



Daikin offers the widest range in DX ventilation in the market.

With a variety of ventilation solutions from small heat recovery ventilation to large scale air handling units we help provide a fresh, healthy and comfortable environment in offices, hotels, stores and other commercial environments.

Abluft



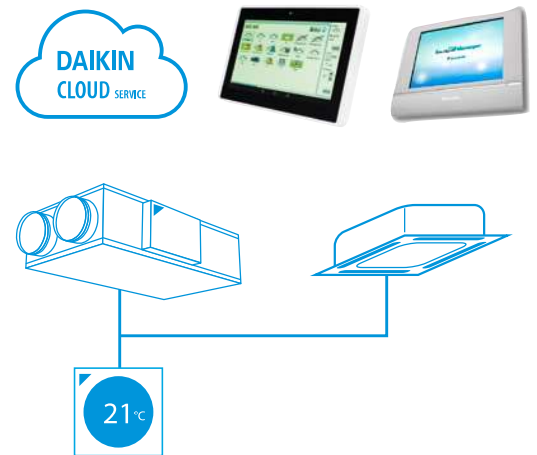
Ventilation & Biddle air curtains

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5 reasons why Daikin's ventilation range is unique in the market

1 Market leading controls & connectivity

- › Interlock of ventilation and air conditioning system
 - Control ERV/HRV and air conditioning from the same controller
 - Aligns the operation mode between the systems to save energy
- › Easy integration in the total solution
 - Online control and monitoring via the Daikin Cloud Service
 - Full portfolio integration in the intelligent Touch Manager, Daikin's cost-effective mini BMS
- › User-friendly controller with premium design
 - Intuitive touch button control



Madoka



reddot award 2018 winner

2 Unique installation benefits

- › Integrates seamlessly in the Daikin total solution, ensuring a single point of contact
- › Total fresh air solution with Daikin supplying both the VAM/Modular L Smart and the electrical heater
- › Daikin AHU and condensing unit connect Plug & Play thanks to same pipe diameters, factory mounted controls, expansion valves, etc.





3 High energy efficiency

- › Energy recovery of up to 92%, reducing running costs
- › Free nighttime cooling using fresh outside air
- › Inverter driven centrifugal fans
- › ErP compliant

Up to
92%
energy
recovery

4 Best comfort

- › Wide range of units to control fresh air and humidity
- › Wide range of optional filters to suit the application available up to ePM₁ 80% (F9)
- › Special paper heat exchanger recovers heat and moisture from extract air to warm up and humidify fresh air to comfortable levels (VAM, VKM)



5 Top reliability

- › Most extensive testing before new units leave the factory
- › Widest support network and after sales service
- › All spare parts available in Europe



Did you know?

CO₂ levels and ventilation rates all have significant, independent impacts on cognitive function:

COGNITIVE FUNCTION SCORES ...



+ 61%
IN GREEN BUILDING
CONDITIONS



+ 101%
IN ENHANCED
GREEN BUILDING CONDITIONS

Widest range of DX integrated ventilation on the market

Daikin offers a variety of solutions from small energy recovery ventilation to large-scale air handling units for the provision of fresh air ventilation to homes, or commercial premises.

Ventilation solutions

Daikin offers state-of-the-art ventilation solutions that can easily be integrated into any project:

- › **Unique portfolio** within DX manufacturers
- › High-quality solutions complying with the **highest Daikin quality standards**
- › **Seamless integration** of all products to provide the best indoor climate
- › All Daikin products connected to a single controller for **complete control** of the HVAC system.

Energy Recovery Ventilation

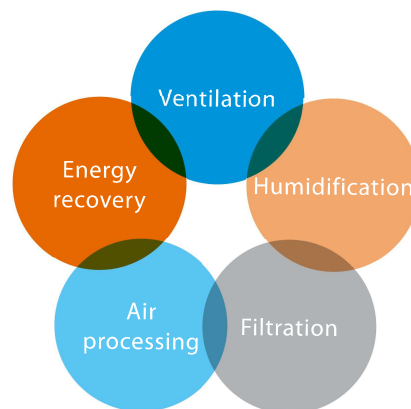
Our energy recovery units **recover sensible energy** (Modular L Pro / Modular L Smart) or **total (sensible + latent) energy** (VAM/VKM), substantially reducing the load on the air conditioning system up to 40%.

Ventilation with DX connection - Control over fresh air temperature

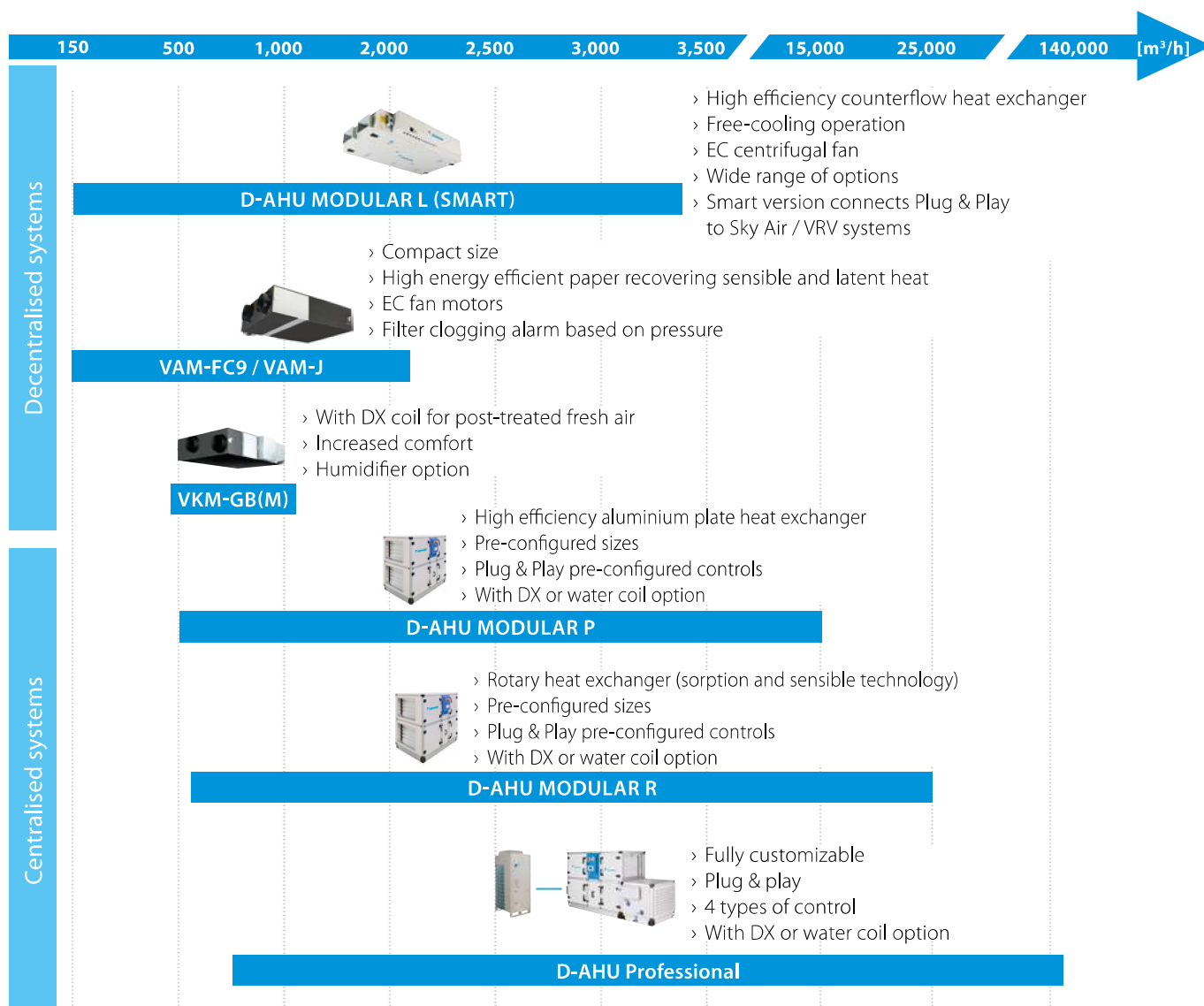
Daikin offers a range of inverter condensing units to be used in combination with Daikin AHUs for ultimate control over the fresh air. There are 4 control possibilities when **combining AHU and Daikin outdoor units** hence offering all the required flexibility for any installation. Indoor units can be combined to the same outdoor unit to reduce the installation costs. For **false-ceiling installations** where space is a constraint, the VKM can fit perfectly to deliver fresh air at a comfortable temperature and it has an optional humidification element.

Five components of indoor air quality

- › **Ventilation:** Ensures the provision of fresh air
- › **Energy recovery:** Delivers energy savings by transferring heat and moisture between airflows
- › **Air processing:** Delivers the right supply temperature to decrease the indoor unit load
- › **Humidification:** Ensures relative indoor humidity levels are respected
- › **Filtration:** Separates pollen, dust and pollution odours that are harmful to individuals' health



Fresh air portfolio



Modular L Smart

Premium efficiency heat recovery unit

Highlights

- › Connects Plug&Play into the Sky Air and VRV control network
- › Easy installation and commissioning
- › Internal pre-filter stage (up to ePM₁ 50% (F7) + ePM₁ 80% (F9)) making the unit reach highest indoor air quality requirements.
- › Wide air flow coverage from 150m³/h to 3,450m³/h
- › Exceeding ErP 2018 requirements
- › Best choice when compactness is needed (only 280 mm height up to 550 m³/h)
- › 50 mm double skin panel (120 kg/m³) for a maximum sound and thermal insulation

EC centrifugal fan

- › Maximum ESP available 600 Pa (depending on model sizes and airflow)
- › Inverter driven with IE4 premium efficiency motor
- › High-efficient blade profiling
- › Reduced energy consumption
- › Optimized SFP (Specific Fan Power) for an efficient unit operation

Heat exchanger

- › Premium quality counter flow plate heat exchanger
- › Up to 91% of the thermal energy recovered
- › High grade aluminum allowing optimum corrosion protection



Right drain connection (ALB-RBS)



Left drain connection (ALB-LBS)

For integration with Applied systems,
please refer to the Modular L, in the AHU chapter

Technical details

D-AHU Modular L Smart		02	03	04	05	06	07	
Airflow	m³/h	300	600	1,200	1,500	2,300	3,000	
Heat exchanger thermal efficiency¹.		%	88	89	88	89	88	
External static pressure	Nom.	Pa	100					
Current	Nom.	A	0.52	1.26	2.17	2.74	4.35	6.09
Power input	Nom.	kW	0.12	0.29	0.50	0.63	1.00	1.40
SFPv².	kW/m³/s	1.25	1.52	1.3	1.35	1.34	1.5	
ERP compliant		ErP 2018 Compliant						
Electrical supply	Phase	ph	1					
	Frequency	Hz	50/60					
	Voltage	V	220/240 Vac					
Main unit dimensions	Width	mm	920	1,100	1,600	2,000		
	Height	mm	280	350	415	500		
	Length	mm	1,660	1,800	2,000			
Rectangular duct flange	Width	mm	250	400	500	700		
	Height	mm	150	200	300	400		
Unit Sound Power Level (Lwa)		dBA	50	57	53	62	58	
Unit Sound Pressure Level³.		dBA	34	41	37	46	41	
Weight unit		kg	125	180	270	280	355	360

1. Winter design condition: Outdoor: -5°C, 90% Indoor: 22°C, 50%

2. SFPv is a parameter that quantifies the fan efficiency (the lower it is the better will be). This reduces if airflow decreases.

3. EN 3744. Surrounding, Directivity (Q) = 2, @1,5m distance

4. Electrical current is based on 230V

Electrical heater for Modular L Smart

- › Total solution for fresh air with Daikin supply of both Modular L Smart and electrical heaters
- › Increase comfort in low outdoor temperature thanks to the heated outdoor air
- › Integrated electrical heater concept (no additional accessories required)
- › Standard dual flow and temperature sensor
- › Heater only consumes what is required to pre-heat to the desired minimum fresh air temperature; thus saving energy

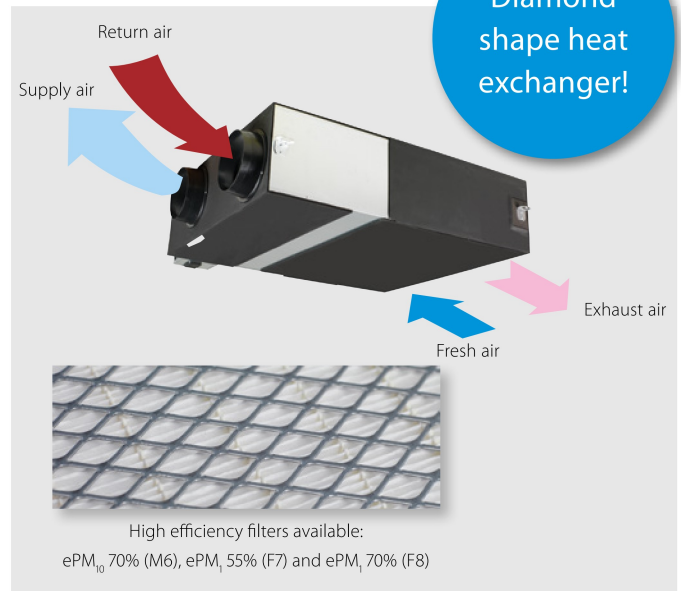


Electrical heater for Modular L Smart (ALD)	02HEFB	03HEFB	05HEFB	07HEFB
Capacity kW	1,5	3	7,5	15
Connectable Modular L Smart size	02	03	04, 05	06, 07
Supply voltage	230V,1ph		400V,3ph	
Output current (maximum) (A)	6,6	13,1	10,9	21,7
Temperature sensor	15k ohms at -20 °C 10k ohms at +10 °C	16k ohms at -20 °C 10k ohms at +10 °C	17k ohms at -20 °C 10k ohms at +10 °C	18k ohms at -20 °C 10k ohms at +10 °C
Temperature control range	- 20 °C to 10 °C			
Control fuse	Mini Circuit Breaker 6 A			
LED indicators	"Yellow = Airflow fault Red = Heat ON"			
Mounting holes	Depends on duct size			
Maximum ambient adjacent to terminal box	30°C (during operation)			
Auto high temperature cutout	75°C Pre-set			
Manual reset high temperature cutout	120°C Pre-set			
Width (mm)	470	620	720	920
Depth (mm)	370	370	370	370
Height (mm)	193	243	343	443

Energy recovery ventilation

Ventilation with heat recovery as standard

- › Thinnest High Efficiency Enthalpy Heat Exchanger in the market (J-series)
- › Energy saving ventilation using indoor heating, cooling and moisture recovery
- › Free cooling possible when outdoor temperature is below indoor temperature (eg. during nighttime)
- › Prevent energy losses from over-ventilation while improving indoor air quality with optional CO₂ sensor
- › Possibility to change ESP via wired remote control allows optimisation of the supply air volume (J - series)
- › Can be used as stand alone or integrated in the Sky Air or VRV system
- › Wide range of units: air flow rate from 150 up to 2,000 m³/h
- › Shorter installation time thanks to easy adjustment of nominal air flow rate, so less need for dampers compared with traditional installation
- › No drain piping needed
- › Can operate in over- and under pressure
- › Total solution for fresh air with Daikin supply of both VAM / VKM and electrical heaters



Ventilation				VAM/VAM	150FC9	250FC9	350J	500J	650J	800J	1000J	1500J	2000J	
Power input - 50Hz	Heat exchange mode	Nom.	Ultra high/High/Low	kW	0.132/0.111/0.058	0.161/0.079/0.064	0.097 /0.070 /0.039	0.164 /0.113 /0.054	0.247 /0.173 /0.081	0.303 /0.212 /0.103	0.416 /0.307 /0.137	0.548 /0.384 /0.191	0.833 /0.614 /0.273	
	Bypass mode	Nom.	Ultra high/High/Low	kW	0.132/0.111/0.058	0.161/0.079/0.064	0.085 /0.061 /0.031	0.148 /0.100 /0.045	0.195 /0.131 /0.059	0.289 /0.194 /0.086	0.417 /0.300 /0.119	0.525 /0.350 /0.156	0.835 /0.600 /0.239	
Temperature exchange efficiency - 50Hz	Ultra high/High/Low			%	770 (1)/720 (2)/783 (1)/723 (2)/828 (1)/732 (2)	749 (1)/695 (2)/760 (1)/700 (2)/801 (1)/720 (2)	85.1 /86.7 /90.1	80.0 /82.5 /87.6	84.3 /86.4 /90.5	82.5 /84.2 /87.7	79.6 /81.8 /86.1	83.2 /84.8 /88.1	79.6 /81.8 /86.1	
Enthalpy exchange efficiency - 50Hz	Cooling	Ultra high/High/Low		%	60.3 (1)/61.9 (1)/67.3 (1)	60.3 (1)/61.2 (1)/64.5 (1)	65.2 /67.9 /74.6	59.2 /61.8 /69.5	59.2 /63.8 /73.1	67.7 /70.7 /76.8	62.6 /66.4 /74.0	68.9 /71.8 /77.5	62.6 /66.4 /74.0	
	Heating	Ultra high/High/Low		%	66.6 (1)/67.9 (1)/72.4 (1)	66.6 (1)/67.4 (1)/70.7 (1)	75.5 /77.6 /82.0	69.0 /72.2 /78.7	73.1 /76.3 /82.7	72.8 /75.3 /80.2	68.6 /71.7 /77.9	73.8 /76.1 /80.8	68.6 /71.7 /77.9	
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									
Dimensions	Unit	HeightxWidthxDepth		mm	285x776x525		301x1,113x886		368x1,354x920		368x1,354x1,172		731x1,354x1,172	
Weight	Unit			kg	24.0		46.5		61.5		79.0		157	
Casing	Material				Galvanised steel plate									
Fan	Air flow rate - 50Hz	Heat exchange mode	Ultra high/High/Low	m³/h	150 /140 /105	250 /230 /155	350 (1)/300 (1)/200 (1)	500 (1)/425 (1)/275 (1)	650 (1)/550 (1)/350 (1)	800 (1)/680 (1)/440 (1)	1,000 (1)/850 (1)/550 (1)	1,500 (1)/1,275 (1)/825 (1)	2,000 (1)/1,700 (1)/1,100 (1)	
		Bypass mode	Ultra high/High/Low	m³/h	150 /140 /105	250 /230 /155	350 (1)/300 (1)/200 (1)	500 (1)/425 (1)/275 (1)	650 (1)/550 (1)/350 (1)	800 (1)/680 (1)/440 (1)	1,000 (1)/850 (1)/550 (1)	1,500 (1)/1,275 (1)/825 (1)	2,000 (1)/1,700 (1)/1,100 (1)	
		External static pressure - 50Hz	Ultra high/High/Low		Pa	90 /87/40	70 /63/25	90 (1)/70.0 /50.0 (1)						
Air filter	Type				Multidirectional fibrous fleeces		Multidirectional fibrous fleeces (G3)							
Sound pressure level - 50Hz	Heat exchange mode	Ultra high/High/Low		dBA	27.0 /26.0 /20.5	28.0 /26.0 /21.0	34.5 (1)/32.0 (1)/29.0 (1)	37.5 (1)/35.0 (1)/30.5 (1)	39.0 (1)/36.0 (1)/31.0 (1)	39.0 (1)/36.0 (1)/30.5 (1)	42.0 (1)/38.5 (1)/32.5 (1)	42.0 (1)/39.0 (1)/33.5 (1)	45.0 (1)/41.5 (1)/36.0 (1)	
	Bypass mode	Ultra high/High/Low		dBA	27.0 /26.5 /20.5	28.0 /27.0 /21.0	34.5 (1)/32.0 (1)/28.0 (1)	38.0 (1)/35.0 (1)/29.5 (1)	38.0 (1)/34.5 (1)/30.5 (1)	40.0 (1)/36.5 (1)/30.5 (1)	42.5 (1)/40.0 (1)/32.5 (1)	42.0 (1)/39.0 (1)/32.5 (1)	45.0 (1)/41.0 (1)/35.0 (1)	
Operation range	Around unit			°CDB	-		0°C~40°CDB, 80% RH or less							
Connection duct diameter					mm	100	150	200		250		2x250		
Power supply	Phase/Frequency/Voltage			Hz/V	1~ ; 50/60 ; 220-240/220									
Current	Maximum fuse amps (MFA)			A	15.0		16.0							
Specific energy consumption (SEC)	Cold climate			kWh/(m².a)	-56.0 (5)	-60.5 (5)	-							
	Average climate			kWh/(m².a)	-22.1 (5)	-27.0 (5)	-							
	Warm climate			kWh/(m².a)	-0.100 (5)	-5.30 (5)	-							
SEC class					D / See note 5 B / See note 5		-							
Maximum flow rate	Flow rate			m³/h	130	207	-							
at 100 Pa ESP	Electric power input			W	129	160	-							
Sound power level (Lwa)					dB	40	43	51	54	58	61	62	65	
Annual electricity consumption					kWh/a	18.9 (5)	13.6 (5)	-						
Annual heating saved	Cold climate			kWh/a	41.0 (5)	40.6 (5)	-							
	Average climate			kWh/a	80.2 (5)	79.4 (5)	-							
	Warm climate			kWh/a	18.5 (5)	18.4 (5)	-							

(1) Measured according to JIS B 8628 | (2) Measured at reference flow rate according to EN13141-7 | (5) At reference flow rate in accordance with commission regulation (EU) No 1254/2014

Electrical heater for VAM

- › Total solution for fresh air with Daikin supply of both VAM and electrical heaters
- › Increased comfort in low outdoor temperature thanks to the heated outdoor air
- › Integrated electrical heater concept (no additional accessories required)
- › Standard dual flow and temperature sensor
- › Flexible setting with adjustable setpoint
- › Increased safety with 2 cut-outs: manual & automatic



	GSIEKA	10009	15018	20024	25030	35530 ⁽¹⁾
Capacity	kW	0.9	1.8	2.4	3.0	3.0
Duct diameter	mm	100	150	200	250	355
Connectable VAM		VAM150FC9	VAM250FC9	VAM350,500J	VAM650J, VAM800J, VAM1000J	VAM1500J, VAM2000J

			GSIEKA10009	GSIEKA15018	GSIEKA20024	GSIEKA25030	GSIEKA35530
Dimensions	Height	mm	171	221	271	321	426
	Depth	mm	100	150	200	250	355
	Width	mm	370	370	370	370	373
Minimum air velocity / airflow		m/s	1.5				
		m³/h	45	100	170	265	535
Power supply			1~230 VAC/50Hz				
Nominal current	A		4.1	8.2	10.9	13.1	13.1
Heating power	kW		0.9	1.8	2.4	3.0	3.0
Connection duct diameter	mm		100	150	200	250	355
Operation range	Min.	°C	-40°C				
	Max.	°C	40°C				
	Rel. Humidity	%	90%				
Temperature sensor			10 kΩ at +25°C / TJ-K10K				
Temperature sensor range			- 30°C to 105°C				
Temperature set point range			- 10°C to 50°C				
LED indicators	LED 1	flashing every 5 seconds	heater is starting up				
		flashing every second	air flow detected, heating allowed				
		OFF	no power supply or no flow				
		ON	problem with duct temperature sensor, set point potentiometer or PTC airflow sensor				
	LED 2	OFF	heater is not operation				
		ON	heater is operating				
Ambient temperature adjacent to controller			0°C to +50°C				
Auto high temperature cut-out			50°C				
Manual reset high temperature cut-out			100°C				

Energy recovery ventilation, humidification and air processing

Post heating or cooling of fresh air for lower
load on the air conditioning system

- › Energy saving ventilation using indoor heating, cooling and moisture recovery
- › Creates a high quality indoor environment by pre conditioning of incoming fresh air
- › Humidification of the fresh air results in comfortable indoor humidity level, even during heating
- › Free cooling possible when outdoor temperature is below indoor temperature (eg. during nighttime)
- › Low energy consumption thanks to DC fan motor
- › Prevent energy losses from over-ventilation while improving indoor air quality with optional CO₂ sensor
- › Shorter installation time thanks to easy adjustment of nominal air flow rate, so less need for dampers compared with traditional installation
- › Specially developed heat exchange element with High Efficiency Paper (HEP)
- › Can operate in over- and under pressure



Ventilation			VKM-GB/VKM-GBM	50GB	80GB	100GB	50GBM	80GBM	100GBM	
Power input - 50Hz	Heat exchange mode	Nom.	Ultra high/High/Low	kW	0.270/0.230/0.170	0.330/0.280/0.192	0.410/0.365/0.230	0.270/0.230/0.170	0.330/0.280/0.192	0.410/0.365/0.230
	Bypass mode	Nom.	Ultra high/High/Low	kW	0.270/0.230/0.140	0.330/0.280/0.192	0.410/0.365/0.230	0.270/0.230/0.170	0.330/0.280/0.192	0.410/0.365/0.230
Fresh air conditioning load	Cooling			kW	4.71 / 1.91 / 3.5	7.46 / 2.96 / 5.6	9.12 / 3.52 / 7.0	4.71 / 1.91 / 3.5	7.46 / 2.96 / 5.6	9.12 / 3.52 / 7.0
	Heating			kW	5.58 / 2.38 / 3.5	8.79 / 3.79 / 5.6	10.69 / 4.39 / 7.0	5.58 / 2.38 / 3.5	8.79 / 3.79 / 5.6	10.69 / 4.39 / 7.0
Temperature exchange efficiency - 50Hz	Ultra high/High/Low			%	76/76/77.5	78/78/79	74/74/76.5	76/76/77.5	78/78/79	74/74/76.5
Enthalpy exchange efficiency - 50Hz	Cooling	Ultra high/High/Low	%	64/64/67	66/66/68	62/62/66	64/64/67	66/66/68	62/62/66	
	Heating	Ultra high/High/Low	%	67/67/69	71/71/73	65/65/69	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				-			Natural evaporating type			
Dimensions	Unit	HeightxWidthxDepth		mm	387x1,764x832	387x1,764x1,214		387x1,764x832	387x1,764x1,214	
Weight	Unit			kg	94	110	112	100	119	123
Casing	Material				Galvanised steel plate					
Fan-Air flow rate - 50Hz	Heat exchange mode	Ultra high/High/Low	m³/h	500/500/440	750/750/640	950/950/820	500/500/440	750/750/640	950/950/820	
	Bypass mode	Ultra high/High/Low	m³/h	500/500/440	750/750/640	950/950/820	500/500/440	750/750/640	950/950/820	
Fan-External static pressure - 50Hz	Ultra high/High/Low			Pa	210/170/140	210/160/110	150/100/70	200/150/120	205/155/105	110/70/60
Air filter	Type				Multidirectional fibrous fleeces					
Sound pressure level - 50Hz	Heat exchange mode	Ultra high/High/Low	dBA	39/37/35	41.5/39/37	41/39/36.5	38/36/34	40/37.5/35.5	40/38/35.5	
	Bypass mode	Ultra high/High/Low	dBA	40/38/35.5	41.5/39/37	41/39/36.5	39/36/34.5	41/38/36	41/39/35.5	
Operation range	Around unit				0°C~40°CDB, 80% RH or less					
	Supply air				-15°C~40°CDB, 80% RH or less					
	Return air				0°C~40°CDB, 80% RH or less					
	On coil temperature	Cooling/Max./Heating/Min.				-15/43				
Refrigerant	Control				Electronic expansion valve					
	Type				R-410A					
	GWP				2,087.5					
Connection duct diameter				mm	200	250	200		250	
Piping connections	Liquid	OD		mm						
	Gas	OD		mm						
	Water supply				mm	-		6.4		
	Drain				PT3/4 external thread					
Power supply	Phase/Frequency/Voltage			Hz/V	1~/50/220-240					
Current	Maximum fuse amps (MFA)			A	15					

Contains fluorinated greenhouse gases