



VRV, INTEGRATED CLIMATE CONTROL
FOR MEDIUM TO LARGE COMMERCIAL SPACES

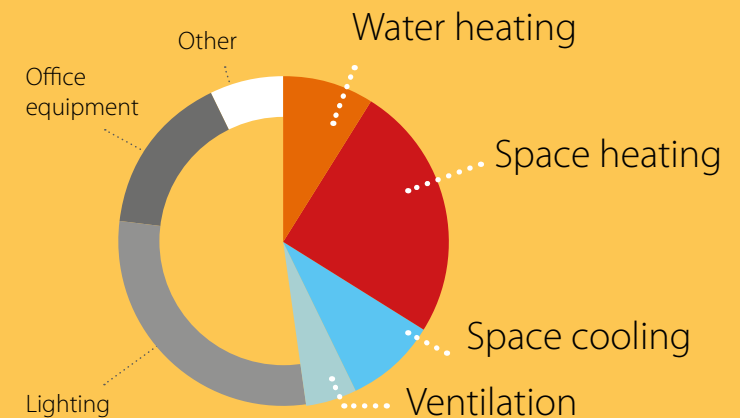
Total Solution Concept

The Daikin VRV Total Solution provides a single point of contact for the design and maintenance of your integrated climate control system. Our modular units enable you to select the right mix of equipment and technology to ensure that you achieve the optimal balance of temperature, humidity and air freshness for the perfect comfort zone with maximum energy efficiency, minimum operating costs and reduced CO₂ emissions.

DID YOU KNOW THAT...

you can use our VRV solution to manage
up to 50% of an office building's energy
consumption, giving you a huge potential of cost and
energy savings, while limiting the environmental impact.

Total energy consumption for an office building



Source: EIA; 1995, Commercial buildings Energy consumption survey

VRV Outdoor Units Integrated heat pump solution

- › Solutions for every climate from -25°C to +52°C
- › Flexible to fit any building
- › Can be customized to your specific needs to achieve the highest seasonal efficiency
- › The new standard in heating comfort



Heating and cooling

Wide range of indoor units that fit rooms of any size and shape

- › Perfect comfort
- › Whisper-quiet operation
- › Stylish design
- › Concealed installation possible

→ SAVE UP TO 15% COMPARED TO TRADITIONAL SYSTEMS



Hot water

Use renewable energy to produce hot water

- › Free heating of water possible
- › Possibility to combine with solar panels
- › Hot water for showers, sinks, tap water for cleaning, under floor heating or radiators
- › Hot water up to 80°C

→ SAVE UP TO 17% COMPARED TO A GAS BOILER



User friendly control systems

Full control for maximum efficiency

- › From individual control to the management of multiple buildings
- › User friendly touch screen control
- › Remote control & monitoring via internet
- › Zone control
- › Energy management tools
- › Easy F-gas compliance via remote refrigerant containment check



Air separation through air curtains

A highly efficient solution to doorway climate separation

- › Most efficient open-door solution
- › Air curtain heating for free
- › Year-round comfort, even on the most demanding days

→ SAVE UP TO 72% COMPARED TO AN ELECTRIC AIR CURTAIN



Ventilation

Create a high-quality indoor environment

- › Heat is reclaimed between out and indoor air
- › Free cooling
- › Optimum control of humidity
- › Air filtration ensures a steady supply of clean air
- › CO₂ sensor
- › Plug & play connection to air handling units

→ SAVE UP TO 40% THANKS TO LOWER COOLING AND HEATING REQUIREMENTS

Why choose applied VRV solutions?



Low operating costs

According to the Franklin + Andrews, one of the world's leading construction economists, running costs for VRV heat recovery systems compare highly favourably with a 2 or 4 pipe fan coil system. Running costs per m² Gross Floor Area of a fan coil system can be 40 to 72% higher compared to a VRV heat recovery system.

Greater space efficiency

A VRV system is more space efficient than a chiller too, because it requires much less plant space. For example, Franklin + Andrews estimates that a 2 or 4 pipe fan coil system could take up around 7% of the overall lettable floor area of the building, while a comparable VRV building would take up between 3-5%. This means that Daikin VRV allows developers to maximise the rental space, by requiring 29% less plant space than a chiller system. And in a highly competitive market place, offering the most flexible and efficient use of office space can be a real deal breaker.

Meeting tomorrow's legislation today

Some designers are also be concerned about utilising a high volume of refrigerant in a building, instead of a chilled water system. However, Daikin VRV systems are designed and installed in accordance with all the latest F-gas regulations to minimise any risk of leaks. VRV also meets the requirements of the Energy Related Performance Directive and has been designed for seasonal efficiency with future legislative requirements in mind.

Designed to meet current and future requirements

VRV also provides greater flexibility to meet current and future client requirements, because the system can be designed, built and commissioned floor by floor. With 20 different indoor unit types and a range of 14 different capacities available, VRV can be introduced zone by zone and tailored to the needs of each building tenant throughout a phased refurbishment programme.

Precise zone control to suit building occupancy

Each floor – even each room – can be individually controlled to maximise energy efficiency and prevent energy waste. This versatility makes VRV ideal for buildings with multiple tenants, which may have vacant areas and variable periods of high and low usage.

Modular approach gives greater flexibility

VRV's modular approach provides greater flexibility to balance heat loads in different parts of the building. In contrast, a chiller runs an entire system, which requires an expensive backup unit. So if it fails, the total system fails. VRV also offers extended piping lengths so the system can be designed flexibly to suit buildings of many different sizes and shapes.

Smart energy management

A heat pump system will only work as intelligently as its control system allows. Therefore Daikin offers Intelligent Touch Manager, an easy-to-use, intelligent control system with smart energy management tools to detect areas or units of energy waste and reducing running costs, so that the system performance can be maintained as per the original design conditions.

Reliability you can depend on

Of course, ensuring lower running costs depends on system reliability and efficiency over its entire lifetime. So it's reassuring to know that Daikin has an unparalleled reputation for quality, reliability and after sales service.



The VRV Total Solution

Low operating costs

for building owners

Our heat pump technology is highly energy efficient as it **uses renewable energy** from the outdoor air to drive the heating process, without the need for a secondary heating system. This leads to a direct saving in CO₂ emissions and running costs.

Maximise seasonal efficiency

But the Daikin VRV utilises other revolutionary technologies to maximise seasonal efficiency and minimize running costs.

The Variable Refrigerant Temperature for example, a unique Daikin feature, automatically adapts the VRV IV system to individual building requirements and the local climate leading to **cost savings of 28%** compared to similar systems. This without compromising comfort and flexibility.

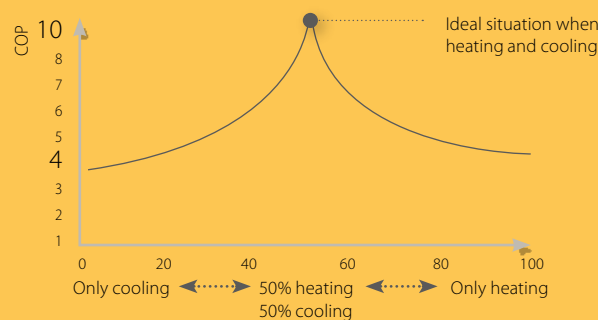


.....> Desired room temperature



DID YOU KNOW THAT...

... a heat recovery system extracts heat from cooled areas and then reuses it to warm other areas or create hot water, thus enabling it to heat and cool different parts of the building at the same time.



Coefficient of performance of a Daikin VRV heat recovery system

Intelligent indoor units

Units as the round flow cassette offer up to 50% savings compared to standard cassettes thanks to daily automatic filter cleaning. Intelligent sensors save up to 27% of energy, by adjusting the setpoint or switching off the unit when nobody is in the room.

Personal comfort for tenants

When viewed from the perspective of the occupants of a building, it is the comfort level provided by the climate control system that is the most important and so:

- › the temperature has to be right
- › there has to be enough fresh air entering the area
- › the humidity level needs to be correct
- › the sound level has to be minimized

Our integrated system addresses all of these requirements and provides individual control where possible.

Special attention has been paid to minimising the sound levels of the system. The sound levels of our indoor units can be as low as 19 dBA, while the sound emitted by our outdoor units can be lowered during noise-sensitive times such as night.

Futhermore VRV is the benchmark in heating comfort. The VRV IV continues to provide heating, even when in defrost mode, it provides the answer to any perceived disadvantages of using a heat pump for monovalent heating.

Flexible solutions for consultants and design offices



Our modular system allows for a high level of **flexibility** and we have the equipment to meet all climate control situations: from heating when the outside temperatures are as low as -25°C to ultimate cooling when it is $+50^{\circ}\text{C}$.

Our **outside equipment** is flexible to fit any building, no matter the design. It can be either placed on the roof to maximise interior space utilisation or inside, leading to less piping length, lower installation cost, increased efficiencies and better visual aesthetics.

Our extremely wide range of indoor units offer numerous solutions for any space, no matter the shape or design.. It allows us to select the best possible solution no matter what the size of room or its shape. Our specially designed indoor units, ventilation units and the Biddle air curtains can be visible and form part of the décor or they can be invisible, depending on the needs of the users. Our **flexible piping design** is almost unlimited with 1,000m of piping length. What's more, the small refrigerant piping takes up less space in shafts and ceiling voids, maximising lettable space. Whatever you need, our solutions are flexible enough to **provide an optimal result**.

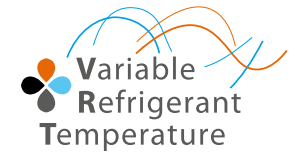


Find out what solutions VRV can offer for

- › hotel applications
- › office applications
- › retail applications
- › residential applications



Hospitality with economy



A hotel's reputation depends on how welcome and comfortable guests feel during their stay. Yet at the same time, hotel owners must maintain complete control of their operation costs and energy consumption.

VRV solutions offer



- › Low cost heating and hot water by recovering heat from areas requiring cooling
- › The perfect personal environment for guests by simultaneously heating spaces while cooling others
- › Customize your VRV for best seasonal efficiency and comfort
- › Flexible installation. The outdoor unit can be installed outdoors to maximise hospitality space or indoors to minimise external space or noise in city centres.



DID YOU KNOW THAT...

... if your system has just 10% less refrigerant than the optimal amount, the power consumption to maintain capacity can rise by 30%. Therefore we have developed our automatic refrigerant charging function & automatic refrigerant containment check to ensure the optimal capacity and efficiency through the life time of the system and to comply with F-gas regulations.



To view the full VRV product range, refer to www.daikineurope.com or your local sales representative



Concealed unit

- › Especially developed for small, well-insulated rooms such as hotel bedrooms
- › Perfect comfort: very low sound level ensuring a good night's rest
- › Blends unobtrusively with any interior décor
- › Maximises usable space: very compact dimensions to reduce the ceiling void to a minimum



Centralised control

Smart energy management

- › Full control and management of VRV systems with up to 2,560 indoor units
- › Simple intuitive navigation and extensive graphical reporting
- › Power consumption allocation per indoor unit
- › Full control of all the air conditioning system's functions and the basic building functions such as fire alarm etc. to optimize energy efficiency, comfort and safety
- › Monitoring and control of multiple buildings via the web



Intelligent hotel room controller

Puts the hotel owner in full control of the energy use

- › Connects to all types of controllers, including easy to use touchscreens
- › Change setpoint automatically when guest leaves the room or opens the window, saving energy
- › Meets all the guests' needs because every room is individually controlled
- › Easy integration in hotel booking software

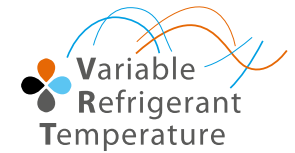


Hot water

Heating water with renewable energy

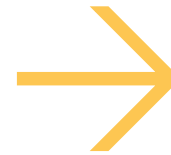
- › Use renewable energy through heat pump technology to produce hot water
- › Free production of hot water possible by transferring heat from areas requiring cooling.
- › Possible applications:
 - › bathrooms, under floor heating and radiators
- › Hot water up to 80°C

Efficiency in the workplace



Efficient building and facilities management are key to minimising operational costs

VRV solutions offer



- › Significantly reduced costs for hot water and heating by re-using heat recovered from areas requiring cooling
- › Perfect comfort by simultaneously heating spaces while cooling others
- › Customize your VRV for best seasonal efficiency and comfort
- › Flexible installation. The outdoor unit can be installed outdoor to maximise commercial space or indoor to minimise the visual impact and noise.



DID YOU KNOW THAT...

... You can also connect a VRV system to a geothermal water ring. As the temperature at 10m under the ground is almost constant all year round this ensures high efficiencies even in extreme weather conditions.



To view the full VRV product range, refer to www.daikineurope.com or your local sales representative



Fully flat cassette

Design & Genius in one

- › Unique design in the market: fits flush in architectural ceiling tiles and fully flat with the ceiling
- › Iconic design & engineering excellence
- › Intelligent sensors for maximum comfort and efficiency

+
SILENT AS
RUSTLING
LEAVES



Centralised control

Complete Daikin package for office building management

- › Intuitive user interface
- › Smart energy management
- › Flexible in size and integration via WAGO
- › Online access and control of multiple buildings
- › Easy management of electrical consumption of multiple tenants



Fresh air

A healthier office atmosphere

- › Minimise energy waste by recovering heat of exhausted air
- › Combining ventilation and air conditioning in one system
- › Ideal for medium to large buildings
- › Air filtration ensures a steady supply of clean air
- › Plug & play connection to air handling units in case big air volumes are required



Hot water

Cutting the cost of hot water

- › Use heat pump technology to produce hot water
- › Free production of hot water possible by transferring heat from areas requiring cooling.
- › Possibility to connect solar panels
- › Possible applications: sinks, under floor heating, showers and radiators

Reducing retail costs

In the current commercial environment, retailers are under pressure to reduce both store development and running costs. Legislation adds further financial pressure with different energy efficient schemes. Therefore affordable, energy efficient solutions are vital to minimise lifetime costs, while ensuring compliance with the latest regulations.

VRV solutions offer



- › Energy saving inverter heat pump technology delivering COP's up to 4.5
- › Individual control of each indoor unit
- › A customisable solution using 'variable refrigerant temperature' to achieve the highest seasonal efficiency
- › The new standard in heating comfort, with continuous heating during defrost
- › Flexible installation. The outdoor unit can be installed outdoors to maximise commercial space or can be installed indoors so there is no visual impact and low noise.

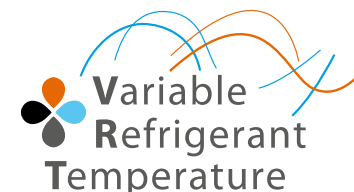


DID YOU KNOW THAT...

... VRV IV is optimised for seasonal efficiency?

Revolutionary variable refrigerant temperature control automatically adapts your VRV to your individual building requirements and local climate, reducing running costs by 28%!

The system can be easily customised to optimise the system towards your required balance between comfort and efficiency.



To view the full VRV product range, refer to www.daikineurope.com or your local sales representative



Round flow cassette with auto cleaning panel

50% energy saving compared to standard cassettes

- › The auto cleaning function ensures daily filter cleaning, leading to 50% energy saving
- › Lower maintenance cost (filter cleaning can be done with a vacuum cleaner)
- › Intelligent sensors switch off the unit when there is nobody in the room, saving up to 27%
- › Perfect comfort: 360° air discharge and presence detection directing the airflow away from persons



User-friendly control

Create a comfortable environment for customers

- › Easy to use menu making it easier than ever to control your system
- › Energy saving functions, reducing your running costs
- › Contemporary design
- › Weekly schedules increase comfort and efficiency
- › Supports multiple languages
- › Lock-key function to avoid improper use



Biddle air curtain

Highly efficient solutions to combat the issue of climate separation across your doorway

- › Most efficient open-door solution giving substantial energy savings of up to 72% and a payback period of only 1.5 years compared to electric air curtains
- › Year-round comfort ensured by rectifier technology and optimised air flow velocity



Residential solutions

There is no place like HOME.

Mini VRV solutions offer



- › Cost effective, low energy consumption heating system
- › Lower CO₂ emissions compared to traditional heating systems
- › Up to 9 stylish indoor units that can be connected to one outdoor unit
- › Compact design
- › Low outdoor unit sound



DID YOU KNOW THAT...

... when you opt for a Daikin air conditioner, you are also thinking of the environment?

When we produce your air conditioner, we do our utmost to recycle, reduce waste and use renewable energy.



To view the full VRV product range, refer to www.daikineurope.com or your local sales representative



+
**UNIQUE:
THE FEEL OF A
RADIATOR...**

Stylish indoor units

- › Remarkable blend of iconic design and functionality
- › Combines the feel of a radiator with the comfort and energy efficiency of a heat pump
- › Air purification filter
- › Perfect comfort: Whisper-quiet at around 19 dBA
- › Cools your house in summer



reddot design award
honourable mention 2010



**product
design
award**
2010













Good Design Award

VRV outdoor units

✓: component is connectable x: component is not connectable

















System	Type	Product name		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	Indoor units	Ventilation	Air curtain	Hydrobox connection	Control systems										
AIR COOLED	HEAT PUMP	VRV IV RYYQ-T Heat pump with continuous heating																															✓	✓	✓	✓	✓	✓	✓	✗	✓	✓	✓		
		VRV IV RXYQ-T Heat pump without continuous heating																															✓	✓	✓	✓	✓	✓	✓	✗	✓	✓	✓		
		VRV III S RXYSQ-P8V1(Single phase) RXYSQ-P8Y1 (Three phase)																																	✓	✓	✓	✗	✓	✓	✗	✗	✓	✓	✓
		VRV III C RTSYQ-PA Heat pump optimised for heating																														✓	✗	✓	✓	✓	✓	✗	✗	✓	✓	✓			
		VRV Classic RXYCQ-A																															✓	✗	✓	✓	✗	✗	✗	✗	✓	✓	✓		
	HEAT RECOVERY	VRV IV REYQ-T																															✓	✗	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
		VRV III REYQ-P8/P9 Small footprint combination																															✓	✗	✓	✓	✓	✓	✓	✗	✗	✓	✓	✓	
		VRV III REYHQ-P High COP combination																														✓	✗	✓	✓	✓	✓	✗	✗	✓	✓	✓			
		VRV III REYAQ-P for connection with heating only hydrobox																														✓	✗	✓	✓	✓	✓	✗	✓	✓	✓				
WATER COOLED	HEAT RECOVERY HEAT PUMP	VRV IV W-series RWEYQ-T																													✓	✗	✓	✓	✓	✓	✓	✗	✓	✓	✓				

[illegible]

■ Single unit
■ Multi combination

¹ Not a standard combination (free combination)

VRV indoor units

Type	Model	Product name		Capacity															
				15	20	25	32	40	50	63	71	80	100	125	140	200	250		
CEILING MOUNTED CASSETTE	Round flow cassette Auto cleaning function ³ Presence & floor sensor ³	FXFQ-A																	
	Fully flat cassette Presence & floor sensor ³	FXZQ-A																	
	2-way blow ceiling mounted cassette	FXCQ-A																	
	Ceiling mounted corner cassette	FXKQ-MA																	
CONCEALED CEILING	Small concealed ceiling unit	FXDQ-M9																	
	Slim concealed ceiling unit	FXDQ-A																	
	Concealed ceiling unit with inverter driven fan	FXSQ-P																	
	Concealed ceiling unit with inverter driven fan	FXMQ-P7																	
	Large concealed ceiling unit	FXMQ-MA ⁴																	
WALL MOUNTED	Wall mounted unit	FXAQ-P																	
CEILING SUSPENDED	Ceiling suspended unit	FXHQ-A																	
	4-way blow ceiling suspended unit	FXUQ-MA																	
FLOOR STANDING	Floor standing unit	FXLQ-P																	
	Concealed floor standing unit	FXNQ-P																	
Cooling capacity (kW) ¹				1.7	2.2	2.8	3.6	4.5	5.6	7.1	8.0	9.0	11.2	14.0	16.0	22.4	28.0		
Heating capacity (kW) ²				1.9	2.5	3.2	4.0	5.0	6.3	8.0	9.0	10.0	12.5	16.0	18.0	25.0	31.5		













¹ Nominal cooling capacities are based on: indoor temperature: 27°CDB, 19°CWB, outdoor temperature: 35°CDB, equivalent refrigerant piping: 5m, level difference: 0m.

² Nominal heating capacities are based on: indoor temperature: 20°CDB, outdoor temperature: 7°CDB, 6°CWB, equivalent refrigerant piping: 5m, level difference: 0m

³ Optional

⁴ Not connectable to VRV III-S

Stylish indoor units

Type	Model	Product name		Capacity																Connectable outdoor unit	
				15	20	25	35	42	50	60	71	RYYQ-T RXVQ-T	RXYSQ-P8V1 RXYSQ-P8Y1								
CEILING MOUNTED CASSETTE	Round flow cassette Auto cleaning function ³ Presence & floor sensor ³	FCQG-F											✓								
	Fully flat cassette Presence & floor sensor ³	FFQ-C											✓								
CONCEALED CEILING	Small concealed ceiling unit	FDBQ-B											✓								
	Slim concealed ceiling unit	FDXS-F											✓								
	Concealed ceiling unit with inverter driven fan	FBQ-C											✓								
WALL MOUNTED	Daikin Emura Wall mounted unit	FTXG-JA/ JW										✓	✓								
	Wall mounted unit	CTXS-K FTXS-K										✓	✓								
	Wall mounted unit	FTXS-G										✓	✓								
CEILING SUSPENDED	Ceiling suspended unit	FHQ-C											✓								
FLOOR STANDING	Nexura floor standing unit	FVXG-K										✓	✓								
	Floor standing unit	FVXS-F										✓	✓								
	Flexi type unit	FLXS-B										✓	✓								



FSC

ECPEN14-208

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