM323F35	YAFM323F50	YAFM323F65		YAFM323F100	YAFM323F65X2	YAFM323F100X2
	Replacement for high efficiency filter		YAFF323F15	YAFF323F25	YAFF323F35	YAFF323F50	YAFF323F65		YAFF323F100	YAFF323F65X2	YAFF323F100X2
Flexible duct (1m)			K-FDS101C	K-FDS151C		K-FDS201C		K-FDS251C			
Flexible duct (2m)			K-FDS102C	K-FDS152C		K-FDS202C		K-FDS252C			
Duct adapter		reference	–							YDFA25A1	
		nominal pipe ø (mm)	–							ø250	
Direct expansion coil unit		reference	–			BHDM50AJVE	BHDM80AJVE		BHDM100AJVE	–	
		discharge adapter	–			KDAJ25K36	KDAJ25K56			–	

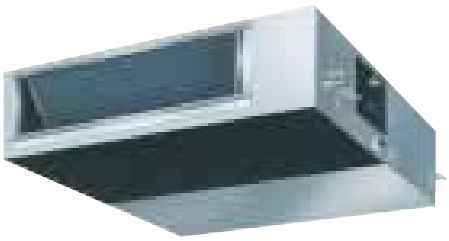
PC board adapter for heater control kit (BRP4A50)

When the installation of an electric heater is required in a cold region, this adapter with an internal timer function eliminates the complicated timer connecting work that was necessary with conventional heaters.



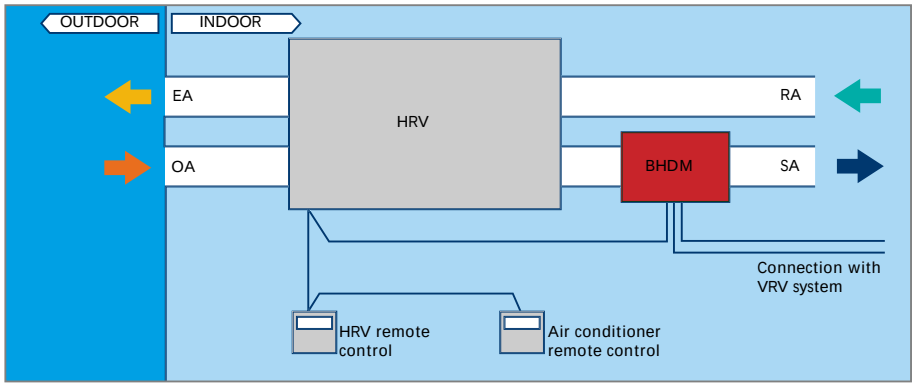
Notes when installing

- Examine fully an installation place and specification for using the electric heater based on the standard and regulations of each country.
- Supply the electric heater and safety production devices such as a relay and a thermostat, etc of which qualities satisfy the standard and regulation of each country at site.
- Use a non-inflammable connecting duct to the electric heater. Be sure to allow 2m or more between the electric heater and HRV for safety.
- For the HRV units, use a different power supply from that of the electric heater and install a circuit breaker for each of them.



Direct expansion coil unit (BHDM50~100AJVE) for R-407C system

The direct expansion coil functions to heat or cool the supply air out from HRV to make the outlet air temperature nearer to the room temperature for maintaining the comfort.



Notes:

- Be sure to interlock HRV and BHDM in the same group by using an air conditioner remote control.
- All system operations other than air flow rate switching can be controlled using the air conditioner remote control. To switch the air flow rate, please use the HRV remote control.

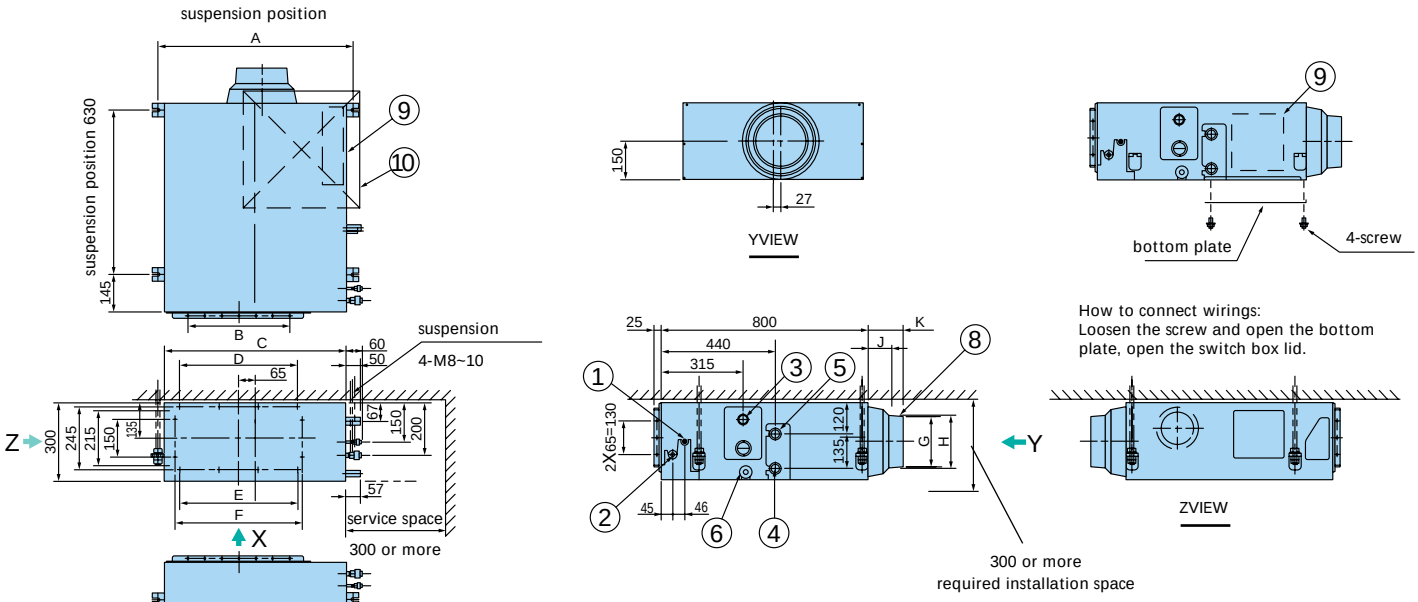
Specifications : direct expansion coil unit

BHDM-AJVE				50	80	100
Capacity index				25	40	50
Power supply				1 ~, 220~240V / 220V, 50Hz/60Hz		
Cooling capacity *1			kW	2.8 (3.0*)	4.5 (4.8*)	5.6 (6.1*)
Heating capacity *2			kW	3.2 (3.2*)	5.0 (5.0*)	6.3 (6.3*)
Casing/colour				galvanised steel plate		
Dimensions		HxWxD	mm	300 x 550 x 800	300 x 700 x 800	
Air flow rate range			m^3/h	330~600	480~780	540~930
Weight			kg	24	25	
Piping connection	Flare connection	liquid	mm	ø6.4		ø9.5
		gas	mm	ø12.7		ø15.9
		drain	mm	VP25 (external diameter 32, internal diameter 25)		
Refrigerant *3				R-407C		

Notes

- *1. Nominal cooling capacities are based on:
  indoor temperature: 27°CDB, 19°CWB • outdoor temperature: 35°CDB • equivalent refrigeratn piping: 5m (horizontal)
- *2. Nominal heating capacities are based on: indoor temperature: 20°CDB • outdoor temperature: 7°CDB, 6°CWB • equivalent refrigerant piping: 5m (horizontal)
- Cooling and Heating capacities marked with * are in case of connecting HRV unit.
  Cooling capacities are based on:
  Indoor temperature: 27°CDB, 50RH% • Outdoor temperature: 35°CDB, 60RH% • Equivalent ref. piping: 5m (horizontal)
  HRV performance :
  Temperature exchange efficiency: 74% • Enthalpy exchange efficiency: 58%
  Heating capacities are based on:
  Indoor temperature: 20°CDB, 40RH% • Outdoor temperature: 7°CDB, 70RH% • Equivalent ref. piping: 5m (horizontal)
  HRV performance :
  Temperature exchange efficiency: 74% • Enthalpy exchange efficiency: 62%
- *3. R-22 compatible models can be manufactured on request

DIMENSIONS: direct expansion coil unit



1. Liquid pipe connection
   (BHDM50,80AJVE: ø6.4 flare connection)
   (BHDM100AJVE: ø9.5 flare connection)
2. Gas pipe connection
   (BHDM50,80AJVE: ø12.7 flare connection)
   (BHDM100AJVE: ø15.9 flare connection)
3. Drain pipe connection:
   VP25 (O.D. ø32, I.D. ø25)
4. Interunit wiring port
5. Power wiring port
6. Drain hole: VP5 (O.D. ø32, I.D. ø25)
7. Discharge flange
8. Suction flange
   (BHDM50,80AJVE: ø200, BHDM100AJVE: ø250)
9. Switch box
10. Inspection hole (450x450)
11. Bottom plate

DIMENSIONS	A	B	C	D	E	F	G	H	J	K
BHDM50AJVE	600	4x65=260	550	310	2x150=300	335	ø 197	–	89	137
BHDM80AJVE	750	6x65=390	700	460	3x150=450	485	ø 246	ø 263	–	89
BHDM100AJVE										

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ISO9001 pertains to quality assurance regarding design, development, manufacturing as well as to services related to the product.

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.

Specifications are subject to change without prior notice

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

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

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