



# Ventilation Guide



Indoor Air Quality solutions for residential  
and commercial environments



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Clean air is a basic requirement of life. The quality of air inside homes and commercial buildings where people spend a large part of their life is an essential determinant of healthy life and people's well-being.



## Daikin offers a variety of solutions from small energy recovery ventilation to large air handling units for the provision of fresh air ventilation to residential and commercial buildings

### Ventilation solutions

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

- › **Wide ventilation portfolio**, unique among AC manufacturers
- › High-quality solutions complying with the **highest legislative standards**
- › **Seamless integration** of all products to provide the best indoor climate
- › All Daikin products connected to a single front end 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%.

### Control of fresh air temperature

Daikin offers a range of inverter condensing units which can be used in combination with Daikin Air Handling Units (AHUs) for ultimate in control over fresh air.

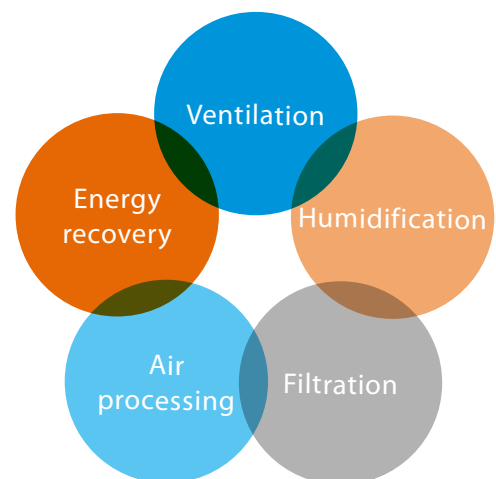
There are four control possibilities when combining AHUs and Daikin outdoor units, offering all the required flexibility for any installation

Multiple indoor units can be combined with the same outdoor unit to reduce the installation costs. For false-ceiling installations where space is a constraint, the VKM can fit perfectly, delivering fresh air at a comfortable temperature and with optional humidification.



#### Five components of Indoor Air Quality:

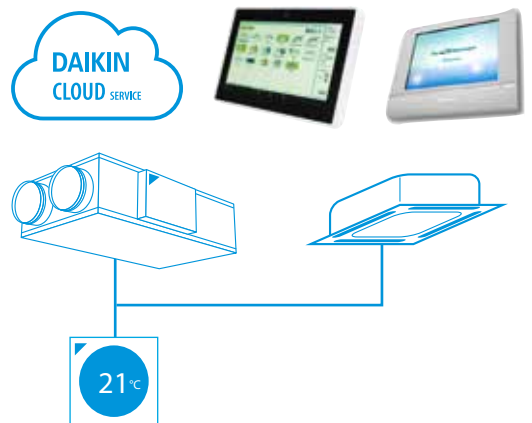
- › **Ventilation:** ensures the provision of fresh air
- › **Energy recovery:** delivers energy savings by transferring heat and moisture between airflows
- › **Air processing:** delivers the right supply temperature to decrease the indoor unit load
- › **Humidification:** ensures relative indoor humidity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



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

## 1 Market leading controls & connectivity

- › Interlocking 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



## 2 Unique installation benefits

- › Integrates seamlessly within 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.







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## High energy efficiency

- › Energy recovery of up to 92%, reducing running costs
- › Free night-time cooling using fresh outside air
- › Higher Efficiency EC Fans
- › ErP compliant

Up to  
**92%**  
energy  
recovery

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## Best comfort

- › Wide range of units to control fresh air for comfort cooling applications
- › Wide range of optional filters to suit the application available up to ePM1 80% (F9)
- › Special paper heat exchanger recovers heat and moisture from extracted air to warm up and humidify fresh air to comfortable levels (VAM, VKM)
- › Aluminum plate heat exchanger, eliminating the risk of cross contamination between air flows (Modular L & Modular P)



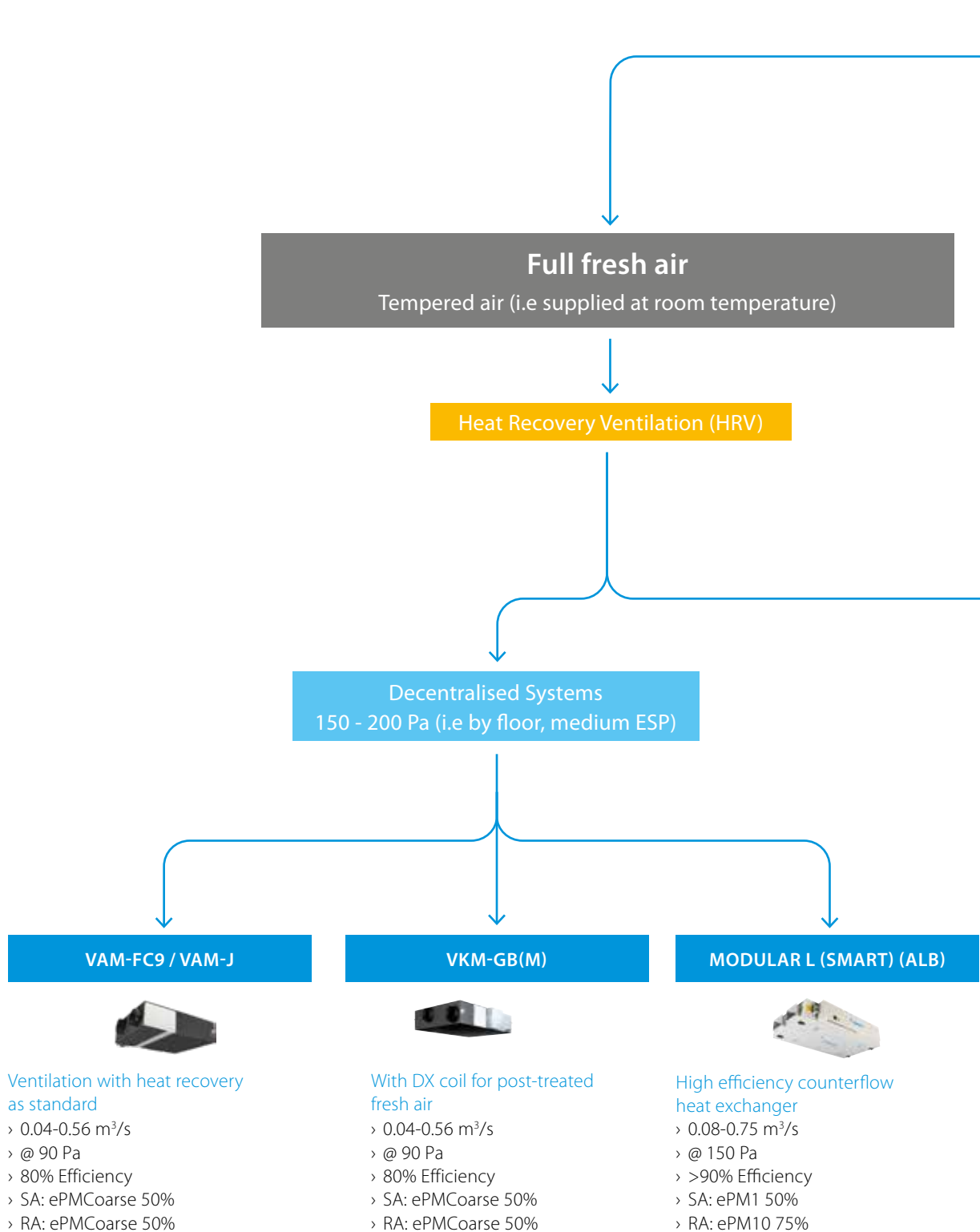
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## Total reliability

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



# Indoor Air Quality decision guide





## Ventilation

## Air conditioning

with % Fresh air (i.e. re-circulation)

Centralised Systems  
200-400 Pa (i.e. plant room, high ESP)

Centralised Systems  
250-500 Pa (i.e. plant room, high ESP)

MODULAR P (ADT)



High efficiency aluminium plate heat exchanger

- > 0.41-5.83 m<sup>3</sup>/s
- > @ 250 Pa
- > >80% Efficiency
- > SA: ePMCoarse 60%/ePM1 50%
- > RA: ePMCoarse 60%

MODULAR R (ADT)



Rotary heat exchanger (sorption and sensible technology)

- > 0.5-5.28 m<sup>3</sup>/s
- > @ 250 Pa
- > >80% Efficiency
- > SA: ePM Coarse 60%/ePM1 50%
- > RA: ePMCoarse 60%

AHU by Others

OEM Approach

- > If DX coil consider Daikin expansion valve (EXEXV) and condenser (ERQ/VRV)
- > If chilled water coil consider Daikin chiller options 2 kW to 2 mW

Rooftop UATYQ

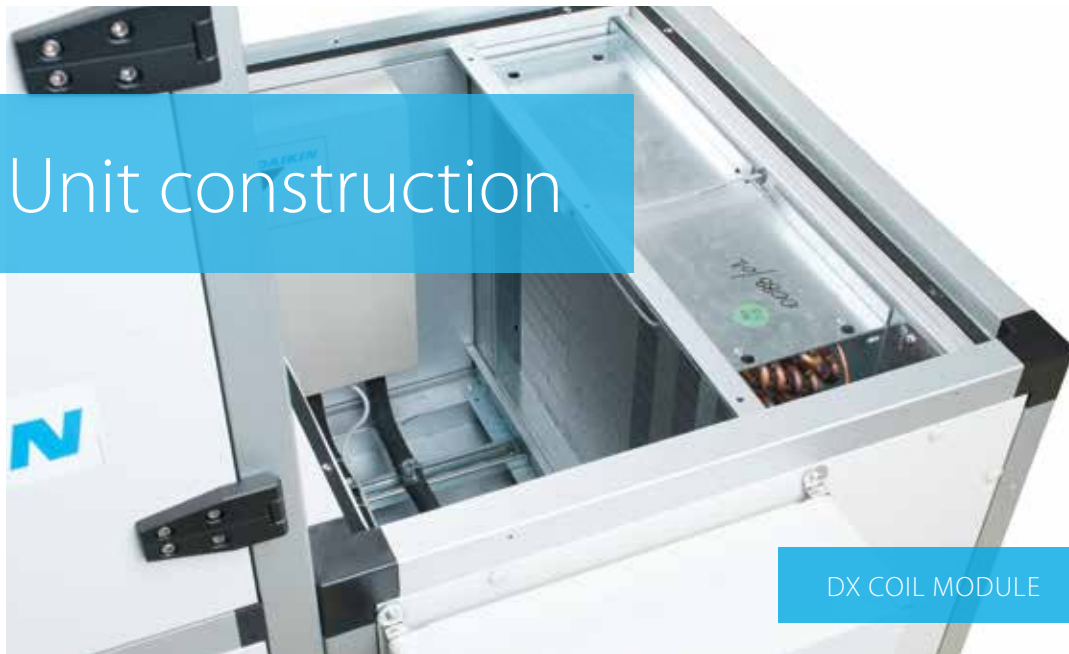


- > 1.38-7.2 m<sup>3</sup>/s
- > 19.5-107 kW
- > @ 300 Pa
- > SA: ePM Coarse 60%

### Note:

SA - Supply Air  
RA - Return Air

# Unit construction



DX COIL MODULE



## Thermal Wheel

- › Reduces unit length
- › Low pressure drops
- › High sensible efficiency
- › 3% carry over (ie: cross contamination)



## Plate Heat Exchanger

- › Larger unit
- › High dry efficiency
- › No risk of cross contamination

Feature	Detail	VAM/VKM	Modular L Smart	Modular L Pro	Modular P	Modular R
System Type	De-Centralised	✓	✓	✓		
	Centralised				✓	✓
Controls	F1/F2	STD	STD			
	Siemens MT3			STD	STD	STD
Mixing Box					OPT	OPT
EC Fan			STD	STD	STD	STD
Dampers	Fresh Air Inlet				STD	STD
	Exhaust Air Discharge				STD	STD
Frost Coil	Electric		OPT <sup>(1)</sup>	OPT <sup>(1)</sup>	OPT	OPT
	LPHW				OPT <sup>(2)</sup>	OPT <sup>(2)</sup>
Filters	Panel	STD	OPT	OPT	OPT	OPT
	Bag		STD	STD	OPT	OPT
Heat Recovery	Cross Flow (Paper)	STD				
	Plate (Aluminium)		STD	STD	STD	
	Thermal Wheel					STD
Cooling Coil	DX Heat Pump R410a				OPT	OPT
	Chilled Water			OPT <sup>(1)</sup>	OPT	OPT
Heating Coil	Electric			OPT <sup>(1)</sup>	OPT	OPT
	LPHW			OPT <sup>(1)</sup>	OPT	OPT
Attenuators	Atmosphere Side		OPT <sup>(1)</sup>	OPT <sup>(1)</sup>	OPT	OPT
	Room Side		OPT <sup>(1)</sup>	OPT <sup>(1)</sup>	OPT	OPT
Humidifier Section					OPT <sup>(3)</sup>	OPT <sup>(3)</sup>
Empty Section	Before Cooling Coil				OPT	OPT
	After Cooling Coil				OPT	OPT

(1) For Units mounted outdoors  
 (2) For units fitted with electric frost coil  
 (3) Required for integration to ITM front end



DAMPER AND EC FAN



HEAT RECOVERY WHEEL AND FILTER

## Accessory list

	Mandatory	Recommended	Optional
Spare Filter		✓	
Lifting Bracket			✓
Flat Roof	✓ <sup>(1)</sup>		
Lamp Wired to External Switch			✓
LED Lamp Wired to External Switch			✓
Port Hole			✓
Rain Hood	✓ <sup>(1)</sup>		
Louvre	✓ <sup>(1)</sup>		
Flexible Connection		✓	
Circular Spigot			✓
Flexible Connection - VDI Class			✓
Noise Reduction Laminar Straightener			✓
Screen Door	✓		
Microswitch			✓
Frost Protection Thermostat		✓ <sup>(2)</sup>	
'U'Tube Manometer			✓
Minihelic Gauge			✓
CO2 Sensor			✓
Room Thermostat			✓
Remote interface			✓
Humidity Sensor			✓
BACNET Module		✓ <sup>(3)</sup>	
MODBUS Module			✓

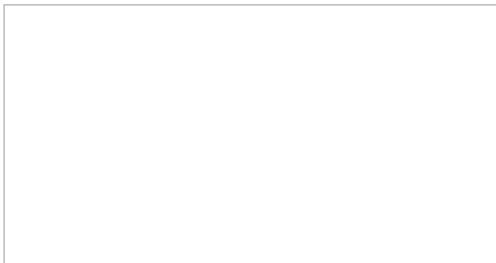
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ECPEN21-206

02/21



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Printed on non-chlorinated paper.