DAIKIN

Ventilation Catalogue

All Seasons
CLIMATE COMFORT

- Heating
- **Air Conditioning**
- Applied Systems
- Refrigeration

Daikin Europe N.V.

ABOUT DAIKIN

Daikin has a worldwide reputation based on almost 85 years' experience in the successful manufacture of high quality air conditioning equipment for industrial, commercial and residential use.

Daikin quality

Daikin's much envied quality quite simply stems from the close attention paid to design, production and testing as well as aftersales support. To this end, every component is carefully selected and rigorously tested to verify its contribution to product quality and reliability.

ENVIRONMENTAL AWARENESS

Air Conditioning and the Environment

Air conditioning systems provide a significant level of indoor comfort, making **optimum working and living conditions** possible in the most extreme climates.
In recent years, motivated by a global awareness of the need to reduce the burdens on the environment, Daikin has invested enormous efforts in limiting the negative effects associated with the production and the operation of air conditioners.
Hence, models with **energy saving** features and improved **eco-production** techniques have seen the light of day, making a significant contribution to limit the impact on the environment.

This sign highlights features where Daikin has invested into technologies to reduce the impact of air conditioning on the environment.
This sign can be found on pages: 8 - 9 - 31

WHICH SYSTEM OFFERS ME THE BEST SOLUTION?

With the advent of new building regulations, greater awareness of increasing energy costs and a responsibility towards environmental issues, modern commercial spaces are insulated better than ever. Double glazing, thicker roof insulation and draught excluders of course, help considerably towards reducing heating/cooling demand and burdens on the environment. The down-side however, is that these same commercial spaces have now become, in effect, sealed boxes with little or no replenishment of the air.

Daikin offers a variety of solutions for the provision of fresh air ventilation to offices, hotels, stores and other commercial outlets – each one complementary to and as flexible as both Sky Air® and VRV® systems themselves.

HEAT RECLAIM VENTILATION

Proper ventilation is a key component of climate control in buildings, offices and shops. In its basic function, it ensures a flow of incoming fresh air and outgoing stale air. Our HRV (heat reclaim ventilation) solution can do much more. It can recover heat and OPTIMISE THE BALANCE BETWEEN INDOOR AND OUTDOOR TEMPERATURE AND HUMIDITY, thus reducing the load on the system and increasing efficiency.

OUTDOOR AIR PROCESSING IN A SINGLE UNIT

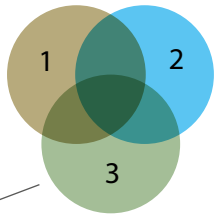
Our FXMQ-MF air processing solution uses heat pump technology to COMBINE FRESH AIR TREATMENT AND AIR CONDITIONING IN A SINGLE SYSTEM, thereby eliminating the usual design problems associated with balancing air supply and discharge. Total system cost is reduced and design flexibility enhanced because the indoor air conditioning fan coil units and an outdoor air treatment unit can be connected to the same refrigerant line.

ERQ (PAIR) AND VRV® AIR HANDLING APPLICATIONS

For small, medium and large commercial spaces, we offer a range of R-410A inverter condensing units that provide air handling and air conditioning. This approach combines the flexibility of our ERQ and VRV® units with Air Handling Applications, resulting in a simple, reliable design for OPTIMUM CONTROL OF INDOOR AIR QUALITY AND MAXIMUM EFFICIENCY.

OVERVIEW VENTILATION RANGE

Ventilation: provision of fresh air



Humidification: optimise the balance between indoor and outdoor humidity

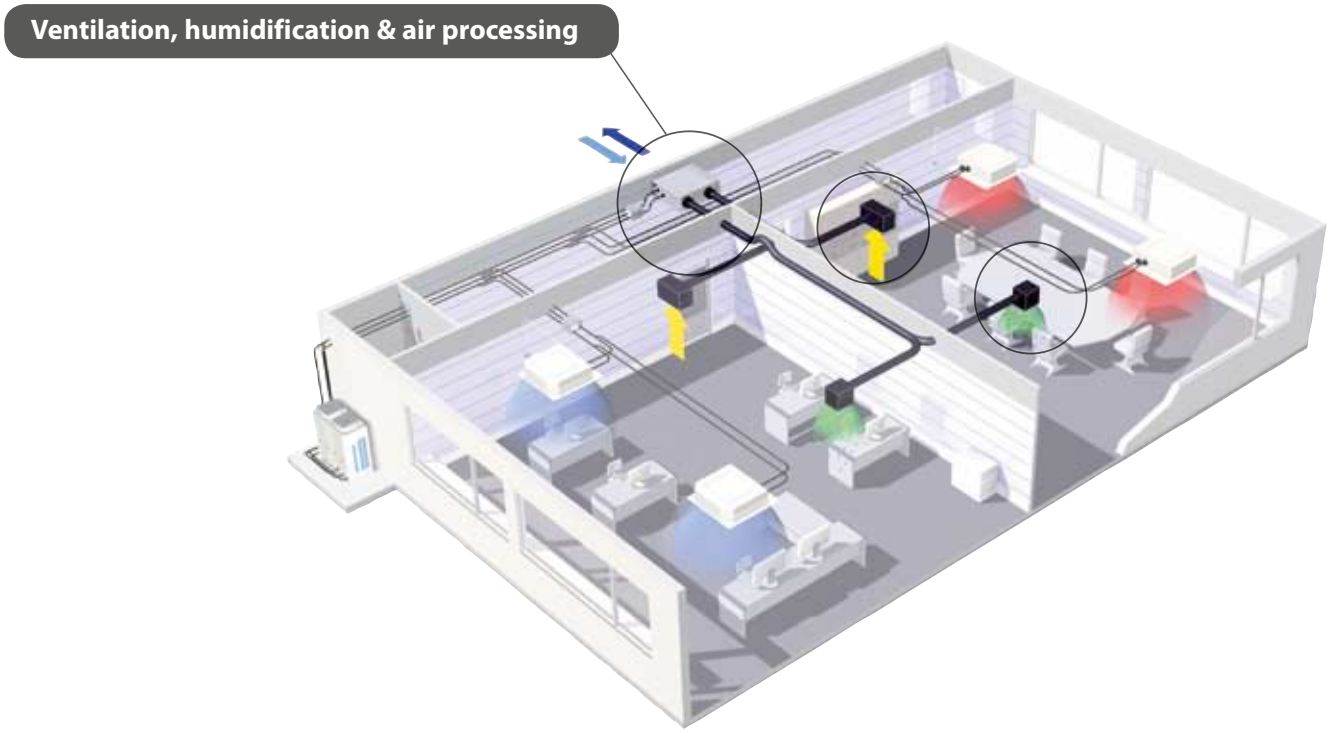
Air processing: optimise the balance between indoor and outdoor fresh air temperature

Type	name	Components of indoor air quality		Air flow rate (m³/h) 0 200 400 600 800 1,000 1,500 2,000 4,000 6,000 8,000
HEAT RECLAIM VENTILATION	VAM-FA	1 Ventilation		
	VKM-G	1 Ventilation 3 Air processing		
	VKM-GM	1 Ventilation 2 Humidification 3 Air processing		
OUTDOOR AIR PROCESSING UNIT[1]	FXMQ-MF	1 Ventilation 3 Air processing		
ERQ AND VRV* AIR HANDLING APPLICATIONS[2]	EKEXV-kit	1 Ventilation 3 Air processing		

[1] Not connectable to VRV*III-S (RXYSQ-PAV, RXYSQ-PAY)

[2] Air flow rate is a calculated indication only, based on the following values: heating capacity EKEXV-kit * 200m³/h

HRV - HEAT RECLAIM VENTILATION



HRV helps to create a high quality indoor environment

The Daikin HRV (Heat Reclaim Ventilation) unit recovers heat energy lost through ventilation and maintains a comfortable and clean indoor environment without changes in room temperature. This also reduces the load on the air conditioning system and saves energy.

In addition, the HRV interlocks with Daikin's air conditioning systems (for example VRV® and Sky Air®) and automatically switches over to ventilation mode when needed, further increasing the effects of energy conservation. HRV can be integrated on the air conditioner remote control allowing total control over air conditioning and ventilation via a simple configuration.

The current line-up includes models with or without DX coil and/or humidifier. The DX coil helps to prevent the direct impact of cold airflow upon persons during the heating cycle and vice versa, the humidifier optimises the balance between indoor and outdoor humidity.
Finally high static pressure enhances design flexibility.

BENEFITS FOR BUILDING OWNERS

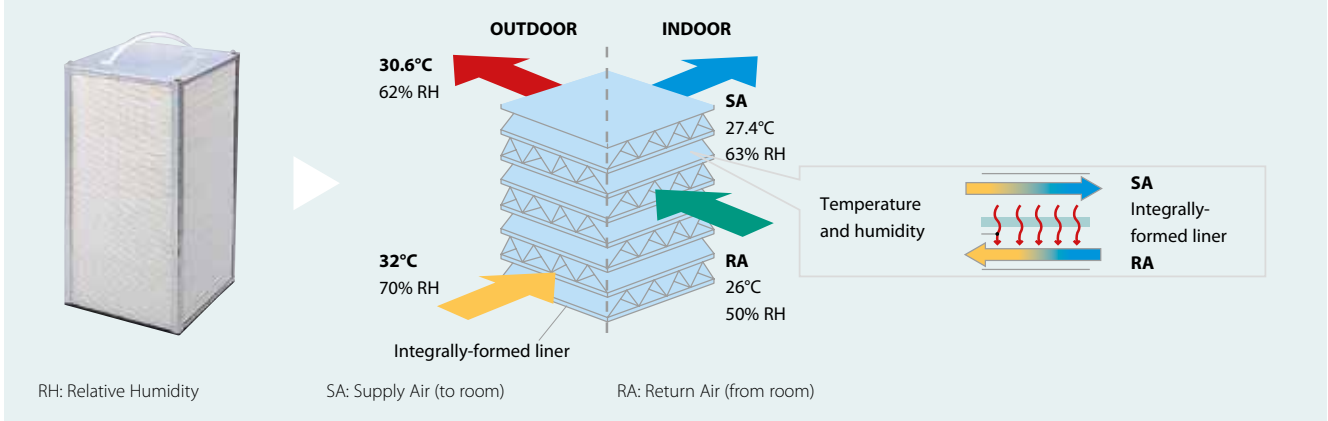
ENERGY SAVING VENTILATION

Buildings need year round ventilation. In traditional ventilation systems the conditioned inside air is lost when exhausted externally and new unconditioned air is brought into the building. This results in large amounts of air being heated up or cooled down over and above the actual load of the air conditioning system and leads to a substantial waste of energy. The Daikin HRV system however, automatically balances outside and inside temperature and humidity enabling the recovery of heat/cold with significant savings in running costs.

Specially developed HEP element

The heat exchange element uses a high efficiency paper (HEP) possessing superior moisture absorption and humidifying properties. The heat exchange unit rapidly recovers heat contained in latent heat (vapour). The element is made of a material with flame resistant properties and is treated with an anti-moulding agent.

Operation of the high effiency paper.

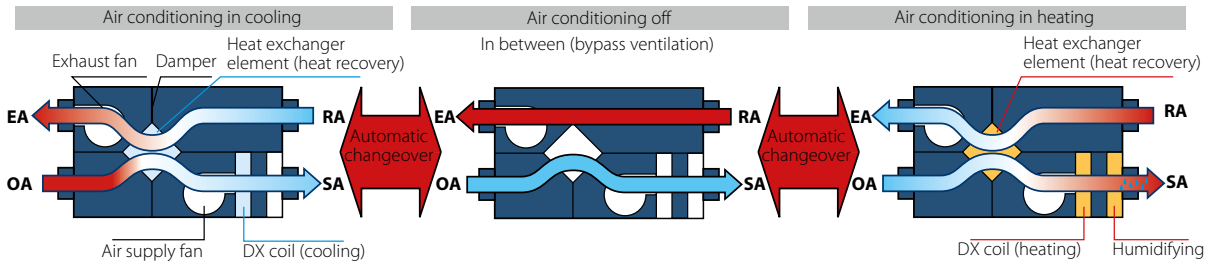


REDUCING THE LOAD ON THE AIR CONDITIONING SYSTEM

Thanks to the use of heat reclaim ventilation the load on the air conditioning is reduced with approximately 31%.
- 23% by operating in total heat exchange mode (in comparison with normal ventilation fans)
- another 6% by auto-ventilation mode changeover switching
- a further 2% by pre-cool, pre-heat control (reduces air conditioning load by not running the HRV shortly after the air conditioning is switched on.)

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

Operation automatically switches to the optimum pattern to suit prevailing conditions



Example: Outdoor temp. 30°C
Indoor temp. 22°C

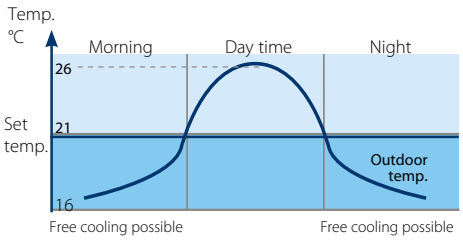
Example: Outdoor temp. -5°C
Indoor temp. 22°C

EA: exhaust air
OA: outdoor air
RA: return air (from room)
SA: supply air (to room)

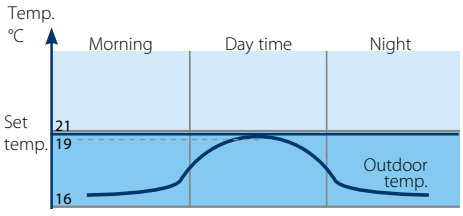
FREE COOLING

The free cooling option reduces the air conditioning energy consumption and uses energy in a more efficient way by actively introducing fresh air into rooms. Free cooling maintains indoor comfort through the introduction of low temperature outdoor air into rooms.

Note: Free cooling is only available in combination with Intelligent Touch Controller



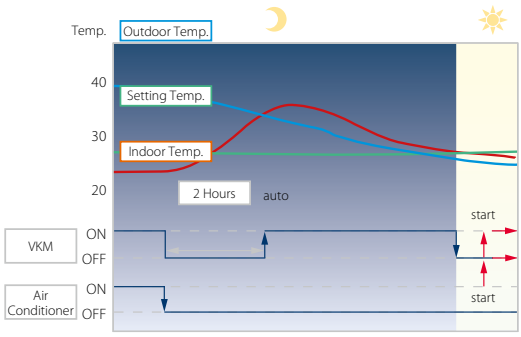
Example of free cooling during summer



Example of free cooling during intermediate season

Nighttime free cooling operation

Nighttime free cooling operation is an energy saving function operating at night when the air conditioning is switched off. By ventilating rooms containing office equipment that increases room temperature, night purge reduces the cooling load when air conditioning is switched on in the morning, reducing the daily running costs.



Nighttime free cooling operation is factory set to "off" but can be activated by your Daikin dealer on request.
Nighttime free cooling operation only available on VKM units connected to a VRV® system

BENEFITS FOR DESIGN OFFICES AND CONSULTANTS

TOTAL SOLUTION CONCEPT - INTEGRATED VENTILATION

The integration of ventilation into a total building climate system, such as the VRV® system, offers numerous advantages. Daikin supplies software which simulates the working of the entire system, simplifying its design and presenting an ideal solution for the building itself and a 'one-stop' solution for the client.
As well as design benefits, it also simplifies project follow-up, installation and subsequent commissioning and maintenance since only one party is involved.
Finally, the end user benefits from 'interlocking' ventilation with air conditioner operation by virtue of greatly simplified overall system control.

Note: more information on integrated control can be found in the control systems chapter

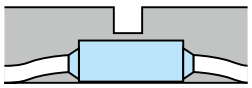
SLIM DESIGN

The slim design of the HRV unit enables it to be mounted in narrow ceiling voids and irregularly shaped spaces.

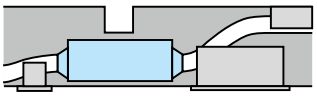
VAM250FA

Installation under the floor of a small building

Installation under a beam

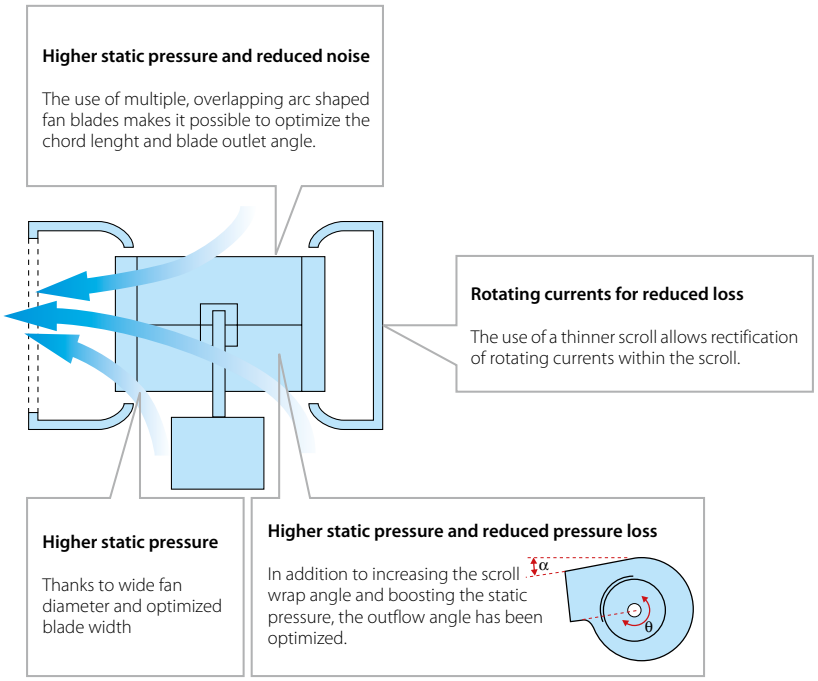


Installation in an irregular space



HIGH STATIC PRESSURE

External static pressure (ESP) up to 160 Pa facilitates the use with flexible ducts of varying lengths.



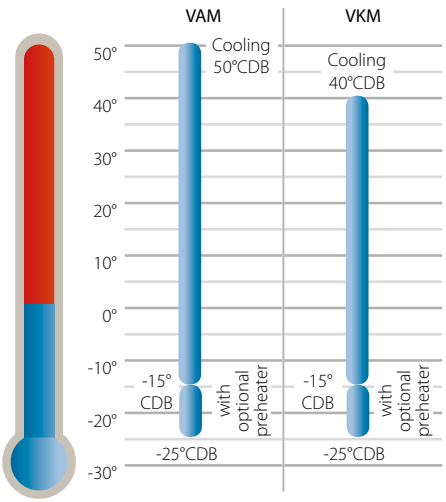
WIDE RANGE OF UNITS

The wide Daikin unit range ensures correct equipment design and sizing.

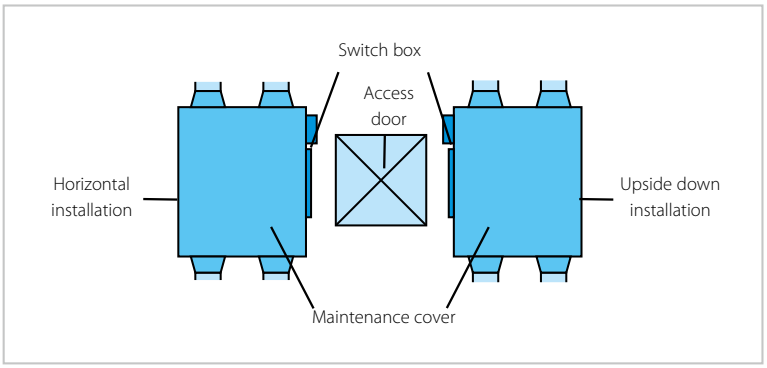
WIDE OPERATION RANGE

The HRV unit can be installed in practically any location.
The standard operation range (outdoor temperature) is from -15°C to 40°CDB (50°CDB for VAM units) and can be extended down to -25°C if a pre heater is installed.

[1] Contact your local dealer for more information and restrictions



BENEFITS FOR INSTALLERS



SIMPLE DESIGN AND CONSTRUCTION

The unit can be installed either horizontally or upside down always allowing easy access for inspection and maintenance.
A 450 mm square inspection hatch enables maintenance and heat exchange element replacement to be performed with ease.
Also no drain connection is needed, further simplifying the installation.

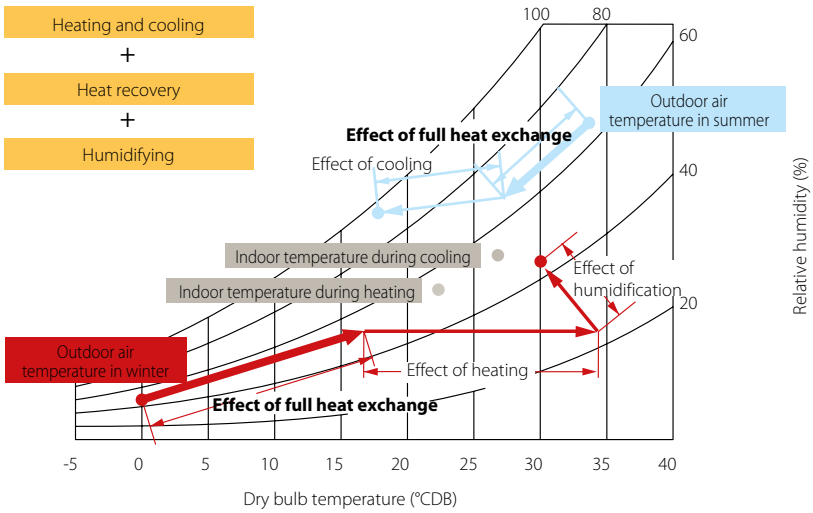
FILTER CLEANING

A signal on the remote control indicates when the air filter needs cleaning.

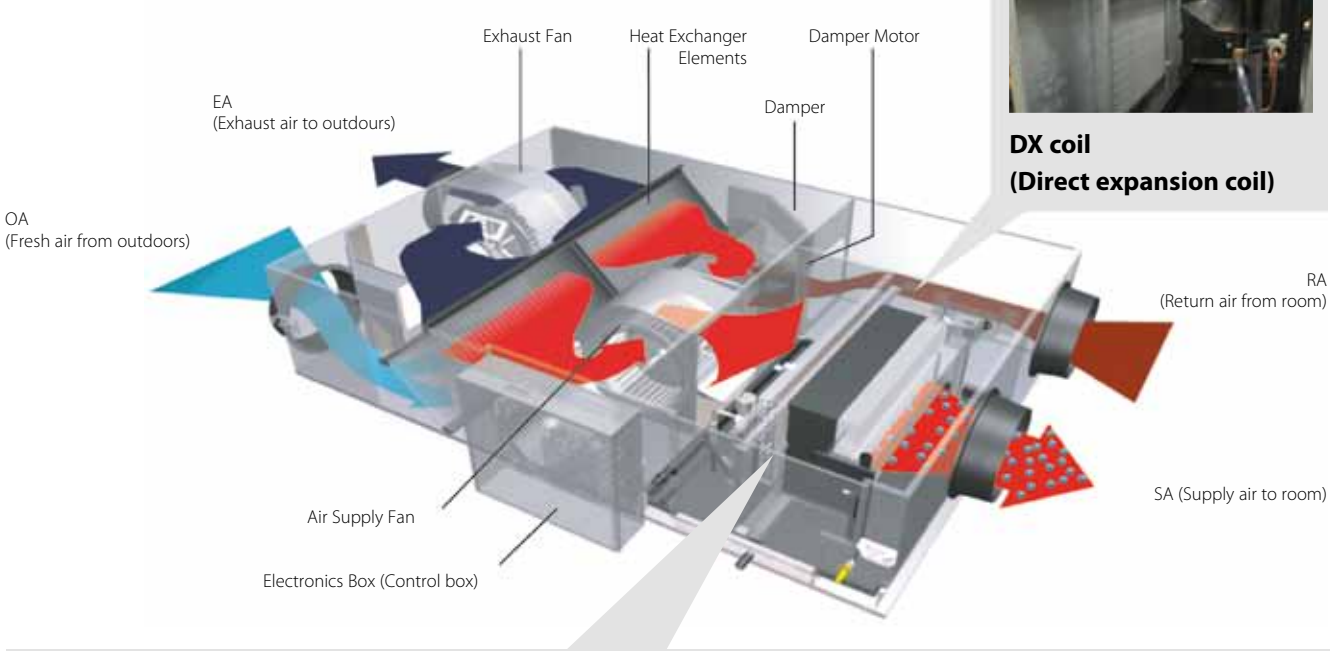
BENEFITS FOR END USERS

CREATING A HIGH QUALITY INDOOR ENVIRONMENT

In addition to the HEP high efficiency paper, VKM models contain a DX-coil and humidifier (VKM only), thereby balancing the incoming fresh air with indoor temperature and humidity and ensuring the best possible indoor environment.



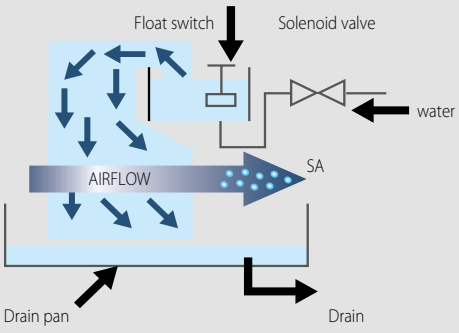
Operation of humidicicaton and air processing in heating mode (VKM-GM)



DX coil
(Direct expansion coil)

Humidifier element:

Utilizing the principle of capillary action, water is permeated throughout the humidifier element. The heated air from the DX coil passes through the humidifier and absorbs the moisture.

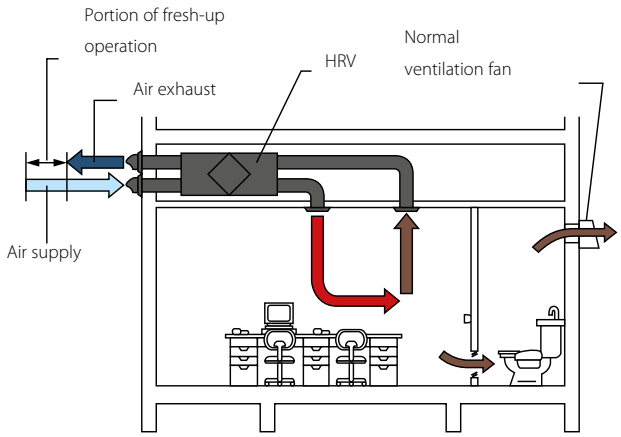


FRESH-UP OPERATION

The user can select 2 fresh-up modes via the remote control for a more comfortable air environment.

1. Supply rich mode:

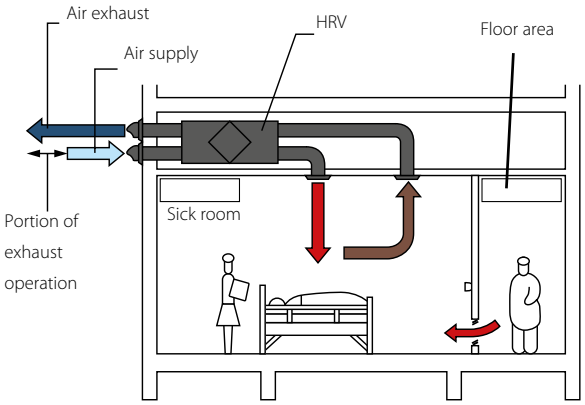
Raising the air supply maintains proper room pressure to prevent back-flow of toilet/kitchen odours or moisture inflow.



eg. Office

2. Exhaust fresh-up:

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



eg. Hospital

LOW OPERATION SOUND LEVEL

Continues research by Daikin into reducing operation sound levels has resulted in sound pressure levels down to 20.5dBA (VAM150FA)

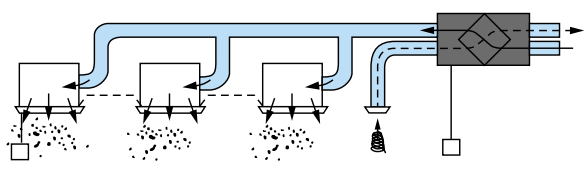
Daikin indoor units

dBA	Perceived loudness	Sound
0	Treshold of hearing	-
20	Extremely soft	Rustling leaves
40	Very soft	Quiet room
60	Moderately loud	Normal conversation
80	Very loud	City traffic noise
100	Extremely loud	Symphonic orchestra
120	Threshold of feeling	Jet taking off

DUST PREVENTION

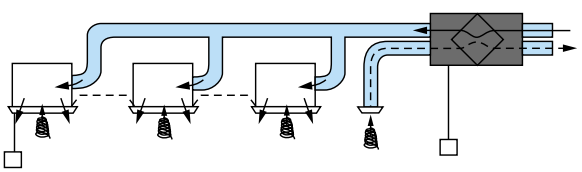
When the HRV is operating independently, the fan in an interlocked indoor unit continues turning, so dust does not fall from the air filter.

Systems without dust prevention



OFF Dust

With Daikin HRV



Blowing mode No dust is blown out

VAM800FA

SPECIFICATIONS

INDOOR UNIT					VAM150FA	VAM250FA	VAM350FA	VAM500FA	VAM650FA	VAM800FA	VAM1000FA	VAM1500FA	VAM2000FA
Power input - 50Hz	Heat exchange mode	Nom.	Ultra high/ High/Low	kW	0.116/0.100/0.056	0.141/0.112/0.062	0.194/0.175/0.111	0.212/0.189/0.118	0.380/0.325/0.227	0.451/0.400/0.346	0.469/0.432/0.349	0.864/0.758/0.655	0.953/0.767/0.653
	Bypass mode	Nom.	Ultra high/ High/Low	kW	0.116/0.100/0.056	0.141/0.112/0.062	0.194/0.175/0.111	0.212/0.189/0.118	0.380/0.325/0.227	0.451/0.400/0.346	0.469/0.432/0.349	0.864/0.758/0.655	0.953/0.767/0.653
Power input - 60Hz	Heat exchange mode	Nom.	Ultra high/ High/Low	kW	0.117/0.099/0.056	0.138/0.119/0.062	0.226/0.214/0.120	0.253/0.232/0.125	0.432/0.384/0.251	0.514/0.471/0.408	0.571/0.537/0.419	0.981/0.929/0.754	1.017/1.021/0.779
	Bypass mode	Nom.	Ultra high/ High/Low	kW	0.117/0.099/0.056	0.138/0.119/0.062	0.226/0.214/0.120	0.253/0.232/0.125	0.432/0.384/0.251	0.514/0.471/0.408	0.571/0.537/0.419	0.981/0.929/0.754	1.017/1.021/0.779
Temperature exchange efficieny - 50Hz	Ultra high/High/Low			%	74/74/79	72/72/77	75/75/80	74/74/77		74/74/76	75/75/76.5	75/75/78	
Temperature exchange efficieny - 60Hz	Ultra high/High/Low			%	74/74/80	72/72/77	75/75/81	74/74/78.5	74/74/78	74/74/76	75/75/78		
Enthalpy exchange efficieny - 50Hz	Cooling	Ultra high/High/Low		%	58/58/64	58/58/62	61/61/67	58/58/63		60/60/62	61/61/63	61/61/64	61/61/66
	Heating	Ultra high/High/Low		%	64/64/69	64/64/68	65/65/70	62/62/67	63/63/66	65/65/67	66/66/68		66/66/70
Enthalpy exchange efficieny - 60Hz	Cooling	Ultra high/High/Low		%	58/58/66	58/58/63	61/61/68	58/58/65		60/60/63	61/61/66	61/61/64	61/61/66
	Heating	Ultra high/High/Low		%	64/64/71	64/64/69	65/65/71	62/62/68.5	63/63/68	65/65/68	66/66/71	66/66/68	66/66/70
Operation mode					Heat exchange mode Bypass mode Fresh-up mode								
Heat exchange system					Air to air cross flow total heat (sensible + latent heat) exchange								
Heat exchange element					Specially processed non-flammable paper								
Casing	Material				Galvanised steel plate								
Dimensions	Unit	HeightxWidthxDepth		mm	285x776x525		301x828x816		364x1,004x868		364x1,004x1,156	726x1,514x868	726x1,514x1,156
Weight	Unit			kg	24		33		48		61	132	158
Fan	Type				Sirocco fan								
	Air flow rate - 50Hz	Heat exchange mode	Ultra high/ High/Low	m^3/h	150/150/110	250/250/155	350/350/230	500/500/350	650/650/500	800/800/670	1,000/1,000/870	1,500/1,500/1,200	2,000/2,000/1,400
		Bypass mode	Ultra high/ High/Low	m^3/h	150/150/110	250/250/155	350/350/230	500/500/350	650/650/500	800/800/670	1,000/1,000/870	1,500/1,500/1,200	2,000/2,000/1,400
	Air flow rate - 60Hz	Heat exchange mode	Ultra high/ High/Low	m^3/h	150/150/110	250/250/145	350/350/210	500/500/300	650/650/440	800/800/660	1,000/1,000/800	1,500/1,500/1,200	2,000/2,000/1,400
		Bypass mode	Ultra high/ High/Low	m^3/h	150/150/110	250/250/145	350/350/210	500/500/300	650/650/440	800/800/660	1,000/1,000/800	1,500/1,500/1,200	2,000/2,000/1,400
	External static pressure - 50Hz	Ultra high/High/Low		Pa	69/39/20	64/39/20	98/70/25	98/54/25	93/39/25	137/98/49	157/98/78	137/98/49	137/78/59
	External static pressure - 60Hz	Ultra high/High/Low		Pa	98/54/24	98/54/20	142/85/15	147/54/20	162/69/34	225/118/69	196/108/69	206/118/69	196/88/69
Sound pressure level - 50Hz	Heat exchange mode	Ultra high/High/Low		dBA	27 28.5/26 27.5/20.5 21.5	28 29/26 27/21 22	32 34/31.5 33/23.5 26	33 34.5/31.5 33/24.5 26.5	34.5 35.5/33 34/27 28	36 37/34.5 36/31 32	36 37/35 36/31 32	39.5 41.5/38 39/34 36	40 42.5/38 41/35 37
	Bypass mode	Ultra high/High/Low		dBA	27 28.5/26.5 27.5/20.5 21.5	28 29/27 28/21 22	32 34/31 32.5/24.5 26.5	33.5 34.5/32.5 33.5/25.5 27.5	34.5 35.5/34 35/27 28.5	36 37/34.5 36/31 33	36 37/35.5 36/31 32	40.5 41.5/38 39/33.5 36	40 42.5/38 41/35 37
Sound pressure level - 60Hz	Heat exchange mode	Ultra high/High/Low		dBA	28.5/26.5/19	29.5/26/19.5	34.5/32/22	34/31/24	36/33/27	37/35/30		40.5/38/33	41/38/35
	Bypass mode	Ultra high/High/Low		dBA	28/27/20	29/27/20.5	34.5/33/22	35/33/24	35.5/34/27	37/35/31		40.5/38/33	41/38/35
Operation range	Min.			°CDB	-15								
	Max.			°CDB	50								
	Relative humidity			%	80% or less								
Connection duct diameter				mm	100	150		200		250		350	
Piping connections	Drain				-								
Insulation material					Self-extinguishable urethane foam								
Air filter					Multidirectional fibrous fleeces								
Power supply	Phase/Frequency/Voltage			Hz/V	1~/50/60/220-240/220								

(1) Air flow rate can be changed to Low mode or High mode.

(2) Operation sound is measured at 1.5m below the center of the body.

(3) Sound values are measured in an anechoic chamber. Operating sound level generally becomes higher than this value depending on the operating conditions, reflected sound, and peripheral noise.

(4) The noise level at the air discharge port is about 8dB higher than the operating sound of the unit.

VKM-G

Heat reclaim ventilation,
air processing and humidification

VKM80-100G

SPECIFICATIONS

INDOOR UNIT					VKM50G	VKM80G	VKM100G
Power input - 50Hz	Heat exchange mode	Nom.	Ultra high/ High/Low	kW	0.560/0.490/0.420	0.620/0.560/0.470	0.670/0.570/0.480
	Bypass mode	Nom.	Ultra high/ High/Low	kW	0.560/0.490/0.420	0.620/0.560/0.470	0.670/0.570/0.480
Fresh air conditioning load	Cooling			kW	4.71 (2)	7.46 (2)	9.12 (2)
	Heating			kW	5.58 (3)	8.79 (3)	10.69 (3)
Temperature exchange efficieny - 50Hz	Ultra high/High/Low			%	76/76/77.5	78/78/79	74/74/76.5
Enthalpy exchange efficieny - 50Hz	Cooling	Ultra high/High/Low		%	64/64/67	66/66/68	62/62/66
	Heating	Ultra high/High/Low		%	67/67/69	71/71/73	65/65/69
Operation mode					Heat exchange mode Bypass mode Fresh-up mode	Heat exchange mode Bypass mode Fresh-up mode	Heat exchange mode Bypass mode Fresh-up mode
Heat exchange system					Air to air cross flow total heat (sensible + latent heat) exchange		
Heat exchange element					Specially processed non-flammable paper		
Casing	Material				Galvanised steel plate		
Dimensions	Unit	HeightxWidthxDepth		mm	387x1,764x832	387x1,764x1,214	
Weight	Unit			kg	96	109	114
Fan	Type				Sirocco fan		
	Air flow rate - 50Hz	Heat exchange mode	Ultra high/ High/Low	m^3/h	500/500/440	750/750/640	950/950/820
		Bypass mode	Ultra high/ High/Low	m^3/h	500/500/440	750/750/640	950/950/820
	External static pressure - 50Hz	Ultra high/High/ Low		Pa	180/150/110	170/120/80	150/100/70
Sound pressure level - 50Hz	Heat exchange mode	Ultra high/High/ Low		dBA	38 38.5 39/36 36.5 37/33.5 34.5 35.5	40 41 41.5/37.5 38 39/34.5 36 37	40 40.5 41/38 38.5 39/35 36 36.5
	Bypass mode	Ultra high/High/ Low		dBA	38 38.5 39/36 36.5 37/33.5 34.5 35.5	40 41 41.5/37.5 38 39/34.5 36 37	40 40.5 41/38 38.5 39/35 36 36.5
Operation range	Around unit			°CDB	0°C~40°CDB, 80% RH or less		
	Supply air			°CDB	-15°C~40°CDB, 80% RH or less		
	Return air			°CDB	0°C~40°CDB, 80% RH or less		
Refrigerant	Control				Electronic expansion valve		
Connection duct diameter				mm	200	250	
Piping connections	Liquid	Type/OD		mm	Flare connection/6.35		
	Gas	Type/OD		mm	Flare connection/12.7		
	Drain				PT3/4 external thread		
Insulation material					Self-extinguishable urethane foam		
Air filter					Multidirectional fibrous fleeces		
Power supply	Phase/Frequency/Voltage			Hz/V	1~/50/220-240		

(1) Cooling: indoor temp. 27°CDB, 19°CWB; outdoor temp. 35°CDB

(2) Heating: indoor temp. 20°CDB; outdoor temp. 7°CDB, 6°CWB

(3) Operation sound measured at 1.5m below the center of the unit is converted to that measured in an anechoic chamber, built in accordance with JIS C1502 condition.

(4) The sound level at the air discharge port is about 8-11dB higher than operating sound of the unit. For operation in a quiet room, it is required to take measures to lower the sound, for example install more than 2m soft duct near the air discharge grille.

(5) Air flow rate can be changed to Low mode or High mode.

(6) Normal amplitude, input and efficiency depend on the mentioned conditions.

VKM-GM

Heat reclaim ventilation
and air processing

VKM80-100GM

SPECIFICATIONS

INDOOR UNIT					VKM50GM	VKM80GM	VKM100GM
Power input - 50Hz	Heat exchange mode	Nom.	Ultra high/ High/Low	kW	0.560/0.490/0.420	0.620/0.560/0.470	0.670/0.570/0.480
	Bypass mode	Nom.	Ultra high/ High/Low	kW	0.560/0.490/0.420	0.620/0.560/0.470	0.670/0.570/0.480
Fresh air conditioning load	Cooling			kW	4.71 (2)	7.46 (2)	9.12 (2)
	Heating			kW	5.58 (3)	8.79 (3)	10.69 (3)
Temperature exchange efficieny - 50Hz	Ultra high/High/Low			%	76/76/77.5	78/78/79	74/74/76.5
Enthalpy exchange efficieny - 50Hz	Cooling	Ultra high/High/Low		%	64/64/67	66/66/68	62/62/66
	Heating	Ultra high/High/Low		%	67/67/69	71/71/73	65/65/69
Operation mode					Heat exchange mode Bypass mode Fresh-up mode		
Heat exchange system					Air to air cross flow total heat (sensible + latent heat) exchange		
Heat exchange element					Specially processed non-flammable paper		
Humidifier	System				Natural evaporating type		
Casing	Material				Galvanised steel plate		
Dimensions	Unit	HeightxWidthxDepth		mm	387x1,764x832	387x1,764x1,214	
Weight	Unit			kg	102	120	125
Fan	Type				Sirocco fan		
	Air flow rate - 50Hz	Heat exchange mode	Ultra high/ High/Low	m^3/h	500/500/440	750/750/640	950/950/820
		Bypass mode	Ultra high/ High/Low	m^3/h	500/500/440	750/750/640	950/950/820
	External static pressure - 50Hz	Ultra high/High/Low		Pa	160/120/100	140/90/70	110/70/60
Sound pressure level - 50Hz	Heat exchange mode	Ultra high/High/Low		dBA	37 37.5 38/35 35.5 36/32 33 34	38.5 39 40/36 37 37.5/33 34 35.5	39 39.5 40/37 37.5 38/34 34.5 35.5
	Bypass mode	Ultra high/High/Low		dBA	37 37.5 38/35 35.5 36/32 33 34	38.5 39 40/36 37 37.5/33 34 35.5	39 39.5 40/37 37.5 38/34 34.5 35.5
Operation range	Around unit			°CDB	0°C~40°CDB, 80% RH or less		
	Supply air			°CDB	-15°C~40°CDB, 80% RH or less		
	Return air			°CDB	0°C~40°CDB, 80% RH or less		
Refrigerant	Control				Electronic expansion valve		
Connection duct diameter				mm	200	250	
Piping connections	Liquid	Type/OD		mm	Flare connection/6.35		
	Gas	Type/OD		mm	Flare connection/12.7		
	Water supply			mm	6.4		
	Drain				PT3/4 external thread		
Insulation material					Self-extinguishable urethane foam		
Air filter					Multidirectional fibrous fleeces		
Power supply	Phase/Frequency/Voltage			Hz/V	1~/50/220-240		

(1) Cooling: indoor temp. 27°CDB, 19.0°CWB; outdoor temp. 35°CDB
(2) Heating: indoor temp. 20°CDB; outdoor temp. 7°CDB, 6°CWB
(3) Humidifying capacity: indoor temp. 20°CDB, 15°CWB; outdoor temperarure 7°CDB, 6°CWB
(4) Operation sound measured at 1.5m below the center of the unit is converted to that measured in an anechoic chamber, built in accordance with JIS C1502 condition.
(5) The sound level at the air discharge port is about 8-11dB higher than operating sound of the unit. For operation in a quiet room, it is required to take measures to lower the sound, for example install more than 2m soft duct near the air discharge grille.
(6) For operation in a quiet room, it is required to take measures to lower the sound. For more details, refer to the data book
(7) Air flow rate can be changed to Low mode or High mode.
(8) Normal amplitude, input and efficiency depend on the mentioned conditions.

ACCESSORIES

			VAM-FA / VKM-GM / VKM-G													
PC board adapter	wiring adapter for electrical appendices		KRP2A61													
	for humidifier (running ON signal output)		KRP50-2													
	for heater control kit		BRP4A50													
	for wiring	indoor unit	FXFQ	FXZQ	FXCQ	FXKQ	FXDQ-M9	FXDQ-P	FXSQ	FXMQ-P7	FXMQ-MA	FXAQ	FXUQ	FXHQ	FXLQ	FXNQ
		reference	-	KRP1B57[1]	KRP1B61[1]	KRP1B61		KRP1B56	-	KRP1C64[4]	KRP1B61	-	KRP4A53	KRP1B3	KRP1B61	
	installation box for adapter PCB		KRP1H98[5]	KRP-1BA101	KRP1B96[2/3]	-		KRP-1BA101	KRP4A96[2/3]		-	KRP4A93[2/3]	KRP1B97	KRP1C93[4]	-	

Notes:
1. Installation box is required
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
5. Installation box is necessary for second adapter
6. Option not available in combination with BYCQ140CGW1

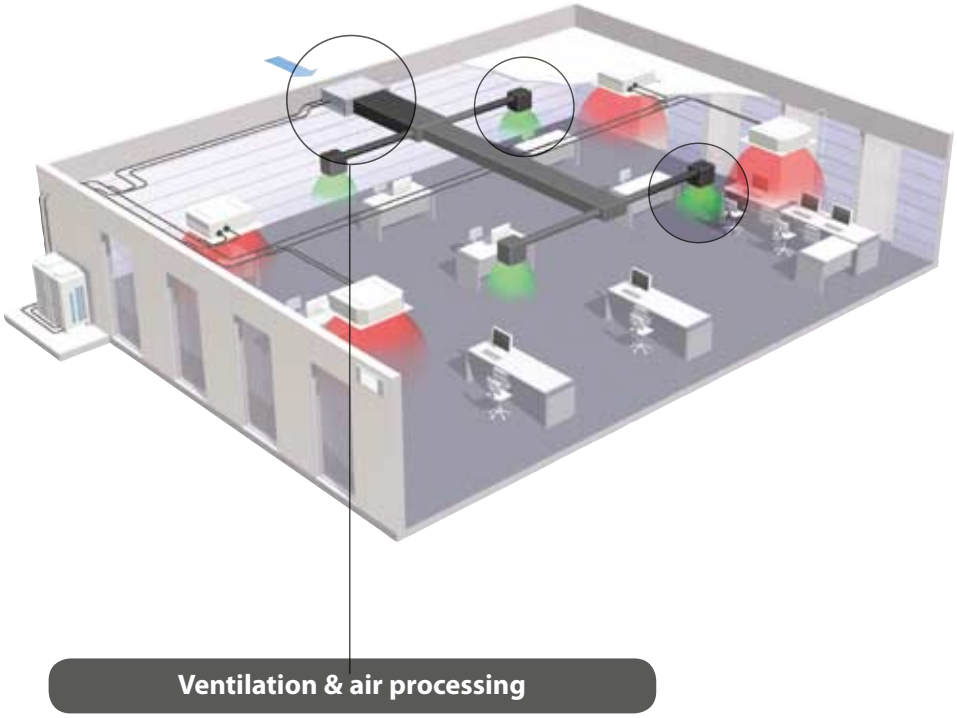
Silencer

Duct adapter

VAM-FA		150	250	350	500	650	800	1000	1500	2000
Replacement for air filter		YAFF323F15	YAFF323F25	YAFF323F35	Ø 200mm	Ø 200mm	Ø 250mm	YAFM323F100	YAFM323F65 x 2	YAFM323F100 x 2
Replacement for air filter		-	-	-	YAFM323F50	YAFM323F65		YAFF323F100	YAFF323F65 x 2	YAFF323F100 x 2
Duct adapter	reference	-	-	-	YAFF323F50	YAFF323F65		-	YDFA25A1	
	nom. piping diameter	-	-	-	-	-		-	Ø 250mm	

VKM-G(M)		50	80	100
Silencer	reference	-	KDDM24B100	
	nom. piping diameter	-	Ø 250mm	
High efficiency filter		KAF241G80M	KAF241G100M	
Replacement for air filter		KAF242G80M	KAF242G100M	

FXMQ-MF - OUTDOOR AIR PROCESSING UNIT



Combined fresh air treatment and air conditioning via a single system

Both fresh air treatment and air conditioning can be achieved successfully in a single system via heat pump technology. This without the usual design problems associated with balancing air supply and discharge. Air conditioning indoor units and an outdoor air processing units can be connected to the same refrigerant circuit, resulting in enhanced design flexibility and a significant reduction in total system costs.

BENEFITS

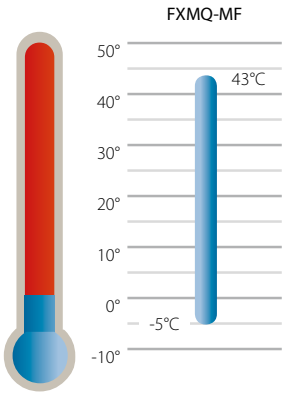
100% FRESH AIR INTAKE POSSIBLE

Outdoor air processing units can be used exclusively to provide 100% fresh air into the building. Even if only partly used the system reduces the load on the air conditioner by adjusting the outdoor air temperature via fixed discharge temperature control.

LEAVING MAXIMUM FLOOR AND WALL SPACE FOR FURNITURE, DECORATION AND FITTINGS

WIDE OPERATION RANGE

The outdoor air processing unit can be installed practically anywhere. The unit operates at outdoor ambients up to 43°C in cooling mode and down to -5°C in heating mode.



HIGH STATIC PRESSURE

External static pressure (ESP) up to 225 Pa allows the use of extensive ductwork runs and facilitates the use with flexible ducts of varying lengths. Ideal for use in large areas.

BUILT-IN DRAIN PUMP

A drain pump kit increases the reliability of the drain system [1]

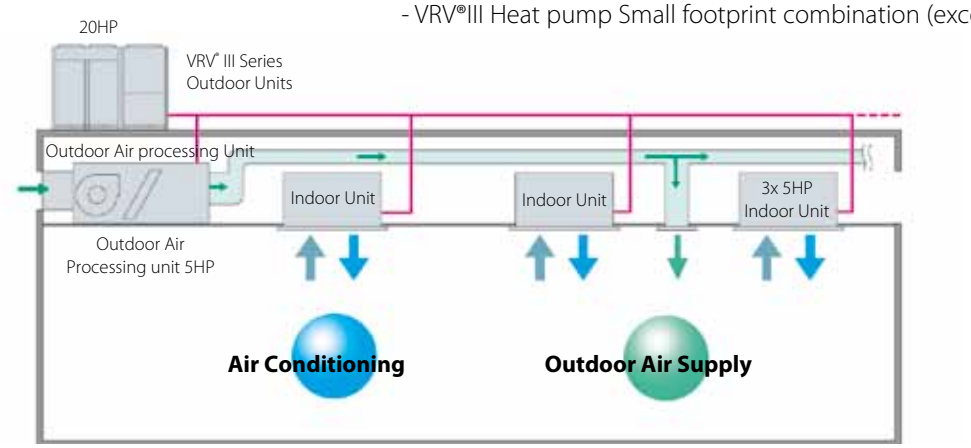
[1] Drain pump kit available as accessory

CONNECTION CONDITIONS

› The total connected capacity of the standard indoor units and fresh air treatment units must be between 50% and 100% of the capacity of the air conditioning outdoor units. The connected capacity of the fresh air treatment units must not exceed 30% of the capacity of the air conditioning outdoor units.

› A fresh air treatment unit can also be used exclusively. The connected capacity of the fresh air treatment unit must be between 50% and 100% of the capacity of the air conditioning outdoor unit.

› Connectable outdoor units:
- VRV®III Heat pump Optimised for heating (RTSYQ-P)
- VRV®III Heat pump High COP combination (RXYHQ16-36P8)
- VRV®III Heat pump Small footprint combination (except 5HP unit) (RXYQ8-54P(A)(8))



FXMQ-MF

125, 200, 250

Outdoor air processing unit, ventilation and air processing

FXMQ200-250MF

SPECIFICATIONS

					FXMQ125MF	FXMQ200MF	FXMQ250MF
Capacity	cooling			kW	14.0	22.4	28.00
	heating			kW	8.9	13.9	17.40
Power Input	cooling			kW	0.359	0.548	0.638
	heating			kW	0.359	0.548	0.638
Casing	material				Galvanised steel		
Dimensions	unit	height		mm	470	470	470
		width		mm	744	1380	1380
		depth		mm	1100	1100	1100
Weight	unit			kg	86	123	123
Heat Exchanger	dimensions	nr of rows			3	3	3
		fin pitch		mm	2.00	2.00	2.00
		face area		m^2	0.28	0.65	0.65
		nr of stages			26	26	26
	fin	fin type			Cross fin coil	Cross fin coil	Cross fin coil
Fan	type				Sirocco fan	Sirocco fan	Sirocco fan
	air flow rate	cooling	medium	m^3/min	18.0	28.0	35.0
	external static pressure	standard		Pa	185	225	205
	motor	model			D13/4G2DA1	D13/4G2DA1	D13/4G2DA1
		output (high)		W	380	380	380
		drive			Direct drive	Direct drive	Direct drive
Piping connections	liquid (OD)	type			Flare connection	Flare connection	Flare connection
		diameter		mm	9.5	9.5	9.5
	gas	type			Flare connection	Brazing/Brazing connection	Brazing/Brazing connection
		diameter		mm	15.9	19.1	22.2
	drain	diameter		mm	PS1B	PS1B	PS1B
	heat insulation				Glass fiber	Glass fiber	Glass fiber
Air Filter					As option	As option	As option
Refrigerant					R-410A		
Refrigerant control					Electronic expansion valve	Electronic expansion valve	Electronic expansion valve
Temperature control					Microprocessor thermostat for cooling and heating	Microprocessor thermostat for cooling and heating	Microprocessor thermostat for cooling and heating
Safety devices					Fuse	Fuse	Fuse
Safety devices					Fan motor thermal protector	Fan motor thermal protector	Fan motor thermal protector
Power Supply	frequency			Hz	50	50	50
	voltage			V	220-240	220-240	220-240

› Nominal cooling capacities are based on : outdoor temperature : 33°CDB, 28°CWB (68%RH), discharge set temperature : 18°CDB, equivalent piping length 7.5m (horizontal)
› Nominal heating capacities are based on : outdoor temperature : 0°CDB, -2.9°CWB (50%RH), discharge set temperature : 25°CDB, equivalent piping length 7.5m (horizontal)
› Capacities are net, including a deduction for cooling (an addition for heating) for indoor fan motor heat.
› Air filter is not standard accessory, but please mount it in the duct system of the suction side. Select its colorimetric method(gravity method) 50% or more.

ACCESSORIES

DESCRIPTION			FXMQ125MF	FXMQ200MF	FXMQ250MF
Filters	Long-life replacement filter		KAFJ371L140	KAFJ371L280	
	High-efficiency filter	65%	KAFJ372L140	KAFJ372L280	
		90%	KAFJ373L140	KAFJ373L280	
Filter chamber [1]			KDJ3705L140	KDJ3705L280	
Drain pump kit			KDU30L250VE		
Adapter for wiring			KRP1B61		

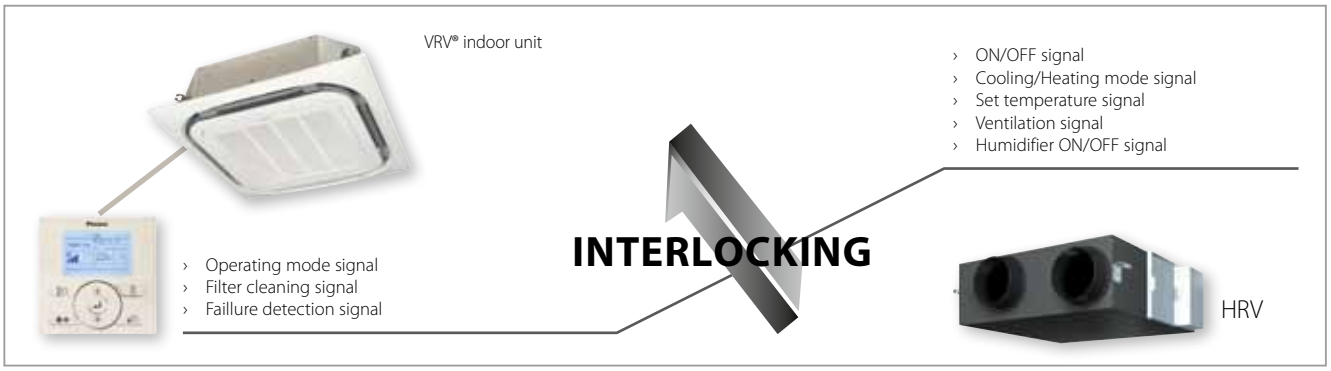
[1] Filter chamber has a suction-type flange. (Main unit does not).
› Dimensions and weight of the equipment may vary depending on the options used.
› Some options may not be usable due to the equipment installation conditions. Please confirm prior to ordering.
› Some options may not be used in combination.
› Operating sound may increase somewhat depending on the options used.

USER FRIENDLY CONTROL SYSTEMS

INTERLOCK OF THE VENTILATION OPERATION WITH THE AIR CONDITIONER OPERATION

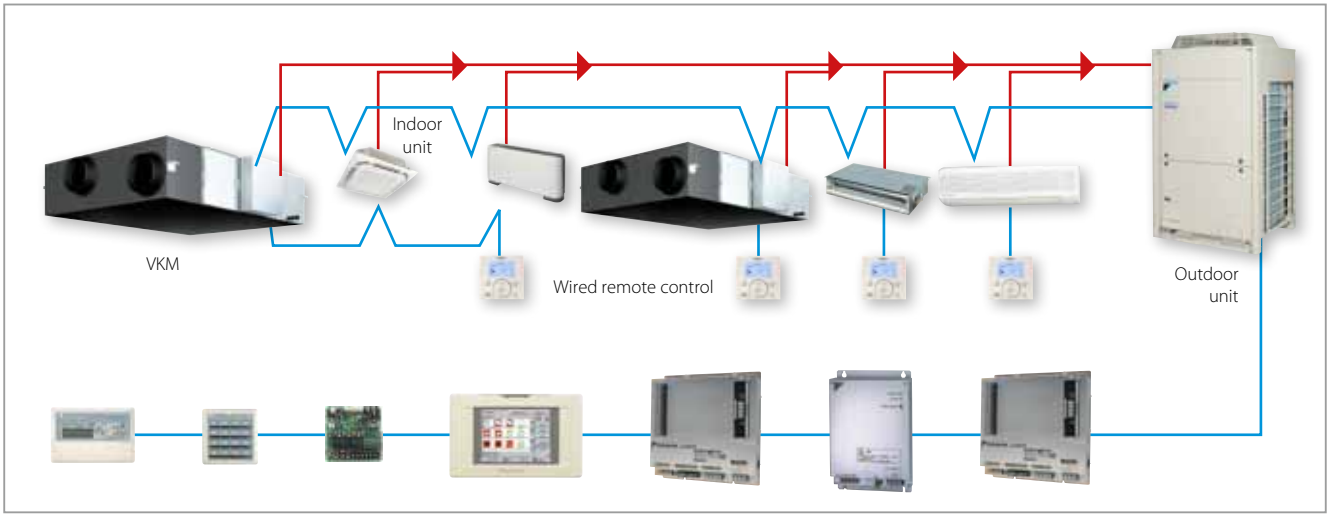
Interlock of the ventilation operation with the air conditioner operation greatly simplifies overall system control. The same remote control centralizes air conditioning and ventilation operations, obviating any need for ventilation remote control installation work. Using a centralized remote control also frees the user to choose from a wide range of control systems that integrate air conditioning and ventilation. By incorporating a variety of centralized control equipment, the user can build a large, high grade centralized control system.

[1]Linked control of FXMQ-MF and HRV is not supported



"SUPER WIRING" SYSTEM

A Super Wiring system is used to enable the shared use of wiring between indoor units, outdoor units and the centralised remote control.
This system makes it easy for the user to retrofit the existing system with a centralised remote control, simply by connecting it to the outdoor units.
Thanks to a non polarity wiring system, incorrect connections become impossible and installation time is reduced.



OVERVIEW OF CONTROL SYSTEMS

INDIVIDUAL CONTROL SYSTEMS

5 individual control systems give the user control over the VRV® system and the combined ventilation.

› BRC1D52 and BRC1E51A are wired remote controllers, giving access to room temperature settings, schedule timer, … Next to that they also have user friendly HRV functions.
› BRC301B61 is a wired controller especially designed for VAM units.
› BRC2C51 and BRC3A61 are compact, easy to use remote controllers, ideal for use in hotel bedrooms.

VAM remote control
BRC301B61

Wired remote control
BRC1E51A

Wired remote control
BRC1D52

CENTRALISED CONTROL SYSTEMS

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

Centralised
remote control
DCS302C51

Unified ON/OFF control
DCS301B51

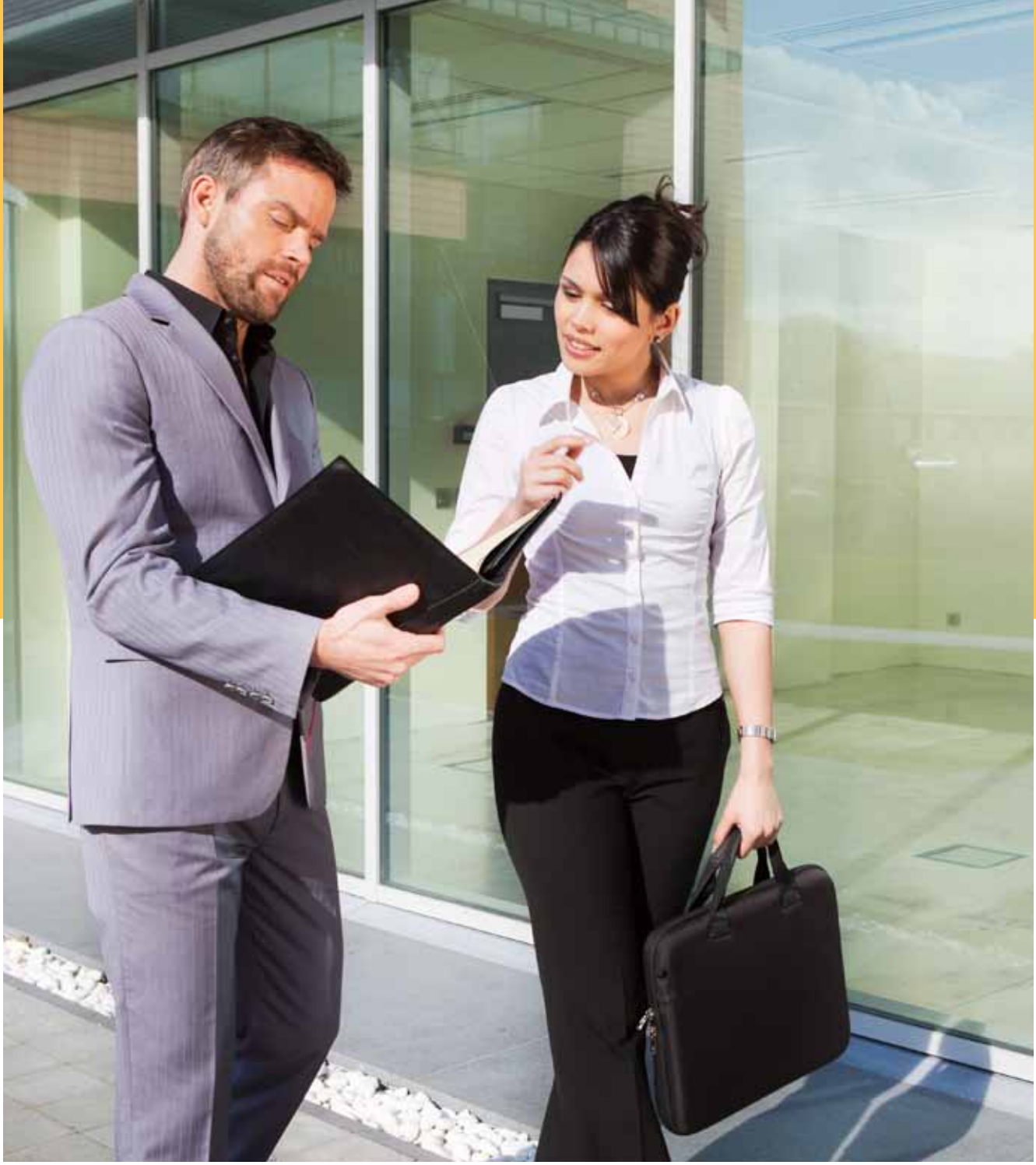
Schedule timer
DST301B51

NETWORK SOLUTIONS

HRV and the Outdoor Air Processing unit are connectable to all current Daikin network solutions:

DS-net	Basic solution for control and management of up to 2,000 indoor units (Sky Air® and VRV®).
intelligent touch Controller	Allows detailed and easy monitoring and operation of VRV® systems (maximum 2 x 64 control groups).
intelligent Manager	The ideal solution for full control and management of maximum 1,024 VRV® indoor units.
LonWorks Interface	Open network integration of VRV® monitoring and control functions into LonWorks® networks.
BACnet Interface	Integrated control system for seamless connection between VRV® and BMS systems.

For more information consult the Daikin controls systems brochure or contact your local dealer



DESCRIPTION	HRV	FXMQ-MF
VAM remote control	BRC301B61[1]	-
Wired air conditioner remote control	BRC1D52 / BRC1E51A	
Centralised remote control	DCS302C51	
Unified on/off control	DCS301B51	
Schedule timer	DST301B51	
DS net adapter	DTA113B51	
Intelligent touch controller	DCS601C51	
Intelligent Manager	DAM602B51/B52	
LonWorks interface	DMS504B51	
BACnet interface	DMS502A51	
Wiring adapter for electrical appendices (1)	KRP2A61	
Wiring adapter for electrical appendices (2)	-	KRP4A51

BRC1E51A

BRC1D52

BRC301B61

INDIVIDUAL CONTROL SYSTEMS

- Control up to 16 indoor units or 8 HRV units (1group)
- Easy to use: all main functions directly accessible
- Easy setup: improved graphical user interface for advanced menu settings
- Simultaneous ON/OFF of HRV and air conditioner (BRC1D52/BRC1E51A)
- Airflow rate switching (initial setting)
- Ventilation mode switching (initial setting)
- Self diagnostic functions
- Filter sign display and reset
- Timer settings, simultaneous control with air conditioner (BRC1D52/BRC1E51A)
- ON/OFF of VAM (BRC301B61)
- Independent operation of HRV
- Timer settings (BRC301B61)
- Fresh-up mode switching (HRV only)
  (Selectable: supply rich mode, exhaust rich mode; initial setting)

Notes:
The remote control wired to the FXMQ-MF cannot be set as master remote control. Otherwise, when set to 'auto', the operation mode will switch according to outdoor air conditions, regardless of indoor temperature.

A variety of units can be controlled using only the BRC1D52 or the BRC1E51A (HRV only)

› **Group Control**

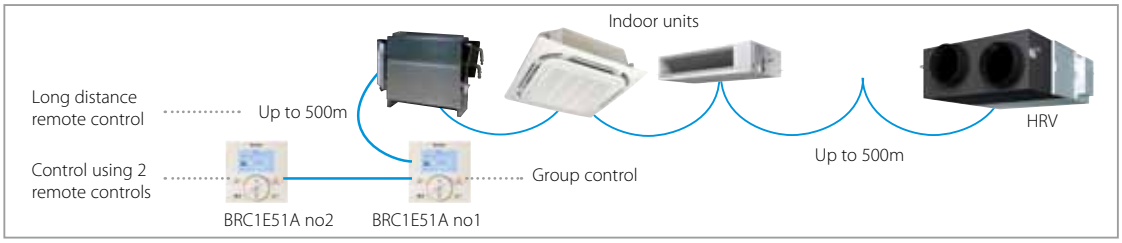
One air conditioner remote control simultaneously controls up to 16 air conditioning and HRV units.

› **Control using 2 remote controls**

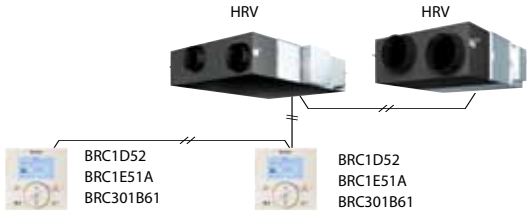
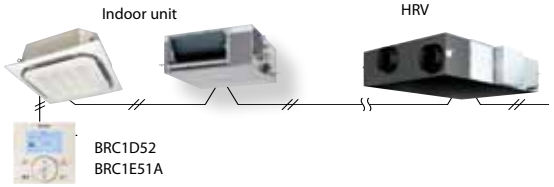
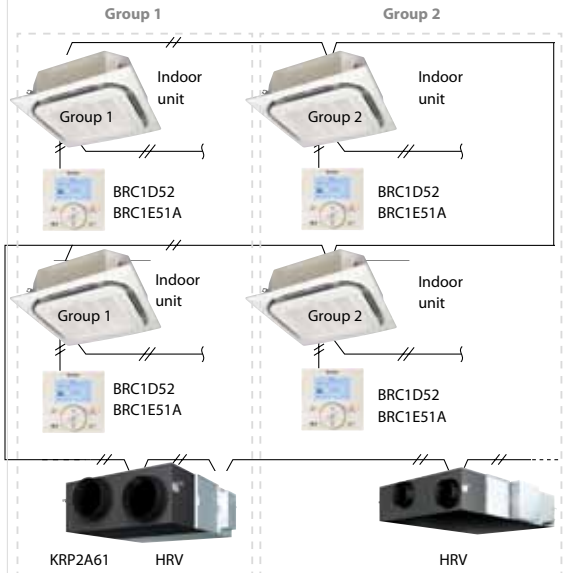
Allows control of air conditioning and HRV units from two locations by connecting two air conditioner remote controls. (group control is possible)

› **Long-distance Remote Control**

Remote operation control - from a distant control room for example - is possible thanks to wiring of up to 500 m. (2 remote controllers possible)



*1: Count VKM unit as two air conditioner indoor units. For details, see below.

System construction (HRV only)			System Characteristics	Necessary Accessories
Independent Operation system			› Independent operation of HRV is possible › Operation is possible using 2 remote controls › Multiple HRV units can be simultaneously controlled in batch. (Up to 8 HRV units can be connected) › Air conditioner remote control can be used	BRC1D52 or BRC1E51A or BRC301B61
Air conditioning interlocked control (VRV®, Sky Air®) system	Standard system	 During group control operation, the VKM unit has a capacity equivalent to 2 standard indoor units. Up to 16 standard indoor units can be connected at the same time. Connectable indoor units: VKM 0 1 2 3 4 5 6 7 8 Max. no. of VRV® 16 14 12 10 8 6 4 2 0 Note: The VKM uses 2 remote controller addresses per unit. The number of units that can be group controlled is shown above.	› Multiple VRV® indoor units or HRV units can be connected and controlled in batches, with interlocked operation of HRV and air conditioners by using the air conditioner remote control. › The HRV unit can also be operated independently using the remote control for the indoor unit, even if the indoor unit is not in operation	BRC1D52 or BRC1E51A
	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, HRV units are interlocked and operate simultaneously	BRC1D52 or BRC1E51A

BRC301B61 only available for VAM-FA

Note:

- Group control is not possible between FXMQ-MF and standard type indoor units. Connect remote controllers to each unit.
- Not all FXMQ-MF functions are available when using centralised control. Please refer to your local installer for detailed information.
- The remote control wired to the FXMQ-MF cannot be set as master remote control. Otherwise, when set to 'auto', the operation mode will switch according to outdoor air conditions, regardless of indoor temperature.
- Temperature setting and PPD are not possible, even when Intelligent Touch Controller or Intelligent Manager are installed.

CENTRALISED CONTROL SYSTEMS

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

DCS302C51

Centralised remote control - DCS302C51

- A maximum of 64 groups (128 indoor units, max. 10 outdoor units) can be controlled
- A maximum of 128 groups (128 indoor units, max. 10 outdoor units) can be controlled via 2 centralised remote controls in separate locations
- Group control (up and down buttons are added for group selection)
- Zone control
- Malfunction code display
- Max. wiring length 1,000 m (total : 2,000 m)
- Combination with unified ON/OFF control, schedule timer and BMS system
- Airflow volume and direction can be controlled individually for indoor units in each group operation.
- Ventilation volume and mode can be controlled for Heat Reclaim Ventilation (VKM).
- Up to 4 'operation/stop' pairs can be set per day by connecting a schedule timer.

DCS301B51

Unified on/off control - DCS301B51

Providing simultaneous and individual control on 16 groups of indoor units

- A maximum of 16 groups (128 air conditioning indoor and HRV units) can be controlled
- 2 remote controls in separate locations can be used
- Centralised control indication
- Maximum wiring length of 1,000m (total: 2,000m)

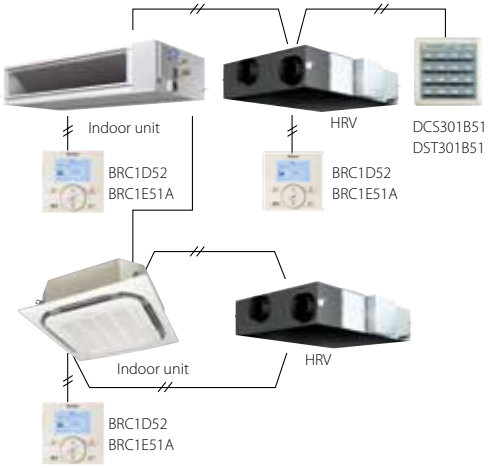
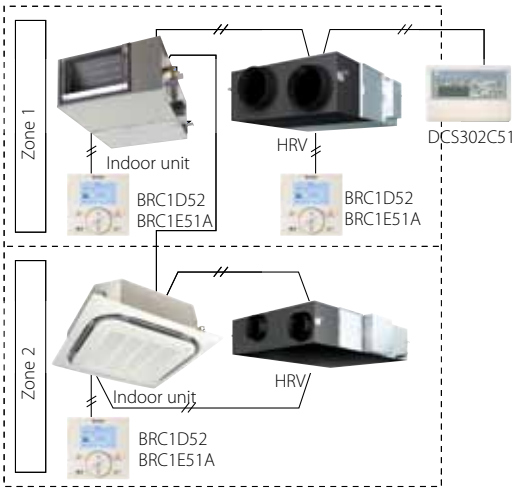
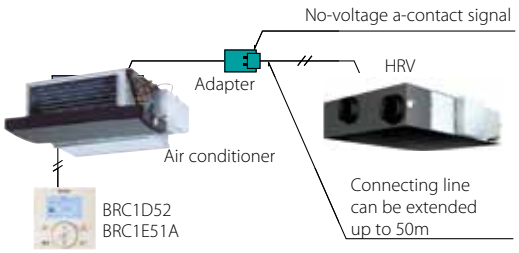
DST301B51

Schedule timer - DST301B51

Enabling 64 groups to be programmed

- A maximum of 128 air conditioning indoor and HRV units can be controlled
- 8 types of weekly schedule
- A maximum of 48 hours back-up power supply
- Maximum wiring length of 1,000m (total: 2,000m)

Number of HRV units that can be connected per system	
Centralised remote control	2 units
Unified on/off control	8 units
Schedule timer	1 unit

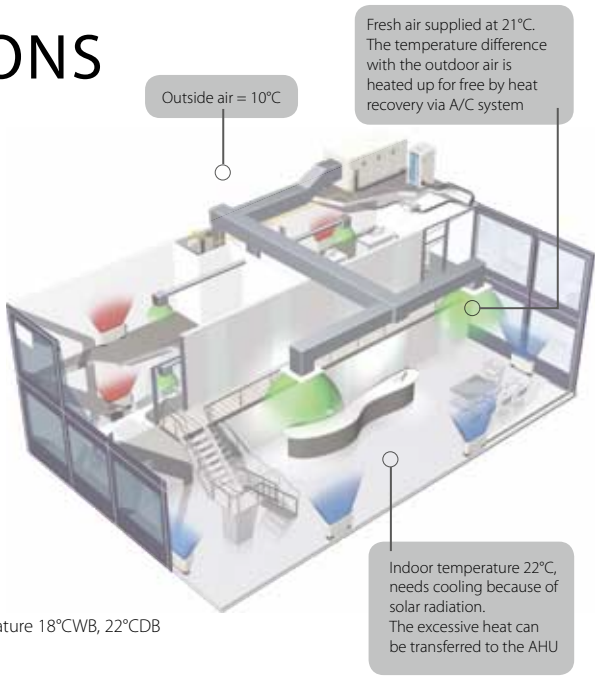
SYSTEM CONSTRUCTION (HRV only)			SYSTEM CHARACTERISTICS	NECESSARY ACCESSORIES
Air Conditioning Interlocked Centralised Control System	Batch / Individual Control System		**Unified ON/OFF control - DCS301B51** › One controller can control the on/ off operation of 16 groups of units collectively or individually › Up to 8 controllers can be installed in one centralised transmission line (in one system), which enables control of up to 128 groups. (16 groups x 8 = 128 groups) **Schedule timer - DST301B51** › One schedule timer can control the weekly sche-dule of up to 128 units › 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	DCS301B51 or DST301B51, BRC1D52 or BRC1E51A If necessary: DCS302C51
	Zone Control System		**Centralised remote control - DCS302C51** › The centralised remote control provides settings and monitoring functions and can control up to 128 VRV® and HRV units. A special adapter is required to connect Sky Air® to the centralised line. › Control is possible in 3 different patterns: individual, batch or zone › Multiple groups can be controlled within the same zone › Multiple HRV units can be operated independently › System without air condi-tioning or HRV remote controls can be constructed › Control system can be expanded depending on requirements by combining a variety of centralised control systems	DCS302C51, BRC1D52 or BRC1E51A If necessary: DSC301B51 or DST301B51
Combination with other types of air conditioners			› Simultaneous operation of HRVs and air conditioners is possible via BRC1D52/ BRC1E51A › Use of the HRV remote control enables to change settings or operate HRVs independently	Connection adapter (no-voltage-a-contact-signal)

ERQ (PAIR) AND VRV®
AIR HANDLING APPLICATIONS

For small to large commercial spaces Daikin offers a range of R-410A inverter condensing units for use in conjunction with air handling units. In situations where Daikin commercial range ventilation units cannot satisfy the ventilation requirement due to building constraints (large atriums, banquet halls etc), air handling units represent the ideal solution.
Air handling units provide large fresh air volumes (> 1,000 m^3/h) and high ESPs enabling the use of extensive ductwork runs.

For more information on Daikin air handling units refer to the air handling unit catalogue.

BENEFITS OF ERQ AND VRV® AIR HANDLING APPLICATIONS



HIGH EFFICIENCY

Daikin heat pumps are renowned for their high energy efficiency with COPs up to 4.56 in heating[1]. The VRV® range offers both heat pump and heat recovery units with part load efficiencies as high as 9.02. Integrating the AHU with a heat recovery system is highly effective since an office system can frequently be in cooling mode while the outdoor air is too cold to be brought inside in an unconditioned state. In this case heat from the offices is merely transferred to heat up the cold incoming fresh air. In the absence of an AHU this 'free heating' the incoming fresh air would not be possible.

1 ERQ100AV1 heat pump
2 REYQ8P8 50% cooling – 50% heating load. Conditions: outdoor temperature 11°CDB, indoor temperature 18°CWB, 22°CDB

HIGH COMFORT LEVELS

Daikin ERQ and VRV® units respond rapidly to fluctuations in supply air temperature, resulting in a steady indoor temperature and resultant high comfort levels for the end user.

EASY DESIGN AND INSTALLATION

The system is easy to design and install since no additional water systems such as boilers, tanks and gas connections etc are required. This also reduces the total system cost.

TOTAL SOLUTION CONCEPT

Integrating an air handling unit into the total building climate system enables both design and installation procedures to based on a single common technology. This simplifies project follow-up, installation, commissioning and maintenance since only one party is involved.

WHICH SYSTEM OFFERS ME
THE BEST SOLUTION?

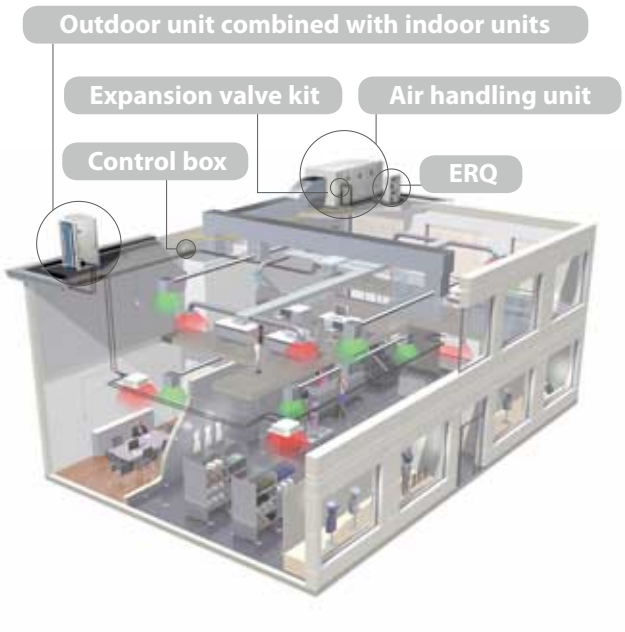
In order to maximise combination potential, Daikin offers 'pair' and 'multi' combination plus several expansion kits and control systems. Control box and expansion valve kits are required for each combination with an air handling unit. Both option kits are designed for indoor and outdoor installation and can be wall mounted.

I ONLY NEED A CONNECTION TO AN AIR HANDLING UNIT

A solution for your shop, warehouse, showroom or office.

ERQ heat pump

- Inverter controlled units
- Large capacity range (from 100 to 250 class)
- Heat pump
- R-410A
- Flexible control possibilities
- Wide range of expansion valve kits available



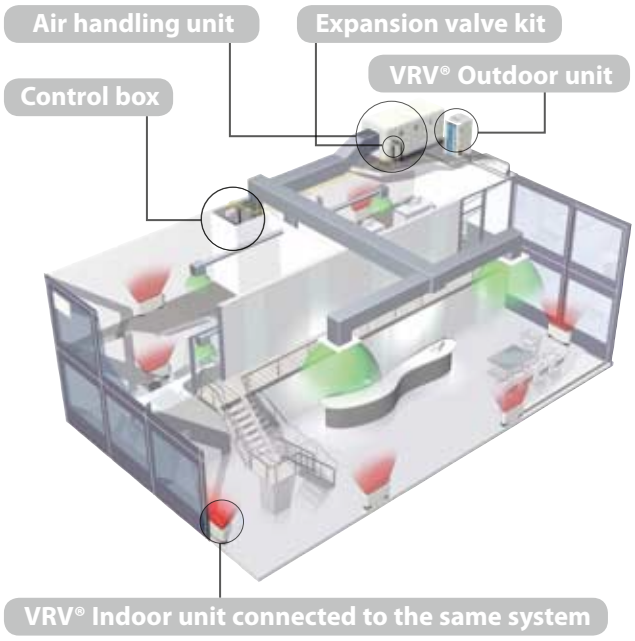
System	Type	4	5	6	8	10
Cooling capacity (kW)		**11.2**	**14.0**	**15.5**	**22.4**	**28.0**
Heating capacity (kW)		**12.5**	**16.0**	**18.0**	**25.0**	**31.5**
Air-cooled	ERQ-AV1	■	■	■		
	ERQ-AW1		■		■	■

I NEED AN AIR HANDLING UNIT AND HEATING, AND/OR COOLING

Integrate your air handling unit in a Total solution for your shop or office building.

VRV® heat recovery / heat pump

- Inverter controlled units
- Integrates in all VRV® heat recovery and heat pump systems up to 54 HP
- Provides virtually free heating for the air handling unit via recovered heat from indoor units in cooling[1]
- Control of air temperature via standard Daikin wired remote control
- Large range of expansion valve kits available

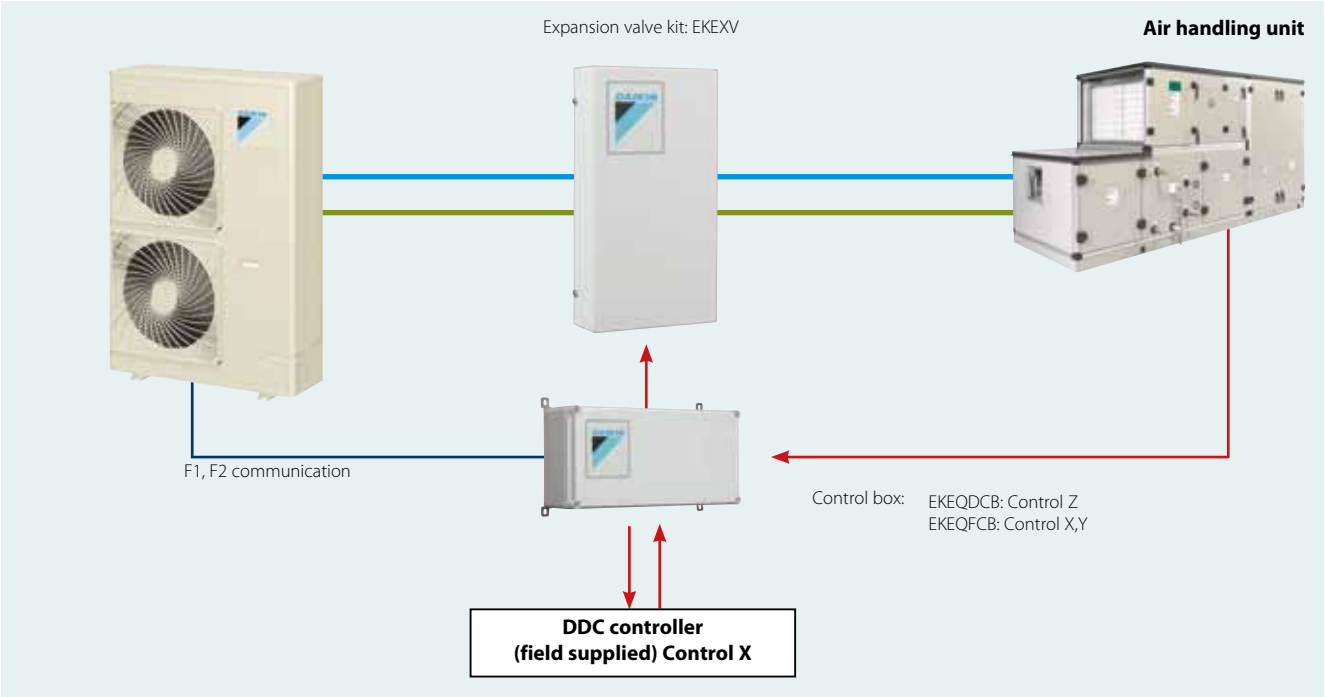


[1] In case of connection to a VRV® heat recovery outdoor unit
[2] For more information on VRV® units refer to the VRV® catalogue

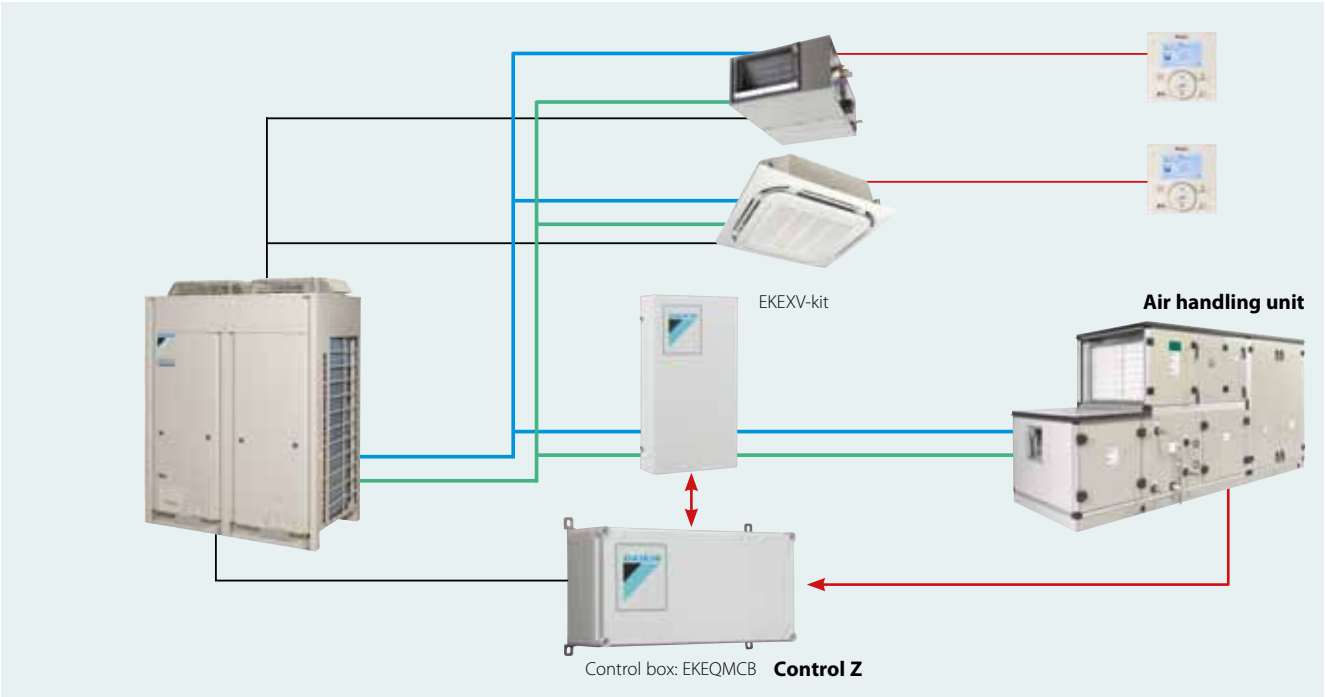
System	Type	4	5	6	8	10	12	14	16	18	20	22	24	26	28	30	32	34	36	38	40	42	44	46	48	50	52	54
Cooling capacity (kW)		**11.2**	**14.0**	**15.5**	**22.4**	**28.0**	**33.5**	**40.0**	**45.0**	**49.0**	**55.9**	**61.5**	**67.0**	**71.4**	**77.0**	**82.5**	**89.0**	**94.0**	**98.0**	**105.0**	**111.0**	**116.0**	**120.0**	**126.0**	**132.0**	**138.0**	**143.0**	**147.0**
Heating capacity (kW)		**12.5**	**16.0**	**18.0**	**25.0**	**31.5**	**37.5**	**45.0**	**50.0**	**56.5**	**62.5**	**69.0**	**75.0**	**81.5**	**88.0**	**94.0**	**102.0**	**107.0**	**113.0**	**119.0**	**126.0**	**132.0**	**138.0**	**145.0**	**151.0**	**158.0**	**163.0**	**170.0**
Air-cooled VRV®	Heat recovery				■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■			
	Heat pump	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■
Water-cooled VRV®	Heat recovery				■	■			■	■	■		■	■	■	■												
	Heat pump				■	■			■	■	■		■	■	■	■												

SYSTEM OVERVIEW

Pair application: ERQ



Multi application: VRV®



Daikin communication wire (F1, F2 communication)

Other communication wire

Liquid pipe

Gas pipe

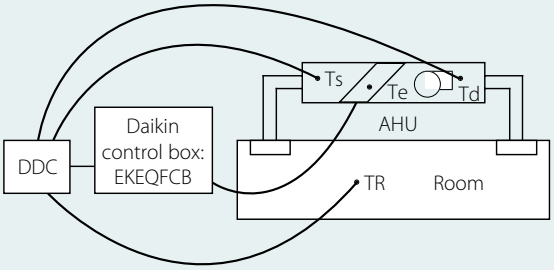
CONTROL POSSIBILITIES

In order to maximise installation flexibility, 3 types of control systems are offered:

POSSIBILITY X (TD/TR CONTROL):

Air temperature control via an external DDC controller (field supplied)

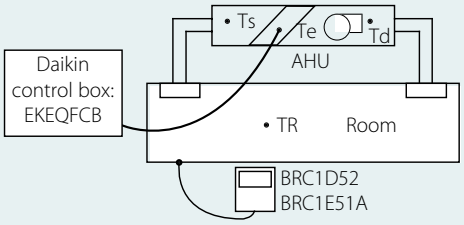
Room temperature is controlled as a function of the air handling unit suction or discharge air (customer selection). The DDC controller is translating the temperature difference between set point and air suction temperature (or air discharge temperature or room temperature) into a reference voltage (0-10V) which is transferred to the Daikin control box (EKEQFCBA). This reference voltage will be used as the main input value for the compressor frequency control.



POSSIBILITY Y (TE/TC CONTROL):

By fixed evaporating temperature

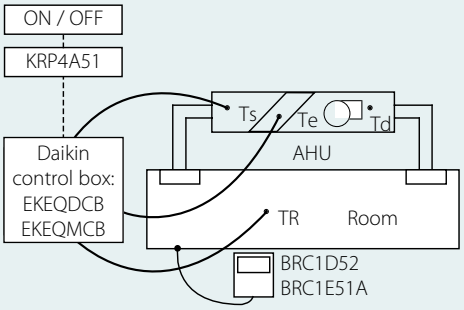
A fixed target evaporating temperature of between 3°C and 8°C can be set by the customer. In this case, room temperature is only indirectly controlled. The cooling load is determined from the actual evaporating temperature (i.e. load to the heat exchanger). A Daikin wired remote controller (BRC1D52 or BRC1E51A - optional) can be connected for error indication.



POSSIBILITY Z (TD/TR CONTROL):

Using Daikin wired remote controller (BRC1D52 or BRC1E51A - optional)

Set point can be fixed via standard Daikin wired remote controller. Remote ON/OFF can be achieved by an optional adapter KRP4A51.
No external DDC controller should be connected. The cooling load is determined from the air suction temperature and set point on the Daikin controller.



Ts = Air suction temperature
Td = Air discharge temperature
Tr = Room temperature
Te = Evaporating temperature
AHU = Air Handling Unit
DDC = Digital Display Controller

	OPTION KIT	FEATURES
Possibility x	EKEQFCB	Field supplied DDC controller is required Temperature control using air suction or air discharge temperature
Possibility y		Using fixed evaporating temperature, no set point can be set using remote controller
Possibility z	EKEQDCB EKEQMCB*	Using Daikin wired remote controller BRC1D52 or BRC1E51A Temperature control using air suction temperature

* EKEQMCB (for 'multi' application)

SELECTION OF AIR HANDLING UNITS

PAIR APPLICATION

Step 1: Select required capacity of AHU

Based on the required capacity of the AHU please select the expansion valve

Step 1

	Allowed heat exchanger volume (dm³)		Allowed heat exchanger capacity in coolong (kW)			Allowed heat exchanger capacity in heating (kW)		
EKEXV class	Minimum	Maximum	Minimum	Standard	Maximum	Minimum	Standard	Maximum
63	1.66	2.08	6.3	7.1	7.8	7.1	8.0	8.8
80	2.09	2.64	7.9	9.0	9.9	8.9	10.0	11.1
100	2.65	3.3	10	11.2	12.3	11.2	12.5	13.8
125	3.31	4.12	12.4	14.0	15.4	13.9	16.0	17.3
140	4.13	4.62	15.5	16.0	17.6	17.4	18.0	19.8
200	4.63	6.6	17.7	22.4	24.6	19.9	25.0	27.7
250	6.61	8.25	24.7	28.0	30.8	27.8	31.5	34.7

Heat exchanger capacity is defined under following conditions:
Saturated suction temperature (SST) = 6°C, Superheat (SH) = 5K
Subcool condensor (SC) = 3K
Air temperature = 27°CDB/19°CWB

Eg: If you need 14kW in cooling, you will require an expansion valve of 125class (EKEXV125).

The heat exchanger capacity has priority over the volume of the heat exchanger and is therefore the determining factor for the selection of the expansion valve. More information on the volume can be found in the data book and service manual.

Step 2: Select outdoor unit

Pair combinations with ERQ outdoor units are possible based on the same principle as standard DX units. The capacity of the AHU unit is indicated by the capacity of the expansion valve and can be connected as indicated in below table.

Step 2

OUTDOOR UNIT			CONTROL BOX		EXPANSION VALVE KIT						
			Control z	Control x or y	Class 63	Class 80	Class 100	Class 125	Class 140	Class 200	Class 250
			EKEQDCB	EKEQFCB	EKEXV63	EKEXV80	EKEXV100	EKEXV125	EKEXV140	EKEXV200	EKEXV250
ERQ	1~	ERQ100AV1	P	P	P	P	P	P	-	-	-
		ERQ125AV1	P	P	P	P	P	P	P	-	-
		ERQ140AV1	P	P	-	P	P	P	P	-	-
	3~	ERQ125AW1	P	P	P	P	P	P	P	-	-
		ERQ200AW1	P	P	-	-	P	P	P	P	P
		ERQ250AW1	P	P	-	-	-	P	P	P	P

P: Pair, combination depending on AHU coil volume and capacity

Eg: Based on above selected expansion valve, the EKEXV125 has a capacity of class 125. Therefore we can choose to connect it in pair with all outdoor units indicated in the table above with P.

Step 3: Control box selection

Please make your selection of the control box based on your requirements. All the different control possibilities are mentioned on page 34.
More information on the selection is available in the service manual.

MULTI APPLICATION

Step 1: Select required capacity of AHU

Based on the required capacity of the AHU please select the expansion valve

Step 1

EKEXV class	Allowed heat exchanger volume (dm³)		Allowed heat exchanger capacity in cooling (kW)			Allowed heat exchanger capacity in heating (kW)		
	Minimum	Maximum	Minimum	Standard	Maximum	Minimum	Standard	Maximum
50	0.76	1.65	5.0	5.6	6.2	5.6	6.3	7.0
63	~~1.66~~	~~2.08~~	~~6.3~~	6.9	7.1	7.8	7.1	8.0	8.8
80	2.09	2.64	7.9	9.0	9.9	8.9	10.0	11.1
100	2.65	3.3	10	11.2	12.3	11.2	12.5	13.8
125	3.31	4.12	12.4	14.0	15.4	13.9	16.0	17.3
140	4.13	4.62	15.5	16.0	17.6	17.4	18.0	19.8
200	4.63	6.6	17.7	22.4	24.6	19.9	25.0	27.7
250	6.61	8.25	24.7	28.0	30.8	27.8	31.5	34.7

Eg: If the required capacity of the AHU is 6.9kW in cooling, which lies between 6.3 and 7.8, the EKEXV63 can be selected.

The heat exchanger capacity has priority over the volume of the heat exchanger and is therefore the determining factor for the selection of the expansion valve. More information on the volume can be found in the data book and service manual.

Step 2: Select outdoor unit

Multiple AHU can be connected to a VRV® system and the connection principle is similar as for ERQ. Connection of the full system can be up till 110% including at least 1 Daikin indoor unit (cassette, duct, …) The capacity index of the AHU needs to be calculated based on the indicated capacity of the selected expansion valve and the actual capacity.
The AHU capacity index = capacity class (expansion valve) * ratio (actual capacity AHU / standard capacity expansion valve)

Eg: AHU has a capacity requirement of 6.9kW and the selected expansion valvue is the EKEXV63 with a standard capacity of 7.1kW. So the AHU capacity = 63 * (6.9kW / 7.1kW) = 61 class
In case that in the system 2 FXSQ50 class are connected, the total sum of capacity would be 61 + 2*50 = 161 class
Based on the 161 class a 10 HP is required as outdoor unit.

[1] For detailed specifications of VRV® outdoor units, refer to the VRV® catalogue or databooks

Step 3: Control box selection

EKEQMCB is the control box which is required to control the communication between the AHU and the VRV® system beside the standard communication of the Daikin DX indoor units (cassette, duct, wall…).
More information on the selection is available in the service manual.

SPECIFICATIONS

OUTDOOR UNIT					ERQ100AV1	ERQ125AV1	ERQ140AV1	ERQ125AW1	ERQ200AW1	ERQ250AW1
Capacity range				HP	4	5	6	5	8	10
Cooling capacity	Nom.			kW	11.2 (1)	14.0 (1)	15.5 (1)	14.0 (1)	22.4 (1)	28.0 (1)
Heating capacity	Nom.			kW	12.5 (2)	16.0 (2)	18.0 (2)	16.0 (2)	25.0 (2)	31.5 (2)
Capacity control	Cooling	Min./Max.		%	24/100			100		
Power input	Cooling	Nom.		kW	-			3.52 (1)	5.22 (1)	7.42 (1)
	Heating	Nom.		kW	-			4.00 (2)	5.56 (2)	7.70 (2)
EER					3.99 (1)		3.42 (1)	3.98 (1)	4.29 (1)	3.77 (1)
COP					4.56 (2)	4.15 (2)	3.94 (2)	4.00 (2)	4.50 (2)	4.09 (2)
Casing	Material				Painted galvanized steel plate			Painted galvanized steel plate		
Dimensions	Unit	HeightxWidthxDepth		mm	1,345x900x320			1,680x635x765	1,680x930x765	
Weight	Unit			kg	120			159	187	240
Fan	Type				Propeller			Propeller		
	Air flow rate	Cooling	Nom.	m^3/min	106			95	171	185
		Heating	Nom.	m^3/min	102	105		95	171	185
Sound power level	Cooling	Nom.		dBA	66	67	69	72	78	
Sound pressure level	Cooling	Nom.		dBA	50	51	53	54	57	58
	Heating	Nom.		dBA	52	53	55	-		
Compressor	Model				JT100G-VDL			Inverter		
	Type				Hermetically sealed scroll compressor			Hermetically sealed scroll compressor		
Compressor 2	Model				-			-		ON - OFF
	Type				-			-		Hermetically sealed scroll
Operation range	Cooling	Min.~ Max.		°CDB	-5~ 46			-5~ 43		
	Heating	Min.~Max.		°CWB	-20~15.5			-20~15		
Enterning air temperature on AHU heat exchanger	Cooling	Min.~ Max.		°CDB	-14CWB~25CWB			35°CDB		
	Heating	Min.~Max.		°CWB	10CWB~27CWB			10CWB~27CWB		
Refrigerant	Type				R-410A			R-410A		
	Charge			kg	4.0			6.2	7.7	8.4
	Control				Expansion valve (electronic type)			Electronic expansion valve		
Refrigerant oil	Type				Daphne FVC68D			Synthetic (ether) oil		
	Charged volume			l	1.5			1.7	2.1	4.3
Piping connections	Liquid	Type/OD		mm	Flare connection/9.52			Braze connection/9.52		
	Gas	Type/OD		mm	Flare connection/15.9		Braze connection/19.1	Braze connection/15.9	Braze connection/19.1	Braze connection/22.2
	Drain	Quantity/OD		mm	3/26x3			-		
	Piping length	Max.	OU - IU	m	55			55		
	Heat insulation				Both liquid and gas pipes			Both liquid and gas pipes		
Power supply	Phase/Frequency/Voltage			Hz/V	1N~/50/220-440			3N~/50/400		

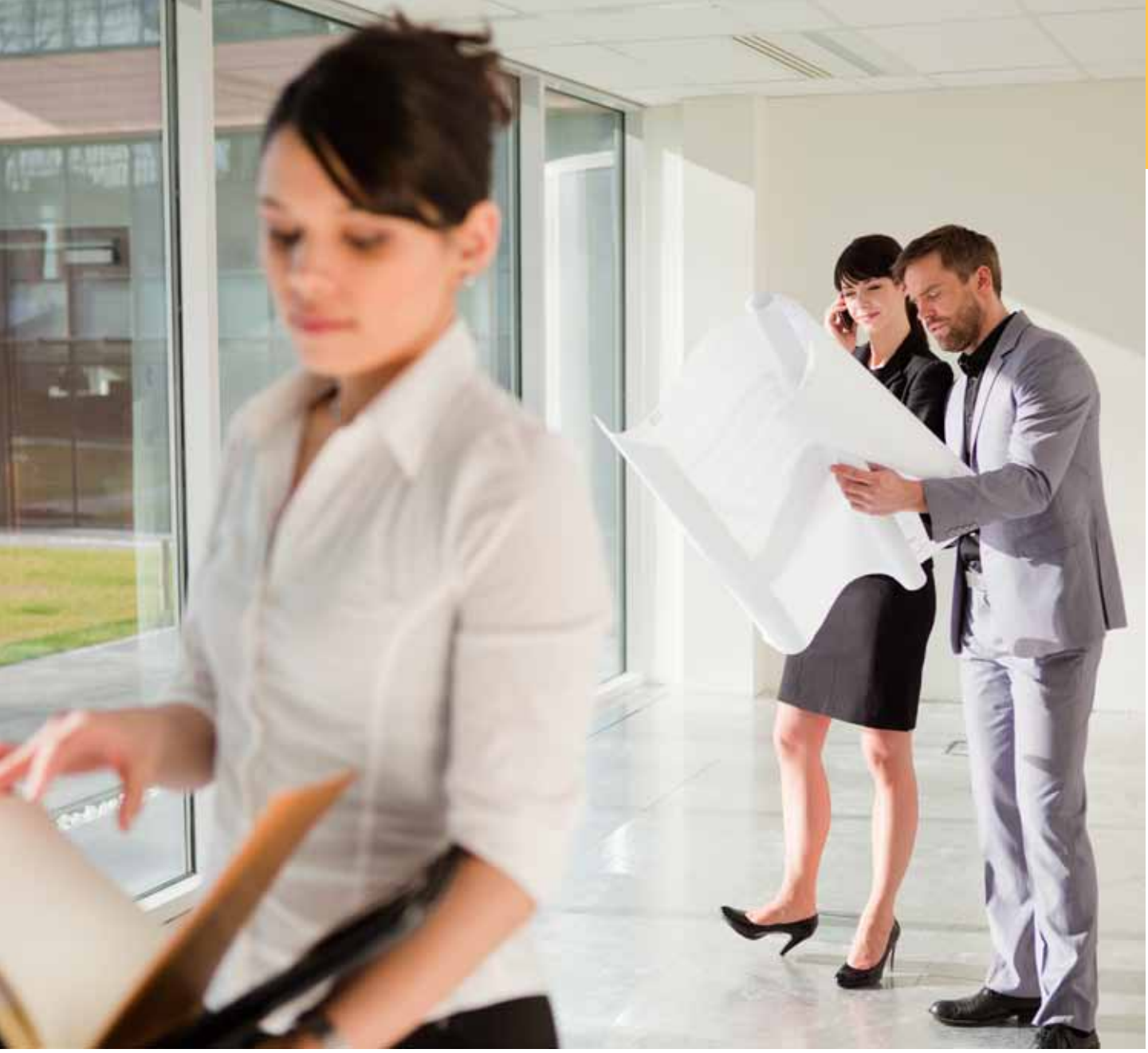
(1) Cooling: indoor temp. 27°CDB, 19°CWB; outdoor temp. 35°CDB; equivalent piping length: 7.5m (horizontal); level difference: 0m
(2) Heating: indoor temp. 20°CDB; outdoor temp. 7°CDB, 6°CWB; equivalent refrigerant piping: 7.5m; level difference: 0m
(3) Sound pressure level is a relative value, depending on the distance and acoustic environment. For more details, please refer to the sound level drawings.
(4) Sound values are measured in a semi-anechoic room.
(5) Sound pressure level is a relative value, depending on the distance and acoustic environment. For more details, please refer to the sound level drawings.

EKEXV

Control box

INDOOR UNIT				EKEXV50	EKEXV63	EKEXV80	EKEXV100	EKEXV125	EKEXV140	EKEXV200	EKEXV250
Casing	Material			Metal							
Dimensions	Unit	HeightxWidthxDepth	mm	401x215x78							
Weight	Unit		kg	2.9							
Sound pressure level	Nom.		dBA	45							
Operation range	Cooling	Min.~ Max.	°CDB	-5.0~ 46.0							

(1)The sound pressure value is the maximum value measured at 10cm from the motor.(2)Minimum and maximum piping length refer to the piping between the expansion valve kit (EKEXV) and the air handling unit(3)Equivalent piping length: refer to the capacity connection ratio of the outdoor unit; depends on outdoor unit(4)Maximum installation height difference: See manual; depends on outdoor unit



ACCESSORIES

ERQ	ERQ100AV1	ERQ125AV1	ERQ140AV1	ERQ125AW1	ERQ200AW1	ERQ250AW1
Central drain pan	-	-	-	KWC26B160	KWC26B280	
Central drain plug	KKPJ5F180			-	-	-
Cool/heat selector	KRC19-26A6					
Fixing box	KJB111A					

EKEQ	EKEQFCB	EKEQDCB	EKEQMCB
Wired remote control	BRC1D52 / BRC1E51A	BRC1D52 / BRC1E51A*	
Wiring adapter for electrical appendices	-	KRP4A516	
Remote sensor	-	KRCS01-1	

* Cool/heat selector: required for operation.

Caution for options

- Do not connect the system to DIII-net devices (Intelligent Controller, Intelligent Manager, LonWorks interface, BACnet interface…). This could result in malfunction or breakdown of the total system.
- Only use the ERQ, EKEQ, EKEXV in combination with an air handling unit. Do not connect this system to other indoor units.

In all of us, a green heart

Daikin's unique position as a manufacturer of air conditioning equipment, compressors and refrigerants has led to its close involvement in environmental issues. For several years Daikin has had the intention to become a leader in the provision of products that have limited impact on the environment. This challenge demands the eco design and development of a wide range of products and an energy management system, resulting in energy conservation and a reduction of waste.

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