

# Daikin offers a variety of solutions for fresh air

from small heat recovery ventilation to large-scale air handling units for the provision of fresh air ventilation to homes, or commercial outlets such as offices, hotels, stores and others.

## Ventilation solutions

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

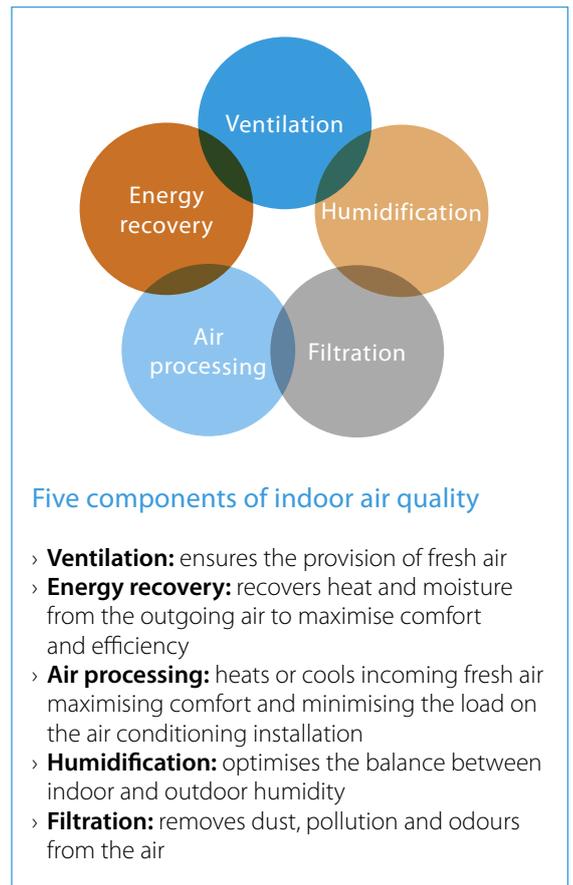
- > Unique portfolio within DX manufacturers
- > High-quality solutions complying with the highest Daikin quality standards
- > Seamless integration of all products to provide the best indoor climate
- > All Daikin products connected to a single control total control of the HVAC system.

## Heat Reclaim Ventilation - Ventilation with heat recovery as standard

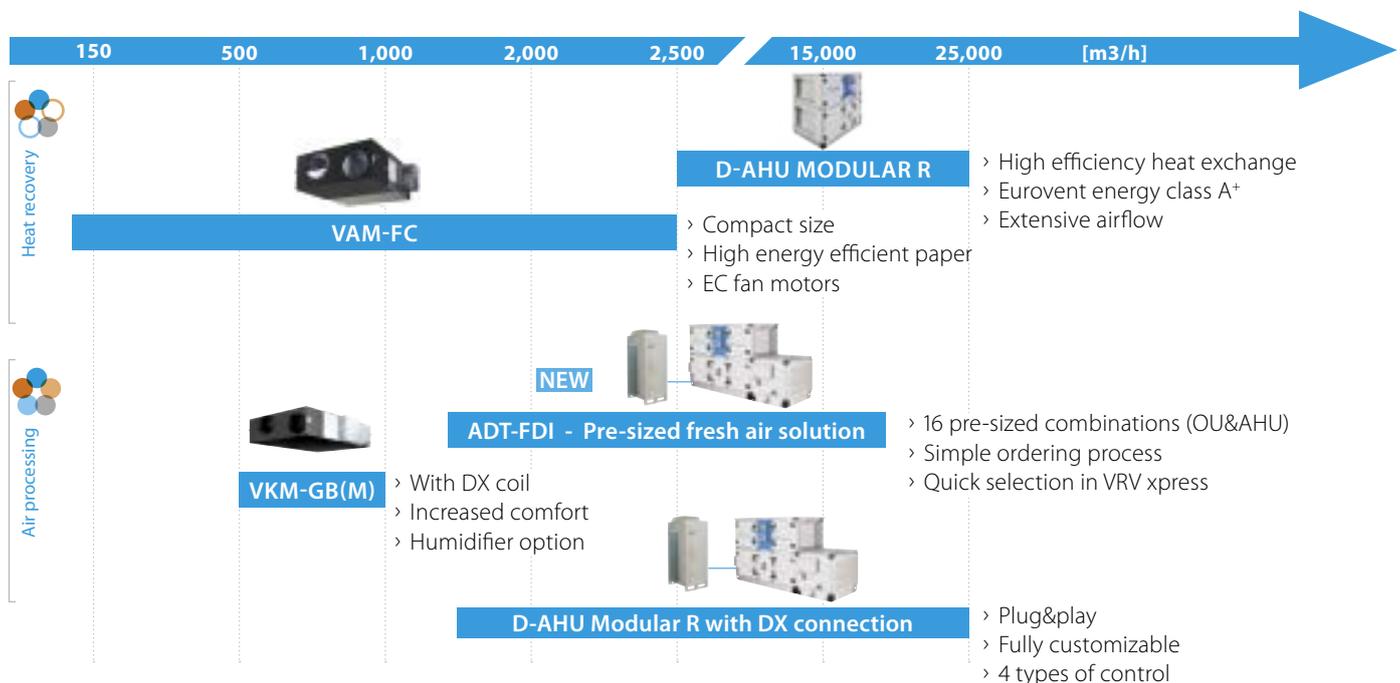
Proper ventilation is a key component of climate control in buildings, offices and shops and part of the EU requirements. Our heat recovery units can **recover both sensible and latent heat** thus substantially **reducing the air conditioning load of up to 40%**. The range starts from as low as 150 m<sup>3</sup>/h to 2500 m<sup>3</sup>/h (VAM) and go up to 25000 m<sup>3</sup>/h (Modular AHU).

## Ventilation with DX connection - Control over fresh air temperature

Daikin offers a range of R-410A 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.



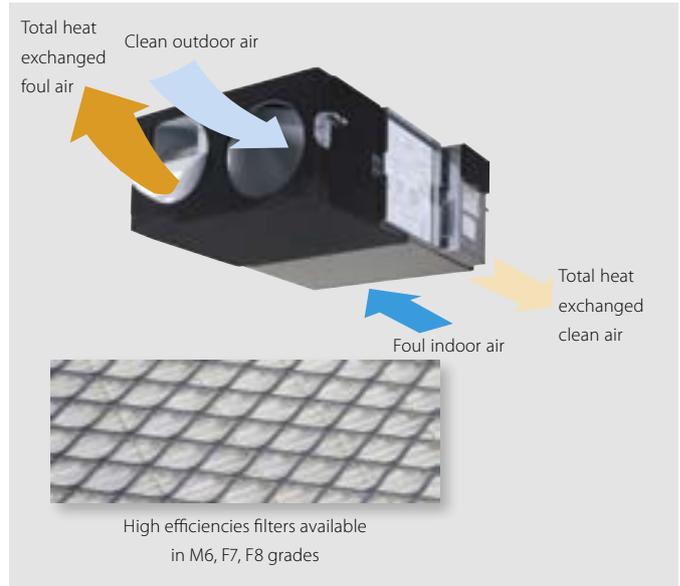
## Fresh air portfolio



# Heat reclaim ventilation

## Ventilation with heat recovery as standard

- › Energy saving ventilation using indoor heating, cooling and moisture recovery
- › Ideal solution for shops, restaurants or offices requiring maximum floor space for furniture, decorations and fittings
- › Free cooling possible when outdoor temperature is below indoor temperature (eg. during nighttime)
- › Reduced energy consumption thanks to specially developed DC fan motor
- › Prevent energy losses from over-ventilation while improving indoor air quality with optional CO2 sensor
- › 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 m<sup>3</sup>/h
- › Optional medium and fine dust filters M6, F7, F8 to meet customer request or legislation
- › 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)



- › 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	150FC	250FC	350FC	500FC	650FC	800FC	1000FC	1500FC	2000FC						
Power input - 50Hz	Heat exchange mode	Nom.	Ultra high/High/Low	kW	0.132/0.111/0.058	0.161/0.079/0.064	0.071 (1)/0.057 (1)/0.020 (1)	0.147 (1)/0.101 (1)/0.049 (1)	0.188 (1)/0.114 (1)/0.063 (1)	0.320 (1)/0.241 (1)/0.185 (1)	0.360 (1)/0.309 (1)/0.198 (1)	0.617 (1)/0.463 (1)/0.353 (1)	0.685 (1)/0.575 (1)/0.295 (1)						
	Bypass mode	Nom.	Ultra high/High/Low	kW	0.132/0.111/0.058	0.161/0.079/0.064	0.071 (1)/0.057 (1)/0.020 (1)	0.147 (1)/0.101 (1)/0.049 (1)	0.188 (1)/0.114 (1)/0.063 (1)	0.320 (1)/0.241 (1)/0.185 (1)	0.360 (1)/0.309 (1)/0.198 (1)	0.617 (1)/0.463 (1)/0.353 (1)	0.685 (1)/0.575 (1)/0.295 (1)						
Temperature exchange efficiency - 50Hz	Ultra high/High/Low			%	77.0 (2) / 72.0 (3) / 78.3 (2) / 72.3 (3) / 82.8 (2) / 73.2 (3)	74.9 (2) / 69.5 (3) / 76.0 (2) / 70.0 (3) / 80.1 (2) / 72.0 (3)	78.0 (2) / 71.6 (4) / 79.3 (2) / 71.9 (4) / 84.1 (2) / 73.0 (4)	77.0 (2) / 70.2 (4) / 78.8 (2) / 70.7 (4) / 80.9 (2) / 71.3 (4)	77.0 (2) / 69.8 (4) / 79.1 (2) / 71.2 (4) / 81.1 (2) / 72.9 (4)	77.0 (2) / 67.8 (4) / 78.2 (2) / 68.8 (4) / 79.1 (2) / 69.6 (4)	78.0 (2) / 70.2 (4) / 78.6 (2) / 71.1 (4) / 80.2 (2) / 73.4 (4)	78.0 (2) / 69.5 (4) / 79.6 (2) / 70.3 (4) / 80.8 (2) / 71.0 (4)	78.0 (2) / 70.2 (4) / 79.6 (2) / 71.3 (4) / 80.6 (2) / 74.6 (4)						
	Enthalpy exchange efficiency - 50Hz	Cooling	Ultra high/High/Low	%	60.3 (2)/61.9 (2)/67.3 (2)	60.3 (2)/61.2 (2)/64.5 (2)	63.4 (2)/65.0 (2)/70.7 (2)	60.3 (2)/63.4 (2)/66.9 (2)	60.3 (2)/64.0 (2)/67.3 (2)	62.4 (2)/63.6 (2)/64.6 (2)	63.4 (2)/64.2 (2)/66.3 (2)	63.4 (2)/65.0 (2)/66.2 (2)	63.4 (2)/64.5 (2)/67.8 (2)						
Heating		Ultra high/High/Low	%	66.6 (2)/67.9 (2)/72.4 (2)	66.6 (2)/67.4 (2)/70.7 (2)	67.6 (2)/68.9 (2)/73.7 (2)	64.5 (2)/67.6 (2)/71.1 (2)	65.5 (2)/67.7 (2)/69.7 (2)	67.6 (2)/68.8 (2)/69.8 (2)	68.6 (2)/69.4 (2)/71.5 (2)	68.6 (2)/69.7 (2)/70.5 (2)	68.6 (2)/69.5 (2)/72.1 (2)							
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			301x828x816			364x1,000x868		364x1,000x1,160		726x1,510x868		726x1,510x1,160			
Weight	Unit		kg	24.0			33.0			51.0		54.0		63.0		128		145	
Casing				Material Galvanised steel plate															
Fan-Air flow rate - 50Hz	Heat exchange mode	Ultra high/High/Low	m <sup>3</sup> /h	150 (5)/140 (5)/105 (5)	250 (5)/230 (5)/155 (5)	350 (1)/320 (1)/210 (1)	500 (1)/410 (1)/310 (1)	650 (1)/545 (1)/450 (1)	800 (1)/725 (1)/665 (1)	1,000 (1)/950 (1)/820 (1)	1,500 (1)/1,350 (1)/1,230 (1)	2,000 (1)/1,880 (1)/1,500 (1)							
	Bypass mode	Ultra high/High/Low	m <sup>3</sup> /h	150 (5)/140 (5)/105 (5)	250 (5)/230 (5)/155 (5)	350 (1)/320 (1)/210 (1)	500 (1)/410 (1)/310 (1)	650 (1)/545 (1)/450 (1)	800 (1)/725 (1)/665 (1)	1,000 (1)/950 (1)/820 (1)	1,500 (1)/1,350 (1)/1,230 (1)	2,000 (1)/1,880 (1)/1,500 (1)							
Fan-External static pressure - 50Hz	Ultra high/High/Low			Pa	90 (5)/87 (5)/40 (5)	70 (5)/63 (5)/25 (5)	103 (1)/93 (1)/51 (1)	83 (1)/57 (1)/35 (1)	100 (1)/73 (1)/49 (1)	109 (1)/94 (1)/78 (1)	147 (1)/135 (1)/100 (1)	116 (1)/97 (1)/80 (1)	132 (1)/118 (1)/77 (1)						
Air filter				Type Multidirectional fibrous fleeces															
Sound pressure level - 50Hz	Heat exchange mode	Ultra high/High/Low	dBA	27.0/26.0/20.5	28.0/26.0/21.0	32.0/31.5/23.5	33.0/31.5/24.5	34.5/33.0/27.0	36.0/34.5/31.0	36.0/35.0/31.0	39.5/38.0/34.0	40.0/38.0/35.0							
	Bypass mode	Ultra high/High/Low	dBA	27.0/26.5/20.5	28.0/27.0/21.0	32.0/31.0/24.5	33.5/32.5/25.5	34.5/34.0/27.0	36.0/34.5/31.0	36.0/35.5/31.0	40.5/38.0/33.5	40.0/38.0/35.0							
Operation range	Min.		°CDB	-15															
	Max.		°CDB	50															
	Relative humidity		%	80% or less															
Connection duct diameter				mm	100	150	200	250	350										
Power supply				Phase/Frequency/Voltage	Hz/V 1~/50/60/220-240/220														
Current				Maximum fuse amps (MFA)	15.0					16.0									
Specific energy consumption (SEC)	Cold climate		kWh/(m <sup>2</sup> ·a)	-56.0 (6)					-60.5 (6)										
	Average climate		kWh/(m <sup>2</sup> ·a)	-22.1 (6)					-27.0 (6)										
	Warm climate		kWh/(m <sup>2</sup> ·a)	-0.100 (6)					-5.30 (6)										
SEC class					D / (6)		B / (6)												
Maximum flow rate at 100 Pa ESP	Flow rate		m <sup>3</sup> /h	130 (5)		207 (5)													
	Electric power input		W	129		160													
Sound power level (Lwa)				dB	40	43	48	50	51	53	55	57							
Annual electricity consumption				kWh/a	18.9 (6)		13.6 (6)												
Annual heating saved	Cold climate		kWh/a	41.0 (6)		40.6 (6)													
	Average climate		kWh/a	80.2 (6)		79.4 (6)													
	Warm climate		kWh/a	18.5 (6)		18.4 (6)													

(1) Measured on fan curve 15. Refer to fan curves. (2) Measured according to JIS B 8628 (3) Measured at reference flow rate according to EN13141-7 (4) Measured according to EN308 : 1997 (5) Clean the filter when the filter icon appears on the controller screen. Regular filter cleaning is important for delivered air quality and for the unit's energy efficiency. (6) In accordance with commission regulation (EU) No 1254/2014 | In accordance with commission regulation (EU) No 1253/2014 | At reference flow rate in accordance with commission regulation (EU) No 1254/2014

# VH

- › 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
- › BMS integration thanks to:
  - Volt free relay for error indication
  - 0-10VDC input for setpoint control



ELECTRICAL HEATER FOR VAM	VH	(VH)
Supply voltage		220/250V ac 50/60 Hz. +/-10%
Output current (maximum)		19A at 40°C (ambient)
Temperature sensor		5k ohms at 25°C (table 502 1T)
Temperature control range		0 to 40°C / (0-10V 0-100%)
Control fuse		20 x 5mm 250mA
LED indicators		Power ON - Yellow Heater ON - Red (solid or flashing, indicating pulsed control) Airflow fault - Red
Mounting holes		98mm x 181mm centres 5 mm ø holes
Maximum ambient adjacent to terminal box		35°C (during operation)
Auto high temp. cutout		100°C Pre-set
Man. reset high temp. cutout		125°C Pre-set
Run relay		1A 120V AC or 1A 24V DC
BMS setpoint input		0-10VDC

		VH	1B	2B	3B	4B	4/AB	5B
Capacity	kW		1	1	1	1.5	2.5	2.5
Duct diameter	mm		100	150	200	250	250	300
Connectable VAM			VAM150FC -	VAM250FC VAM350FC	VAM500FC VAM650FC	VAM800FC VAM1000FC	VAM800FC VAM1000FC	VAM1500FC VAM2000FC

For the selection of the appropriate capacity, please refer to the VAM selection software.