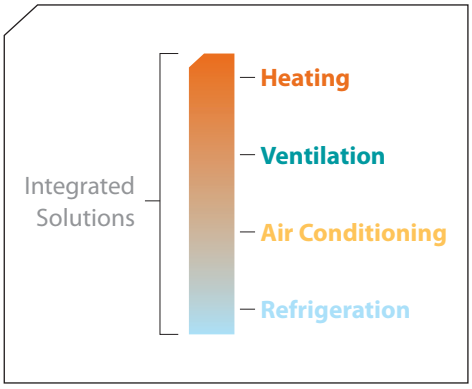
DAIKIN

your comfort. **our world.**

VRV Catalogue

Setting new standards in comfort and efficiency



Setting new standards in comfort and efficiency

Contents

Understanding today's requirements

Heating and climate control solutions can account for up to 50% of a building's CO_2 emissions. So energy efficient solutions have never been so important in helping to meet all the latest planning guidelines and carbon targets.

Building Regulations Part L

Part L of the Building Regulations is one of the Government's key methods of reducing CO_2 emissions in new and refurbished buildings.

The first step for designers improving energy efficiency is to reduce actual energy demand by improving the thermal efficiency of the building fabric. Highly insulated buildings are also increasingly suited to energy efficient solutions such as air source heat pumps.

Designing for BREEAM

BREEAM is the world's leading design and assessment method for sustainable buildings.

Many organisations and local governments use BREEAM as mandatory design standards to ensure that both new build and existing premises meet the exacting requirements for CO_2 emission reductions. For example, the healthcare sector has designated that all new buildings must meet a BREEAM Excellent rating and existing building stock must achieve a Very Good rating.

Heat pump technology can assist building designers in meeting the requirements of BREEAM by delivering heat into a building in an energy efficient, controlled way. According to the criteria specified within BREEAM documentation, specific credits can be given for integrated services and building management systems. Further awards for innovation are also possible, depending on the system design.

Zero carbon targets

Today's buildings must achieve a 25% reduction in carbon emissions compared with 2006. But this isn't the end of the story as the UK strives to achieve its tough targets for further reductions in CO_2 emissions. A framework of continuous improvements has been set in 2013 (October), with a new version of the Building Regulations, an expected change in 2016 and a final revision in 2019.

This means that by 2019, all new buildings must deliver zero carbon emissions from the energy required for heating, cooling, hot water and lighting. These challenging targets will require considerable innovations to improve on current practices, and the continued use of renewable technologies such as heat pumps and PV panels.

Daikin is leading the way in seasonal efficiency

SEASONAL EFFICIENCY
Smart use of energy

Daikin is again at the forefront of innovation, with the new VRV IV range, which is fully in line with the EU's 20/20/20 policy. VRV IV Heat Pump is up to 28% more efficient over an entire year, while enhancing the standards of comfort and flexibility for which Daikin is renowned.

European action plan 20/20/20

-20%
CO_2 EMISSIONS
vs. 1990

20%
Share of
RENEWABLE ENERGY

-20%
PRIMARY ENERGY USE
vs. Business as usual

By the year
2020

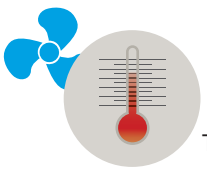
To help achieve the above targets, the Energy Related Products (ERP) Directive specifies minimum ecodesign requirements, such as higher energy efficiency ratings, which must be integrated into air conditioning products with a capacity of less than 12kW from 2013. The directive affecting VRV systems is currently scheduled to start in 2015, however Daikin has already incorporated many of the seasonal efficiency design requirements into its new VRV systems.

Measuring real-life performance

Nominal energy efficiency ratings (EER) were previously used to measure energy efficiency. However, this method resulted in a significant gap between design and actual performance. To solve this anomaly, a more accurate rating method - seasonal efficiency (ESEER) - has been developed.

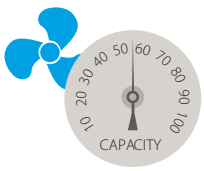
Because it measures energy efficiency across the whole operating spectrum, seasonal efficiency is a more accurate measurement of the real-life energy efficiency of systems and gives an indication of how efficient an air conditioning system is when operating over an entire cooling or heating season.

Nominal versus seasonal efficiency



Temperature

NOMINAL	SEASONAL
1 Temperature condition: 35°C for cooling 7°C for heating	**Several rating temperatures** for cooling and heating, reflecting actual performance over an entire season
Does not often occur in reality	



Capacity

NOMINAL	SEASONAL
Does not reflect partial capacity	Integrates operation at **partial instead of full capacity**
Benefits of inverter technology not visible	**Benefits of inverter technology** are shown

Auxiliary modes

NOMINAL	SEASONAL
Does not take auxiliary power modes into account	Includes consumption auxiliary modes: • Thermostat off • Standby mode • OFF mode • Crankcase heater

Using its revolutionary Variable Refrigerant Temperature technology, the new VRV IV Heat Pump continuously adjusts the refrigerant temperature to the actual temperature and capacity needed, thus providing optimal seasonal efficiency at all times.

New VRV IV Heat Pump = VRV + 3 revolutionary features

VRV has always set the standard: in the past, in the present and will continue to do so in the future. Today, VRV IV Heat Pump is setting new standards in seasonal efficiency for building owners, indoor comfort for users and ease of commissioning for installers.

Variable Refrigerant Temperature

Variable refrigerant temperature

Customise your VRV for best seasonal efficiency and comfort:

- Revolutionary Variable Refrigerant Temperature control automatically adapts the system to individual building and climate requirements for greater efficiency and comfort
- Continuously adjusts refrigerant temperature to the actual temperature and capacity required
- Default mode optimised by Daikin for UK conditions with maximum efficiency and comfort
- Delivers annual cost savings of up to 25%

Continuous heating during defrost

The new standard in heating comfort:

- Unique continuous heating technology makes VRV IV Heat Pump the best alternative to traditional heating systems
- Delivers uninterrupted heat, even during the defrost cycle
- Maintains comfortable indoor climate at all times

VRV configurator

Advanced Software for simplified commissioning, servicing, configuration and customisation:

- Simplified commissioning: graphical interface to configure, commission and upload system settings
- Simplified servicing: additional 7-segment indicator for easy and quick access to basic functions and error read out
- Manage systems over multiple sites

Variable refrigerant temperature

Thanks to its revolutionary variable refrigerant temperature technology, VRV IV Heat Pump continuously adjusts the refrigerant temperature to the actual temperature and capacity needed, thus providing optimal seasonal efficiency at all times.

VRV IV Heat Pump's new **variable refrigerant temperature** control automatically adapts the VRV system to an individual building's comfort and efficiency requirements, thus drastically reducing operational running costs. The default mode is optimised by Daikin for UK conditions for maximum efficiency and comfort.

The **variable refrigerant temperature** preset modes mean that the balance between comfort and efficiency can be customised in order to optimise the system, delivering annual cost savings of up to 25% and increasing seasonal efficiency by up to 28%.

With this new technology Daikin is once again leading the way in VRV innovation:

- Comfort and efficiency is optimised to suit the building requirements
- Customer comfort is assured with automatic adjustment of refrigerant temperature
- VRV IV Heat Pump preset modes can be customised for optimal seasonal efficiency to suit particular applications

One of the possible modes:

Automatic mode (Default setting on VRV IV)
Optimised by Daikin for UK conditions

The perfect balance :
Top efficiency throughout most of the year. Quick reaction speed on the hottest days

High sensible mode

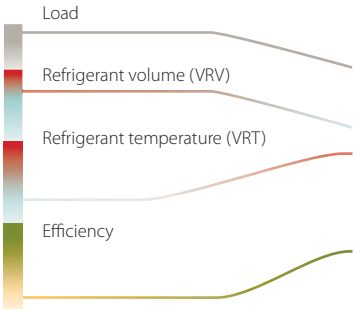
Year round top efficiency

Basic mode (current VRF standard)

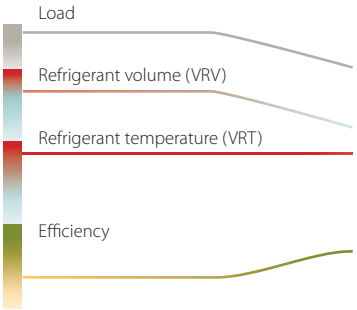
Quick reaction to peak load, to maintain set point

Effect of preset modes on efficiency and reaction speed:

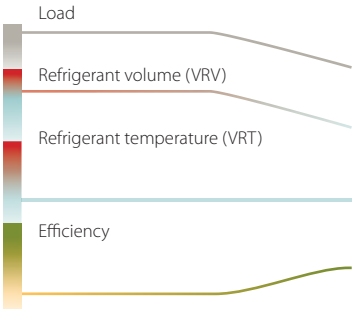
Default mode (optimised by Daikin for UK conditions for maximum efficiency and comfort)



High sensible mode



Basic mode (current VRF standard)



Continuous heating

VRV IV Heat Pump features continuous heating during defrost, an innovation that finally overcomes any perceived disadvantages of specifying a heat pump, because the heat pump continues to provide heating even when it is in defrost mode.

Why is this important?

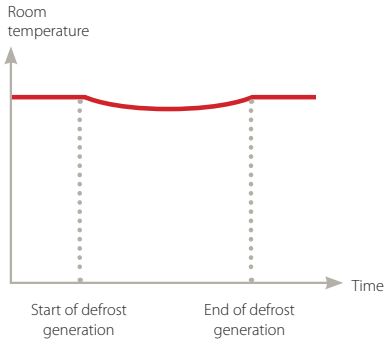
All heat pumps accumulate ice during heating operation, which must be melted periodically, using a defrost operation that reverses the refrigeration cycle.

This process can take more than 10 minutes (depending on the size of the system) and occurs mainly between -7 and +7°C when there is most humidity in the air. However, an unwelcome side effect is that this causes a temporary temperature drop within the room, which can compromise comfort levels.

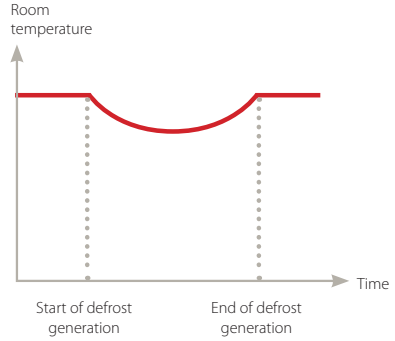
To overcome this issue, VRV IV Heat Pump features a unique heat accumulating element, which provides dedicated energy for the defrost function, so that indoor units continue to provide consistent heating and a comfortable indoor climate is maintained at all times, while energy efficiency is optimised.

new

VRV IV Heat Pump with continuous heating



VRF heat pump benchmark



VRV configurator

The new VRV configurator offers an advanced software solution that simplifies commissioning and servicing. This means less time is required on the roof configuring the outdoor unit.

Ongoing maintenance is easier too, thanks to a graphical interface that allows engineers to evaluate operational data and errors. The VRV configurator also allows systems within multiple sites to be managed all in exactly the same way, thus offering simplified commissioning for key accounts.

- **Simpler commissioning:** graphical interface offers a faster way to configure, commission and upload system settings.
- **Simpler servicing:** additional 7-segment indicator for easy-to-read error reports, quick check of basic functions and clear menu for easy setting on-site.

What else is new...?

VRV IV Heat Pump

VRV IV Heat Pump

The VRV IV Heat Pump inherits all the renowned technological features of VRV III and adds a number of revolutionary technologies setting the new standard in the market once again.

Variable refrigerant temperature

- Default mode optimised by Daikin for UK conditions for maximum efficiency and comfort
- Customise your VRV for the optimum seasonal efficiency and comfort for particular applications
- Revolutionary variable refrigerant temperature control automatically adapts the system to the individual building and climate requirements

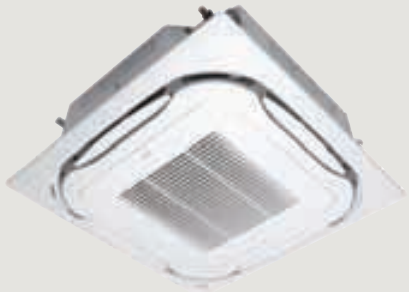
Continuous heating during defrost via heat pump

- The new standard in heating comfort: unique continuous heating technology makes VRV IV Heat Pump the best alternative to traditional heating systems

VRV configurator

- Advanced software for simplified commissioning, configuration and servicing

Next generation round flow cassette FXFQ-A p 66



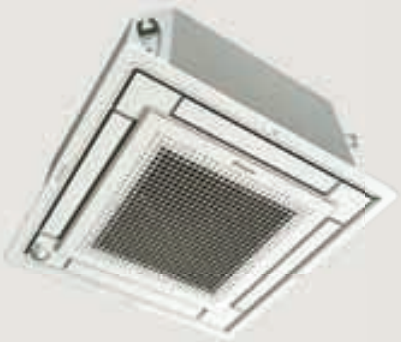
Improved comfort

- Presence sensor automatically directs air flow away from any person to avoid draught
- Floor sensor ensures even temperature distribution between ceiling and floor

Even more energy efficient

- Auto cleaning panel saves up to 50% thanks to daily filter cleaning
- Presence sensor saves up to 27% by adjusting setpoint or switching off the unit when nobody is in the room over a 3 hour period
- Individual flap control: one or more flaps can be easily closed when refurbishing or rearranging your interior

Fully flat cassette - FXZQ-A p 68



- Unique design in the market: integrates fully flat into the ceiling and fits flush into architectural ceiling modules
- Remarkable blend of iconic design and engineering excellence with an elegant finish in matt crystal white or a combination of silver and matt crystal white
- Even more energy efficient with the presence sensor
- Offering improved comfort with the floor sensor
- Individual flap control: one or more flaps can be easily closed via the wired remote controller (BRC1E52A) when refurbishing or rearranging your interior
- No optional adapter needed for DIII-connection of Sky Air model

2-way blow ceiling mounted cassette – FXCQ-A p 69

Better efficiency with newly developed heat exchanger, DC fan and drain pump

- Modern style decoration panel in RAL9010
- Improved comfort with automatic air flow control

Ceiling suspended cassette – FXHQ-A p 77

- Better efficiency with DC fan and drain pump
- Modern style decoration panel in RAL9010

4-way blow ceiling suspended unit – FXUQ-A p 78

- Better efficiency with newly developed heat exchanger, DC fan and drain pump
- Modern style decoration panel in RAL9010
- Improved comfort with automatic air flow control
- Integration of expansion valve for faster installation

Low temperature hydrobox for VRV-HXY-A p 81

- Highly efficient space heating/cooling
- Ideal with underfloor heating, air handling units or low temperature radiators
- Leaving water temperature range: 5-45°C

Intelligent Touch Manager p 62

- Intuitive user interface
- Smart energy management
- Flexible in size (from 64 up to 2,560 groups)
- Flexible in integration (from simple A/C control to small BMS)
- Easy servicing and commissioning with remote refrigerant containment check

Biddle air curtain for VRV p 83

- Connectable to VRV heat recovery and heat pump
- Provides virtually free heating via recovered heat
- Payback period of less than 1.5 years compared with an electric air curtain

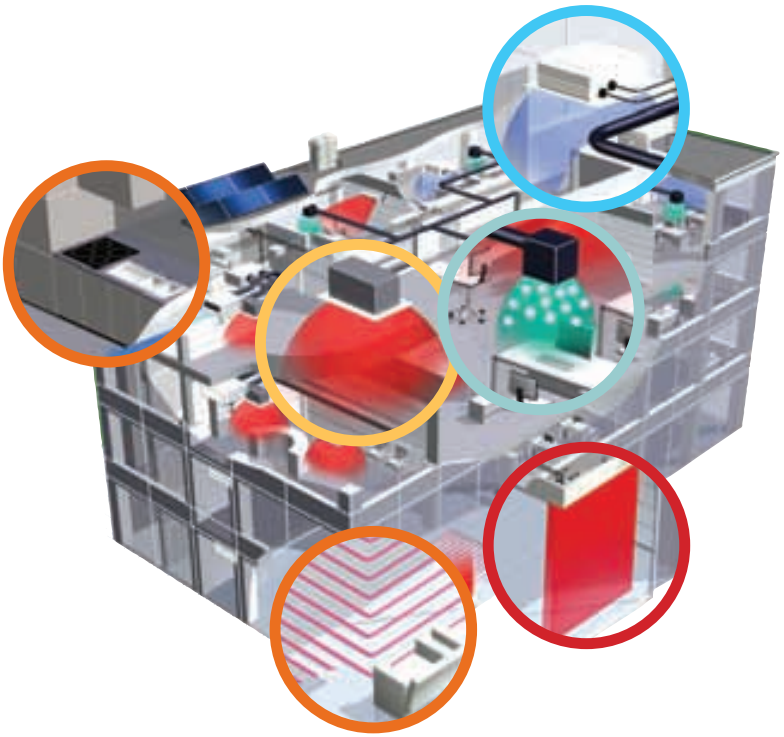
The VRV total solution

Many buildings today typically operate quite separate systems for heating, cooling, refrigeration and hot water. As a result, a huge amount of energy is wasted. To provide a much more efficient alternative, VRV technology has been developed into a total solution for heating, cooling, refrigeration and ventilation.

The VRV total solution

Air conditioning, refrigeration and cooling IT servers can generate masses of waste heat that can be reused to heat and ventilate other areas of the building or to provide hot water for wash rooms, at a much reduced cost.

By understanding the whole building's heating and cooling needs at the outset, an integrated climate control solution can be delivered that offers much higher energy efficiency levels, thus reducing the carbon impact of a building. This means that all internal and external conditions must be taken into account in the design of the climate control system.



Air curtains
Combine VRV with standard & comfort **Biddle air curtains**

Heating and cooling
Customise your VRV system to optimise energy efficiency

User friendly control systems
Remote leak check, commissioning via PC and new iTouch Manager to **simplify** maintenance and commissioning

Hot water
LT and HT Hydrobox in the standard VRV range

Ventilation
Year-around Comfort
> High quality indoor air with HRV
> No cold draughts

Daikin VRV provides a total solution for integrated climate control. Our modular units enable you to select the right mix of equipment and technology to achieve the optimal balance of temperature, humidity and air freshness for the perfect comfort conditions, while achieving maximum energy efficiency and cost effectiveness.

Which VRV outdoor system offers me the best solution?

Air cooled outdoor systems

VRV HEAT RECOVERY

› For simultaneous heating and cooling from one system
› Heat recovered from indoor units in the cooling cycle is transferred to units in areas requiring heat. This maximises energy efficiency, reducing electricity costs and delivering high part load efficiencies (up to 9.1)
› Operation range in cooling down to -20°C (technical cooling)

Small footprint combination
› Optimised footprint within heat recovery range

High COP combination
› Top energy efficiency in Daikin heat recovery range

VRV heat recovery, with connection to heating only hydrobox
› Fully integrated system
› Free hot water

VRV HEAT PUMP

› For either heating or cooling operation from one system

VRV IV Heat Pump
› Customise your VRV for the greatest seasonal efficiency and comfort, with Variable Refrigerant Temperature control
› Continuous comfort: unique continuous heating technology makes VRV IV Heat Pump the best alternative to traditional heating systems
› VRV configurator software offers faster and more accurate commissioning, configuration and customisation
› Possibility to combine VRV with a wide range of stylish indoor units including Daikin Emura and Nexura

REPLACEMENT VRV

VRV III-S

VRV III-S Heat Pump
› Especially designed for small capacities
› Space saving design
› Connect VRV to stylish indoor units: Daikin Emura and Nexura

VRV Classic

VRV Classic
› For smaller projects with standard cooling & heating requirements
› Connectable to all VRV indoor units, controls and ventilation

Water cooled outdoor systems

› Allows heat recovery within the total building, thanks to the storage of energy in the water circuit
› Compact design and stacked configuration possible
› Suitable for multi-storey and large buildings due to the many possibilities of water piping

VRV-W HEAT RECOVERY

Standard series
› For simultaneous heating and cooling from one refrigerant system

Geothermal series
› No need for an external heating or cooling source
› Heating with ground source water as a renewable energy source
› Extension of the operation range of inlet water temperature down to -10°C in heating mode

It's your creation… so use the best resources

When it comes to designing for today's high energy efficiency requirements, certain assumptions demand to be challenged. Like the long-held view that the only way to cool buildings over a certain size is via a chilled water system. Or that modular systems, like VRV, are only suitable for small to medium sized buildings. Sometimes, real innovation means changing all the old rules…

Perhaps because of VRV's modularity, it is often perceived that VRV is 'one step up' from a split or multi-split system.

As such, it may be assumed that VRV is the most suitable solution for buildings up to 5000sqm, for example. But in reality, Daikin's VRV systems can be applied on a much greater scale, to create fully integrated systems for buildings twice and three times that size.

In fact, it is when VRV systems are designed as a whole building solution that they can offer the very highest energy efficiencies of all.

Delivering market leading COPs

The secret to delivering the highest COPs is to employ heat recovery in balanced mode within a VRV system: an innovation that can help to maximise BREEAM points at design stage.

This may mean specifying the system so that it is capable of cooling one area of the building experiencing the highest heat gains and transferring that reclaimed heat to other areas of the building that require heating or hot water. By doing so, recovered heat can be diverted to heat hot water and to over-door air curtains, thus saving up to 67% in running costs compared with electrically heated models.

While many VRF systems really just offer simultaneous heating and cooling, a genuinely versatile VRV heat recovery system operating in a balanced mode can increase energy efficiency levels massively and is actually capable of delivering COPs of more than 10. Offering a significant step towards the goal of zero heat rejection, these systems are the true champions of energy efficiency.

However, to achieve these market leading COPs, it's vital to analyse right from the start a building's multiple requirements, usage patterns and varying occupancy levels, in order to design a fully integrated system that optimises energy efficiency and heat recovery.

Saving energy by design

Here's an example of the energy savings a VRV solution can deliver. If an office building is occupied between 08:00 and 19:00 (assuming an external temperature range of -2ºC in winter and up to 29ºC in summer), typical requirements may be:

- Cooling down to 16ºC
- Heating up to 21ºC
- 200 litres of water storage for washrooms
- 150 litres of water storage for kitchens
- IT/communications running 24/365

Given these conditions, typical heat loss from a ground floor lobby could be 5985(kWh) and from large open plan areas could be as high as 11,028(kWh).

By taking into account the cost of operating electrically heated air curtains and hot water supplies, the energy consumption of the entire building really stacks up. In contrast, heat recovery offers dramatically higher energy efficiencies.

For example, by recovering the heat from indoor units in cooling mode, for example when it's 30ºC outside, a Co-efficient of Performance (COP) of 3.97 can be achieved.

In milder conditions, for example when it's 15ºC outside and 75% of the indoor units are in cooling mode with 25% in heating mode, the efficiencies rise to COPs of 5.57. But when the system is fully balanced between heating and cooling, efficiencies can increase to as much as 10.07.

Even when all the indoor units are in heating modes when it is -5ºC outside, the system is still capable of delivering COPs of 3.03: more than three times the efficiency of a gas boiler.

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 are up to £6.25/m^2 of gross floor area. This compares highly favourably with a 2 or 4 pipe fan coil system, which can cost as much as £8.75/m^2 and £10.75/m^2 of Gross Floor Area respectively – a 40 to 72% increase on running costs compared with 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 could be a real deal breaker.

Meeting tomorrow's legislation today

Some designers may 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 units 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.

Versatile system 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.

Innovative and integrated control system

A heat pump system will only work as intelligently as its control system allows. Therefore Daikin offers iTouch Manager, an easy-to-use, intelligent control system with smart energy management tools to detect areas of energy wastage and reduce 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 and reliability. You'll also benefit from a five year warranty on all VRV systems plus an annual health check and F-gas containment check as part of our dedicated after care service.

Advanced IES modelling capabilities

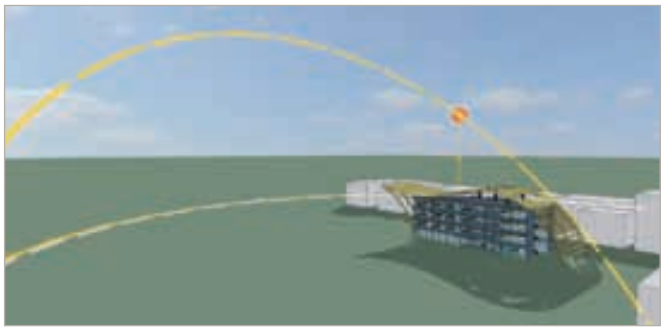
To bring advanced VRV Heat Recovery modelling capabilities to the market, Integrated Environmental Solutions (IES) has partnered with Daikin UK to integrate the new Daikin Dynamic VRV Systems Sizing Tool within the IES Virtual Environment (IESVE).

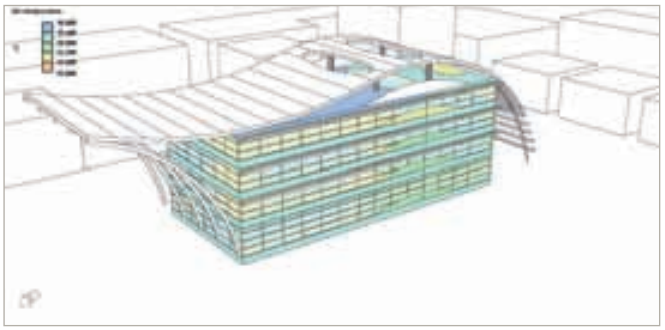
This new software tool enables architects and engineers to accurately establish the performance of these state of the art systems within their building project.

Users can automatically size the system and select the correct VRV indoor and outdoor unit model-number based on the buildings heating and cooling loads. Full thermal simulations then reveal annual loads, power input and efficiencies.

The tool allows users to compare alternative configurations so that they can easily evaluate the best option to maximise energy efficiency and lower building energy use.

The software can be used with version VE6.5 onwards and covers the whole Daikin VRV range.





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 initiatives such as the Carbon Reduction Commitment Energy Efficiency Scheme meaning that larger retailers need to improve energy efficiency dramatically, or face stringent penalties.

Affordable, energy efficient solutions are vital to minimise lifetime costs, while ensuring compliance with the latest regulations. According to the Carbon Trust, the retail sector is responsible for around 21 million tonnes of CO_2 emissions per year. The retail sector could cut its total spend on heating and cooling by a massive £560 million annually by making energy savings of 20%.

The Carbon Trust also estimates that heating and hot water account for 60% of a retailer's energy bills. Typically, retailers with air conditioning systems have double the energy consumption and association carbon emissions compared with those that don't. This need not be the case if an energy efficient solution is implemented.

VRV solutions offer:

- Energy saving inverter heat pump technology, delivering COP's of up to 8 in mixed mode operation
- Individual control of each indoor unit
- A customisable solution using 'variable refrigerant temperature' to achieve the highest seasonal efficiency
- The highest standards of heating comfort, thanks to continuous heating during defrost
- Flexible installation: the heat pump can be installed outdoors to maximise commercial space internally or can be installed indoors so there is no visual impact and low noise

Versatile climate control

Climate control is key to creating a comfortable browsing environment in store. However a uniform temperature across the store is often not the best solution. Retailers need the flexibility to control multiple indoor units individually, so that the different areas of a shop - such as the shop floor, storage and staff areas - can be set at different temperatures in order to provide the highest levels of comfort for staff and customers.

Energy efficient VRV systems help to improve comfort levels, while allowing each area to maintain its set temperature. Micro processors balance the system's performance with the building's requirements to enable its compressors to operate down to power levels 40 to 45% lower than more conventional systems, thus reducing running costs and carbon emissions.

Tesco Homeplus cuts energy costs

At the Tesco Homeplus store in Preston, an integrated climate control solution was required for 35,000 sq ft of retail floor space plus office space, which was capable of maintaining an even temperature throughout. However, the solution also needed to be highly energy efficient to meet Tesco's stringent environmental policy.

Daikin UK provided a tailor-made VRV solution to deliver a fully integrated system for heating, cooling and hot water, offering the flexibility to control internal climates, zone by zone, with maximum energy efficiency.

To manage heat loss from the building, the Daikin system connected to a Biddle air curtain, which provides an efficient heated air barrier between the internal and external temperatures.

Offering savings of up to 67% compared with electrically heated air curtains, it is estimated that it will save the store around £1,500 per year on energy bills.

Did you know?

If your system has just 10% less refrigerant than the optimal amount, the power consumption to maintain capacity can rise by 40%. That's why Daikin has developed an automatic refrigerant charging function and automatic refrigerant containment check to ensure the optimal capacity and efficiency through the life time of the system, while complying with F-gas regulations.

Efficiency in the workplace

Efficient building and facilities management are key to minimising operational costs within medium-sized offices and large office complexes.

Heating, air conditioning, hot water and ventilation are all significant areas of energy consumption. But neither the commercial climate, nor the current legislative framework, will tolerate wasted resources. Responsible businesses are seeking new and innovative ways to rein in their running costs and carbon emissions.

Daikin provides total climate management solutions that put building managers in complete control of the indoor climate. VRV solutions are ideal for medium to large buildings, helping installers, specifiers and building managers to:

- Dramatically reduce the cost of hot water and heating by re-using heat recovered from areas requiring cooling
- Ensure controllable comfort, by simultaneously heating spaces while cooling others
- Choose outdoor heat pump installation to maximise commercial space internally or indoor installation to minimise the visual impact and noise externally

A healthier office atmosphere

VRV's integrated capabilities mean that ventilation and air conditioning can be combined in one system, with air filtration ensuring a steady supply of clean air. Energy waste is minimised by recovering heat from the stale air expelled from buildings and using it to heat incoming air virtually for free.

Cutting the cost of hot water

By using VRV's heat pump technology to recover heat from areas requiring cooling, reclaimed heat can be used to produce hot water for sinks, under floor heating, showers and radiators. The entire system can be connected to solar panels to provide additional solar thermal energy for hot water production.

Centralised controls for offices

Managing comfort settings and energy consumption is easy with VRV systems, which offer user-friendly controls that can be integrated with other building services such as lighting and blinds.

- Easy to use touch screen
- Many energy saving functions available including movement sensors, controllers with evening and holiday schedules
- Energy consumption can be set per indoor unit
- Monitoring and control available for up to 128 indoor units
- Online monitoring and control available for multiple buildings
- Controls can be integrated with other systems e.g. blinds, lights etc.
- Energy costs can be managed and divided among multiple tenants

VRV Heat Recovery at 210 Pentonville

At the landmark 210 Pentonville scheme in central London, a Daikin VRV Heat Recovery system was installed to deliver energy efficient heating and cooling.

Offering over 80,000 sq ft of office space spread across 10 floors, 210 Pentonville emphasises the best in modern design and progressive architecture.

In line with this, architects Darling Associates specified a Daikin VRV system to deliver a cutting edge climate control solution. Daikin UK provided a complete VRV Heat Recovery solution connecting Daikin fan coil units and controlled by a Daikin Intelligent Manager.

Meeting the high environmental standards set by the client, the system offers the very best in control and performance, while being both acoustically and aesthetically discrete.

By re-using waste energy generated by the building's cooling processes, the VRV system helped contribute towards the sustainable specification of the scheme, which was awarded a BREEAM Excellent rating on completion.

Hospitality with economy

A hotel's reputation depends on how welcome and comfortable guests feel during their stay - and Daikin UK has a complete solution for hotels to help create the perfect ambience. Yet at the same time, hotel operators must maintain complete control of their operating costs and energy consumption.

Daikin's cost-effective solutions can offer total control of hotel air conditioning, ventilation, heating and hot water, with stylish yet silent, draft-free indoor units that promise a good night's sleep. And because VRV is a modular solution, upgrade and renovation projects can be phased to minimise interruption.

Integrated heat recovery

Integrated solutions offer zone by zone control of hospitality areas and guest bedrooms:

- Recovering heat from areas requiring cooling and re-using for low cost heating and hot water
- Creating the perfect environment for guests by simultaneously heating spaces while cooling others
- Maximising hospitality space with outdoor heat pump installation, or opting for indoor installation in city centres, to minimise external space and noise

Heating water with renewable energy

Renewable energy can be used to produce low-cost hot water for bathrooms, under floor heating and radiators, thanks to VRV heat recovery solutions, which reclaim waste heat from areas requiring cooling to heat hot water up to 80°C.

Smart energy management

Daikin VRV systems can be controlled centrally, in tandem with other building services such as lighting and fire alarm systems, for optimum comfort, efficiency and safety:

- Centralised management available for VRV systems with up to 2,560 indoor units
- Controls offer intuitive navigation, graphical interface and extensive reporting
- Energy consumption can be set per indoor unit
- Controls can be integrated with other systems e.g. lighting, fire alarms etc.
- Online monitoring and control is available for multiple buildings

Intelligent hotel room controller

Hotel owners need full control of energy use. A Daikin intelligent controller can adjust the system setpoint when bedrooms are vacant or windows are opened, thus preventing unnecessary energy consumption to maintain absolute control over the hotel's running costs and environmental impact. Daikin's intelligent room controller:

- Connects to all types of controllers, including easy to use touch screens
- Integrates easily with hotel management software

"In the case of the Bloomsbury Thistle, it was the flexibility of the products that allowed us to install new air conditioning floor by floor with the minimum of disruption to the hotel, which continued to remain open during the refurbishment."

Mr. John Reilly, RHB Partnership.

Thistle Hotel, Bloomsbury

Situated in the heart of London, the Edwardian style Thistle Hotel in Bloomsbury recently underwent extensive renovation, during which the latest in climate control technology from Daikin UK was installed.

The hotel has a selection of 95 bedrooms, including family and interconnecting rooms, as well as meeting suites and a popular cellar bar. It was essential that the temperature control system of the building could manage the varying needs of these areas whilst ensuring energy efficiency.

As the hotel was to remain operational throughout the installation, the system had to be fitted floor by floor with the least possible disruption to guests. Not all rooms were large enough for ceiling concealed fittings, so the system had to be versatile enough to work in conjunction with wall and ducted units. The system also had to provide centrally managed controls whilst allowing guests to control the temperature of their own rooms.

The VRV Heat Recovery solution

A bespoke VRV III Heat Recovery System solution was provided by Daikin UK, featuring external units that delivered up to 54hp. The heat recovery solution was selected for its supremely low energy consumption and ability to offer massive savings in comparison with similar systems. The system is also low maintenance as it runs diagnostic checks, such as monitoring refrigerant levels, at the click of a button, thus saving time and servicing costs.

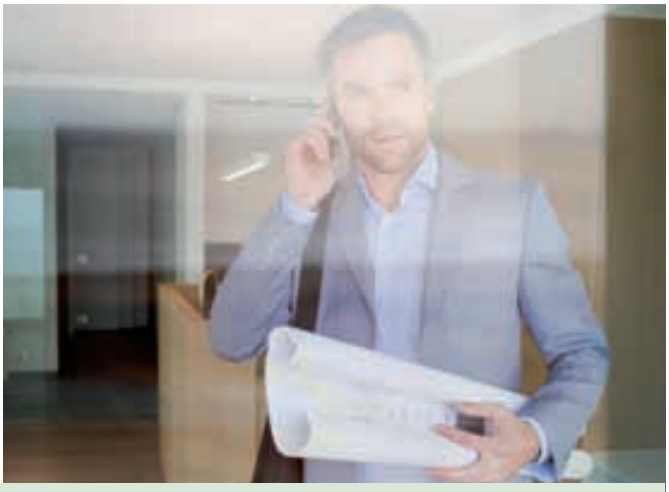
Daikin's Intelligent Touch Controller was also integrated into the building management system, allowing the building temperature to be carefully controlled either at the unit or remotely via the internet, to monitor energy use. The controller can automatically switch heating on or off when guests check in or out of their rooms, further aiding efficiency as energy is not wasted heating or cooling vacant rooms.

Public buildings lead the way

For public and leisure buildings, there is even greater pressure to lead the way in sustainability, in order to save public money and deliver carbon emission reductions and energy improvements.

From 2010 to 2011, government reduced carbon emissions from its office estate by 13.8%, saving a total of 104,532 tonnes on the previous year. Now the quest continues to maintain this energy saving trajectory, despite public spending cuts.

Other public and council run facilities have similarly stringent targets to drive down carbon emissions and improve energy performance. VRV solutions can help to deliver increased efficiencies. It is anticipated that the new R22 solution will provide in excess of 35% energy savings when compared with the old system, as well as an annual carbon reduction of six tonnes of CO_2.



Palace of Westminster replaces R22 systems

Daikin's innovative VRV®III-Q 'plug in' upgrade for R22 systems was selected to replace out-dated equipment during a refurbishment project at the Palace of Westminster – one of the country's most iconic listed buildings.

New sources of R22 gas have been banned since the beginning of 2010 and recycled R22 will also be banned from January 2015. But with 45 - 60% of existing air conditioning systems estimated to still run using R22, the need to replace such systems is becoming increasingly urgent.

VRV®III-Q uses zero ozone depleting R410A, which not only reduces associated CO_2 emissions but also improves energy efficiency, as well as offering users a technically secure and cost effective option to a full system upgrade.

Up to 50% savings on R22 system replacement

The VRV®III-Q system was chosen as the perfect solution to the prestigious project as it can reduce the cost of upgrading R22 equipment by up to 50% when compared with total system replacement. The system is also able to reduce energy consumption by up to 40%.

This innovative solution allows all existing VRV R22 piping - and potentially also controllers and indoor units installed since 1996 - to be retained, so only the outdoor units and heat recovery BS branch selector boxes need to be replaced.

It is therefore viable to plan a phased replacement programme with costs spread over a period of time and minimal business disruption, while generating much less waste than if the entire system was replaced.

This fast and effective upgrade is achievable because VRV®III-Q is designed to operate at the lower pressures required by existing R22 piping, without compromising efficiency levels. For example, an R410A 10HP system has a COP of 3.98 and an EER of 4.00: around 50% more efficient than its R22 equivalent.

It is anticipated that the new R22 solution will provide in excess of 35% energy savings when compared with the old system, as well as an annual carbon reduction of six tonnes of CO_2.

Benefits for end users

Smart controls for enhanced comfort

VRV systems maintain comfortable room temperatures at a virtually constant level, avoiding the temperature fluctuations typical of conventional on/off control systems. Smart inverter controls continuously adjust the refrigerant volume in response to load variations of the indoor units to maintain a consistently comfortable room temperature.

Low sound levels in operation

Daikin indoor units operate at extremely low sound levels down to 19 dB(A), so they offer greater comfort in terms of audability as well as in temperature and humidity levels.

System optimised for the European climate

VRV offers a 'high sensible' mode which optimises the units for performance within European climate conditions. In cooling mode, the system delivers increased heat transfer capability, resulting in improved comfort and greater efficiency:

- Prevents cold drafts for end users
- Avoids wasting energy on unnecessary dehumidification
- Works more efficiently in cooling mode

Benefits for building owners

Smart energy management

From individual systems to the management of multiple buildings, Daikin has a control solution for every application. User-friendly touch screen controls give you access to all AC functions, making management of the system extremely easy.

These smart energy management tools maximise efficiency by reducing running costs and preventing energy waste. Using the schedule function and monitoring tools, you can detect sources of energy waste and track consumption, to ensure that the system performs as originally planned.

Precise zone control

The VRV system provides precise control of both small and large areas, offering individual control of up to 64 indoor units, of varying types and capacities. Zone by zone control offers lower running costs, because the system will only be activated in rooms that require heating or cooling, while the system can be shut down entirely in rooms where no air conditioning is required.

Intelligent indoor units

Intelligent indoor units deliver greater savings in terms of running costs, offering a swift payback for building owners.

Daikin's renowned 'round flow' cassette offers an auto cleaning filter, which automatically cleans the cassette once a day, delivering annual energy savings of up to 50%. Dust from the filter is simply collected in the unit for removal via a vacuum cleaner nozzle.

An additional presence sensor can save up to 27% on energy consumption over a 3 hour period by adjusting the set point, or switching off the unit when no one is in the room. The sensor also detects where people are within a room and directs the air flow away from them, to avoid any cold drafts. So you don't have to choose between efficiency and comfort. Daikin offers both in one cost-effective package.

Benefits for specifiers

A solution for every climate

A VRV system can be installed almost anywhere operating in cooling mode at outdoor ambient temperatures between -20°C and +46°C and in heating mode at ambient temperatures between -25°C and +15.5°C.

Flexible piping design

A standard VRV system offers an extended piping length of 165m, (190m equivalent piping length) with a total system piping length of 1,000m. The height difference between the indoor and outdoor units can be up to 90m without the use of additional kits. What's more, the small refrigerant piping takes up less space in shafts and ceiling voids, maximising the available commercial lettable space.

Multi-tenant function

The multi-tenant function ensures that the entire VRV system doesn't shut down when the main power supply of an indoor unit is switched off. This means that the indoor unit's main fuse can be switched off when one part of the building is closed or being serviced.

Indoor installation possibilities

The VRV outdoor unit can also be used for indoor installation with ducting. Indoor installation means less piping lengths are required, leading to lower installation costs, as well as offering increased efficiency and better aesthetics in certain circumstances.

Benefits for installers

Rapid installation timeframe

Thanks to small refrigerant pipes and REFNET piping options, the VRV piping system can be installed very easily and quickly. Installation can also be carried out floor by floor, so that sections of the building can be completed very quickly and the system commissioned in stages, rather than on final completion of the entire project.

Daikin Unified REFNET piping

VRV offers 4-way piping connection, meaning the piping can be run from the front, left, right or bottom of the unit, to suit the installation layout. The unified REFNET piping system offers simple installation, reducing the imbalance in refrigerant flowing between the indoor units. REFNET joints and headers have been specifically designed to optimise refrigerant flow and can reduce installation work, while increasing system reliability.

Simplified wiring

A 'Super Wiring' system is used to enable the shared use of wiring between the indoor units, outdoor units and centralised remote control. This makes it easier for installers to retrofit a centralised remote control, simply by connecting it to the outdoor units. Thanks to a non-polarity wiring system, it is not possible to connect the wiring incorrectly, so installation time is reduced. What's more, the oudoor units have power connection outlets on the side and front, for easier installation and maintenance, as well as saving space when rows of units are connected together.

Cross wiring check

The cross wiring check facility on the VRV warns installers of any connection units in inter-unit wiring and piping. This function identifies and alerts the installer of system errors, via on/off LEDs on the outdoor unit's PC boards.

Top quality brazed connections

Daikin no longer uses flange and flare connections inside the VRV unit. Instead, brazing connections ensure improved refrigerant containment. The connection to the outdoor unit in the main pipe is also brazed.

Automatic charge

The VRV unit is charged automatically with the correct amount of refrigerant via a push button on the PCB. Automatic charging ceases once the right amount of refrigerant has been transferred.

Automatic testing

Once the refrigerant is charged, pushing the test operation button on the PCB will initiate a check on the wiring shut off valves, sensors and refrigerant volume, which ceases automatically once complete.

Refrigerant containment checks

The refrigerant containment check can be performed remotely via the Intelligent Touch Manager or on-site via a push button on the PCB. By performing the check remotely, this can be done at a convenient time, avoiding the need for an on-site visit or disrupting the customer's operation during business hours.

Easy replacement of refrigerant

The refrigerant recovery function enables all expansion valves to be opened, so that refrigerant can be drained easily from the piping system.

Powerful selection programmes

VRV Xpress, quick quotation tool

VRV Xpress is a software tool that allows you to create professional quotations on-the-spot for a Daikin VRV System in just six simple steps:

1. Select indoor units
2. Connect outdoor units to indoor units
3. Automatic generation of piping diagram with joints
4. Automatic generation of wiring diagram
5. Selection of possible centralised control systems
6. Visualise result in MS Word, MS Excel and AutoCAD

VRV Xpress offers simple selection of VRV systems, and has been redesigned to allow even more flexibility in design by allowing you to select peak system Heating & Cooling capacities. This means that for the first time systems can be selected with much greater accuracy, preventing over or undersizing of VRV systems which can reduce the size of condensers required for a project, saving installation costs whilst increasing the efficiency of the system.

The latest control systems can now be easily selected by dragging and dropping Daikin's intuitive controls options into your selection, with automatic selection of quantities to ensure that your controls strategy can be implemented effectively.

Whenever a new version of VRV Xpress is available you can automatically upgrade the software without the need to log in and download new versions, which means that you will always have the latest information at your fingertips.

Replacement VRV: VRV III-Q

R22 is a hydrochlorofluorocarbon (HCFC) which was commonly used in air conditioning systems. However, both new and recycled sources of R22 are banned from January 2015. Many systems today are still running on R22. But as supplies of R22 run low, now's the time to replace R22 systems. The good news is that Daikin's VRV-Q solution delivers significantly higher energy efficiencies, with the potential of saving up to 50%, compared with installing a completely new system.

Make the change now

When R22 is released into the air, the ultraviolet rays of the sun cause it to decompose and chlorine is released in the stratosphere.

Chlorine reacts with the ozone, reducing it's quantity and due to the ozone layer depletion, harmful ultraviolet rays reach the surface of the earth giving rise to health and environmental issues.

In response to this, the international community signed the Montreal Protocol to phase out ozone depletion materials by 2030. In Europe, the ban will take place much sooner in 2015.

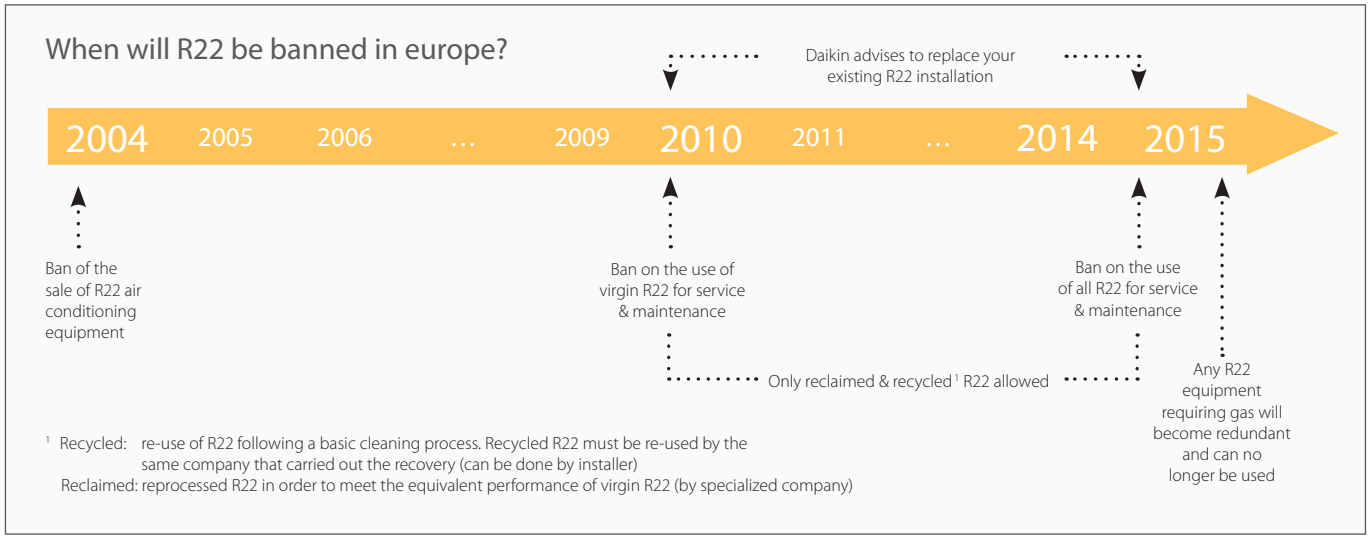
The impact

The R22 phase-out regulation will impact on all R22 systems currently operating. Although maintenance can be carried out with recycled or reclaimed R22 until January 1st 2015, supply shortages and price increases are expected well before then, simply because not enough R22 is reclaimed to cover the current demand.

If not enough reclaimed R22 is available, certain repairs (such as changing a compressor) will no longer be possible and considerable system downtime will occur. It is therefore a wise strategy to replace R22 systems before 2015, especially for air conditioning systems that have a major impact on business operations.

Increasing energy efficiency

Due to significant developments in heat pump technology in recent years, older air conditioning systems run much less efficiently than those available today. For a 10HP system, an almost 50% increase in efficiency can be achieved by replacing R22 systems with VRV III-Q utilising energy efficient R-410A refrigerant.



Replacing an old R22 or R-407C VRV installation can deliver significant energy consumption savings.

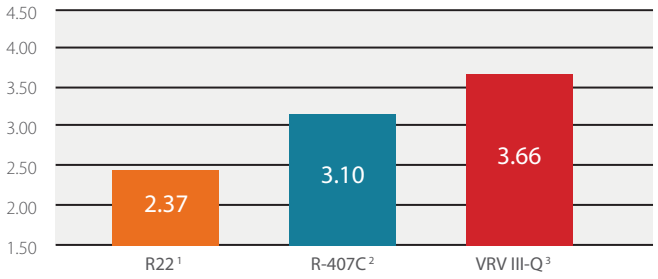
To upgrade R22 systems as cost effectively as possible, Daikin replacement VRV units can be installed using existing pipework. In some cases, even the indoor units and controllers can be retained. So upgrade work only needs to be carried out on the outdoor unit and BS-boxes, not inside the building.

Older R22 VRV systems work on a lower pressure than today's R-410A systems. However thanks to the sub cool circuit, VRV-Q is capable of operating at lower pressures than the standard VRV III series, while still maintaining high efficiency levels.

In order to re-use existing R22 piping with an R-410A system, Daikin has developed a combined refrigerant pipe cleaning and automatic charging function for the VRV-Q, which captures and retains the contamination left in the refrigerant piping.

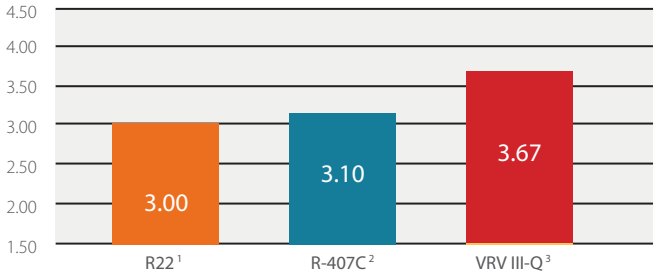
This refrigerant, including the remaining oil from the R22 system, is filtered in the outdoor unit and the contamination is deposited in the outdoor unit.

EER of a 10 HP system



40% MORE EFFICIENT

COP of a 10 HP system



25% MORE EFFICIENT

Replacement VRV®-Q

The benefits

Increasing efficiencies

Upgrading an old R22 system to a VRV®-Q system will increase system efficiency by more than 40%, thanks to recent developments in heat pump technology and the more efficient R-410A refrigerant.

Fast installation

Installation is quicker because the existing piping and indoor units (in some cases) can be retained, while Daikin's unique automatic refrigerant charging and refrigerant pipe cleaning cuts installation time too.

System history doesn't restrict future usability

As a result of the combined refrigerant pipe cleaning and automatic charging function, the piping network is completely clean and suitable for reuse.

Limited and planned downtime

The installation is therefore less intrusive and time consuming than for a completely new system. Moreover, downtime can be carefully planned, whereas if a problem occurs when not enough reclaimed R22 is available, a long and unplanned downtime may occur.

Phased investment cost

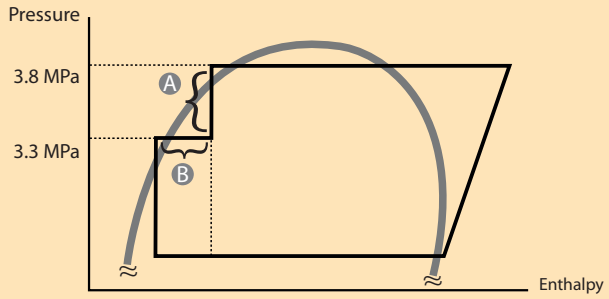
Because the entire R22 system does not need to be replaced, it is possible to upgrade the system in phases. The R22 replacement programme can therefore be incorporated in the general refurbishment schedule of the building, thus spreading the investment cost.

Warranty

Unlike using drop-in refrigerants, the VRV®-Q condensing unit is provided with a manufacturer's warranty, providing the existing pipework condition is deemed suitable for re-use (see price list).

Benefits

- Dramatically reduced installed cost – up to 50% saving compared with a complete new system
- Re-use all existing pipework with the possibility to re-use existing fan coils
- Flexibility to use with existing pipework connected to other non-Daikin systems
- Automatic charging and pipework cleaning function
- Higher energy efficiency of up to 50% and lower CO_2 emissions than retrofitting refrigerant
- Major potential to increase system capacity



A Decompression to 3.3MPa(s) → R22 existing piping can be used

B Extra sub cool circuit → high COP

Specifications

VRV-Q - Replacement VRV - Heat Pump

					RQYQ-P																					
OUTDOOR UNIT					**140**	**8**	**10**	**12**	**14**	**16**	**18**	**20**	**22**	**24**	**26**	**28**	**30**	**32**	**34**	**36**	**38**	**40**	**42**	**44**	**46**	**48**
System	Outdoor unit module 1				**140**	**8**	**10**	**12**	**14**	**16**	**8**		**10**	**12**	**10**	**12**	**14**	**16**	**10**			**12**	**10**	**12**	**14**	**16**
	Outdoor unit module 2				-						**10**		**12**		**16**				**10**		**12**		**16**			
Capacity range				HP	5	8	10	12	14	16	18	20	22	24	26	28	30	32	34	36	38	40	42	44	46	48
Cooling capacity	Nom.			kW	14.0 [1]	22.4 [1]	28.0 [1]	33.5 [1]	40.0 [1]	45.0 [1]	50.4 [1]	55.9 [1]	61.5 [1]	67.0 [1]	73.0 [1]	78.5 [1]	85.0 [1]	90.0 [1]	96.0 [1]	101 [1]	107 [1]	112 [1]	118 [1]	124 [1]	130 [1]	135 [1]
Heating capacity	Nom.			kW	16.0 [2]	25.0 [2]	31.5 [2]	37.5 [2]	45.0 [2]	50.0 [2]	56.5 [2]	62.5 [2]	69.0 [2]	75.0 [2]	81.5 [2]	87.5 [2]	95.0 [2]	100 [2]	108 [2]	113 [2]	119 [2]	125 [2]	132 [2]	138 [2]	145 [2]	150 [2]
Power input - 50Hz	Cooling	Nom.		kW	3.36	5.24	7.64	10.10	11.6	13.6	12.9	15.4	17.8	20.2	21.3	23.7	25.2	27.2	26.9	28.9	31.4	33.8	34.9	35.3	38.8	40.8
	Heating	Nom.		kW	3.91	6.42	8.59	10.20	12.2	13.6	15.1	16.7	18.8	20.4	22.2	23.8	25.8	27.2	29.4	30.8	32.4	34.0	35.8	36.0	39.4	40.8
EER					4.17	4.27	3.66	3.32	3.45	3.31	3.91	3.63	3.46	3.32	3.43	3.31	3.37	3.31	3.57	3.49	3.41	3.31	3.38	3.51	3.35	3.31
COP					4.09	3.89	3.67	3.68	3.69	3.68	3.74		3.67	3.68	3.67		3.68		3.67			3.68	3.69	3.83	3.68	
Maximum number of connectable indoor units					10	17	21	26	30	34	39	43	47	52	56	60	64									
Indoor index connection	Min.				62.5	100	125	150	175	200	225	250	275	300	325	350	375	400	425	450	475	500	525	550	575	600
	Nom.				125	200	250	300	350	400	450	500	550	600	650	700	750	800	850	900	950	1,000	1,050	1,100	1,150	1,200
	Max.				162.5	260	325	390	455	520	585	650	715	780	845	910	975	1,040	1,105	1,170	1,235	1,300	1,365	1,430	1,495	1,560
Dimensions	Unit	HeightxWidthxDepth		mm	1,680x635 x765	1,680x930x765			1,680x1,240x765		-															
Weight	Unit			kg	175	230	284		381		-															
Heat exchanger	Type				Cross fin coil						-															
Fan	Type				Propeller fan						-															
	Air flow rate	Cooling	Nom.	m^3/min	95	180	185	200	233		-															
	External static pressure	Max.		Pa	78						-															
Sound power level	Cooling	Nom.		dBA	-						-															
Sound pressure level	Cooling	Nom.		dBA	54.0	57.0	58.0	60.0			61	62	63						64		65					
Compressor	Type				Hermetically sealed scroll compressor						-															
Operation range	Cooling	Min.~Max.		°CDB	-5~43						-															
	Heating	Min.~Max.		°CWB	-20~15.5						-															
Refrigerant	Type				R-410A						-															
	Charge			kg	11.1	10.8	11.7				-															
	Control				Electronic expansion valve						-															
Piping connections	Liquid	Type			Braze connection																					
		OD		mm	9.52			12.7			15.9				19.1											
	Gas	Type			Braze connection																					
		OD		mm	15.9	19.1	22.2	28.6			28.6				34.9				41.3							
	Piping length	OU - IU	Max.	m	150																					
		After branch	Max.	m	40																					
	Total piping length	System	Actual	m	300																					
	Level difference	OU - IU	Outdoor unit in highest position/ Indoor unit in highest position	m	50/40																					
		IU - IU	Max.	m	15																					
Power supply	Phase/Frequency/Voltage			Hz/V	3~/50/380-415						-								-							
Current - 50Hz	Maximum fuse amps (MFA)			A	15	25			35		45	50			60		70		90			100			110	

(1) Cooling: indoor temp. 27°CDB, 19°CWB; outdoor temp. 35°CDB; equivalent piping length: 7.5m; level difference: 0m (2) Heating: indoor temp. 20°CDB; outdoor temp. 7°CDB, 6°CWB; equivalent refrigerant piping: 7.5m; level difference: 0m (3) Select wire size based on the larger value of MCA or TOCA

Specifications

VRV-Q - Replacement VRV - Heat Recovery

OUTDOOR SYSTEM					RQCEQ280P	RQCEQ360P	RQCEQ460P	RQCEQ500P	RQCEQ540P	RQCEQ636P	RQCEQ712P	RQCEQ744P	RQCEQ816P	RQCEQ848P
System	Outdoor unit module 1				RQEQ140P	RQEQ180P	RQEQ140P		RQEQ180P	RQEQ212P	RQEQ140P		RQEQ180P	RQEQ212P
	Outdoor unit module 2				RQEQ140P	RQEQ180P	RQEQ140P	RQEQ180P		RQEQ212P	RQEQ180P		RQEQ212P	
	Outdoor unit module 3				-		RQEQ180P			RQEQ212P	RQEQ180P	RQEQ212P		
	Outdoor unit module 4				-						RQEQ212P			
Capacity range				HP	10	13	16	18	20	22	24	26	28	30
Cooling capacity	Nom.			kW	28.0 [1]	36.0 [1]	45.0 [1]	50.0 [1]	54.0 [1]	63.6 [1]	71.2 [1]	74.4 [1]	81.6 [1]	84.8 [1]
Heating capacity	Nom.			kW	32.0 [2]	40.0 [2]	52.0 [2]	56.0 [2])	60.0 [2]	67.2 [2]	78.4 [2]	80.8 [2]	87.2 [2]	89.6 [2]
Power input - 50Hz	Cooling	Nom.		kW	7.04	10.3	12.2	13.9	15.5	21.9	21.2	23.3	27.1	29.2
	Heating	Nom.		kW	8.00	10.7	13.4	14.7	16.1	17.7	20.7	21.2	23.1	23.6
EER					3.98	3.48	3.77	3.61	3.48	2.90	3.36	3.19	3.01	2.90
COP					4.00	3.72	3.89	3.80	3.72	3.79	3.80	3.81	3.77	3.79
Maximum number of connectable indoor units					21	28	34	39	43	47	52	56	60	64
Indoor index connection	Min./Nom./Max.				140/280/364	180/360/468	230/500/598	250/500/650	270/540/702	318/636/827	356/712/926	372/744/967.0	408/816/1,061	424/848/1,102
Sound power level	Cooling	Nom.		dBA	-									
Sound pressure level	Cooling	Nom.		dBA	57	61		62	63	64	63	64	65	66
Refrigerant	Circuits	Quantity			1									
Piping connections	Liquid	Type/OD		mm	Braze connection/9.52	Braze connection/12.7		Braze connection/15.9			Braze connection/19.1			
	Gas	Type/OD		mm	Braze connection/22.2	Braze connection/25.4	Braze connection/28.6				Braze connection/34.9			
	Discharge gas	Type/OD		mm	Braze connection/19.1		Braze connection/22.2			Braze connection/25.4			Braze connection/28.6	
	Piping length	OU - IU	Max.	m	120									
	Total piping length	System	Actual	m	300									
	Level difference	OU - IU	Outdoor unit in highest position	m	50									
Current - 50Hz	Maximum fuse amps (MFA)			A	30	40	50	60		70	80		90	

OUTDOOR UNIT MODULE				RQEQ140P	RQEQ180P	RQEQ212P
Dimensions	Unit	HeightxWidthxDepth	mm	1,680x635x765		
Weight	Unit		kg	175		179
Heat exchanger	Type			Cross fin coil		
Fan-Type				Propeller fan		
Fan-Air flow rate	Cooling	Nom.	m^3/min	95	110	
Fan-External static pressure	Max.		Pa	-		
Sound pressure level	Cooling	Nom.	dBA	54	58	60
Compressor	Type			Hermetically sealed scroll compressor		
Operation range	Cooling	Min.	°CDB	-5		
		Max.	°CDB	43		
	Heating	Min.~Max.	°CWB	-20~15		
Refrigerant	Type			R-410A		
	Charge		kg	10.3	10.6	11.2
	Control			Electronic expansion valve		
Power supply	Phase/Frequency/Voltage		Hz/V	3~/50/380-415		

(1) Cooling: indoor temp. 27°CDB, 19°CWB; outdoor temp. 35°CDB; equivalent piping length: 7.5m; level difference: 0m (2) Heating: indoor temp. 20°CDB; outdoor temp. 7°CDB, 6°CWB; equivalent refrigerant piping: 7.5m; level difference: 0m (3) MFA is used to select the circuit breaker and the ground fault circuit interrupter (earth leakage circuit breaker).

Heat recovery VRV III

Why VRV Heat Recovery?

By integrating climate control systems in an innovative way, it is possible to create a much more holistic – and sustainable – energy cycle within a building. Incorporating heat recovery within a VRV solution means that it is possible to cut energy usage by up to 60%, which has clear environmental and economic benefits.

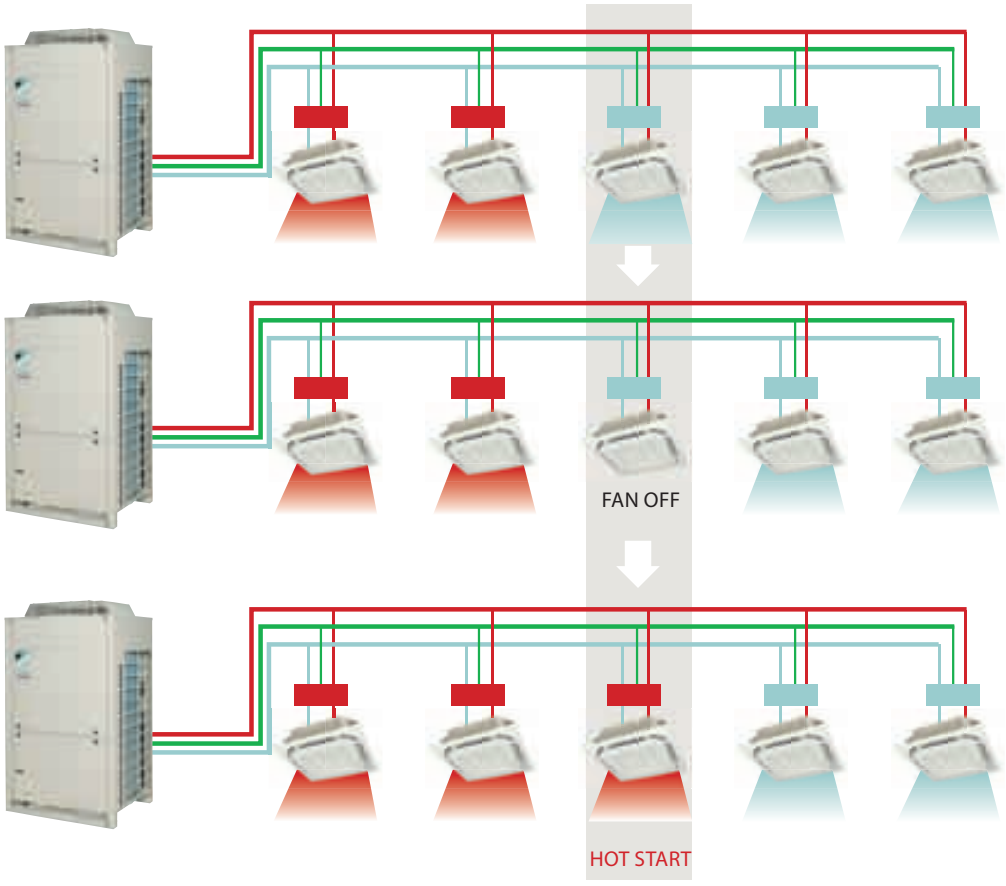
Daikin has been the market leader in variable refrigerant flow systems for more than 25 years.

Our heat recovery approach is a year-round solution. Even when the temperature outside is sub zero, our total VRV solution is still capable of cooling interior spaces in which people or equipment are generating heat.

This heat can then be recovered to produce hot water or heat spaces in a highly energy efficient way.

VRV III Heat Recovery

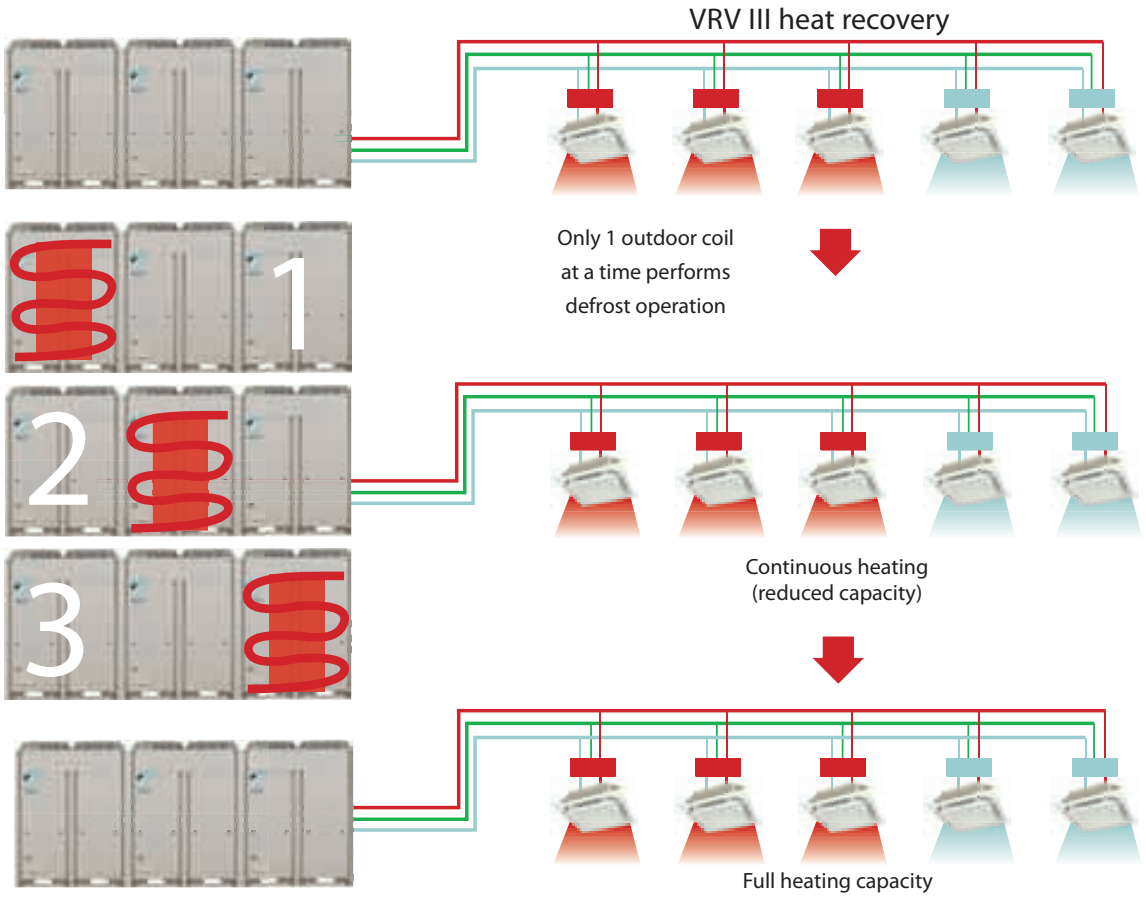
With the VRV III BS box, the other indoor units can keep heating while the target indoor units are switched from cooling to heating.



Continuous heating during defrost

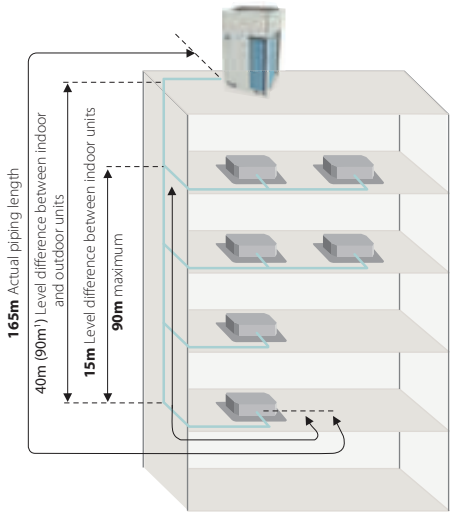
Higher integrated heating capacity allows continuous heating during defrost, ensuring the highest comfort level throughout the defrost cycle and oil return.

This avoids major temperature fluctuations or cold drafts in the room, during defrost and oil return, thus maintaining the perfect comfort conditions at all times.



Flexible piping design

- VRV offers an extended piping length of 165m (190m equivalent piping length) with a total system piping length of 1000m
- Where the outdoor unit is located above the indoor unit, the standard height difference is 50m, but this can be extended to 90m
- If the outdoor unit is located below the indoor unit, the standard height difference is 40m with a height difference of a maximum 90m being possible



Specifications

VRV-III - Heat Recovery

OUTDOOR UNIT					REYQ8P9	REYQ10P8	REYQ12P9	REYQ14P8	REYQ16P8
Capacity range				HP	8	10	12	14	16
Cooling capacity	Nom.			kW	22.4 [1]	28.0 [1]	33.5 [1]	40.0 [1]	45.0 [1]
Heating capacity	Nom.			kW	25.0 [2]	31.5 [2]	37.5 [2]	45.0 [2]	50.0 [2]
Power input - 50Hz	Cooling	Nom.		kW	5.20	7.09	8.72	11.4	14.1
	Heating	Nom.		kW	5.71	7.38	8.84	11.0	12.8
EER					4.31	3.95	3.84	3.51	3.19
COP					4.38	4.27	4.24	4.09	3.91
Maximum number of connectable indoor units					17	21	26	30	34
Indoor index connection	Min.				100	125	150	175	200
	Nom.				200	250	300	350	400
	Max.				260	325	390	455	520
Dimensions	Unit	HeightxWidthxDepth		mm	1,680x1,300x765				
Weight	Unit			kg	331			339	
Heat exchanger	Type				Cross fin coil				
Fan	Type				Propeller fan				
	Air flow rate	Cooling	Nom.	m^3/min	190		210	235	240
	External static pressure	Max.		Pa	-				
Sound power level	Cooling	Nom.		dBA	78		80	83	84
Sound pressure level	Cooling	Nom.		dBA	58		60	62	63
Compressor	Type				Hermetically sealed scroll compressor				
Compressor 2	Type				Hermetically sealed scroll compressor				
Operation range	Cooling	Min.~Max.		°CDB	-20 (15) / -5~43				
	Heating	Min.~Max.		°CWB	-20~15.5				
Refrigerant	Type				R-410A				
	Charge			kg	10.3	10.6	10.8	11.1	
	Control				Expansion valve (electronic type)				
Piping connections	Liquid	Type			Braze connection				
		OD		mm	9.52		12.7		
	Gas	Type			Braze connection				
		OD		mm	19.1	22.2	28.6		
	Discharge gas	Type			Braze connection				
		OD		mm	15.9	19.10		22.2	
	Piping length	OU - IU	Max.	m	165				
		After branch	Max.	m	90 (8)				
	Total piping length	System	Actual	m	1,000				
	Level difference	OU - IU	Outdoor unit in highest position/Indoor unit in highest position	m	50/40				
		IU - IU	Max.	m	15				
Power supply	Phase/Frequency/Voltage			Hz/V	3~/50/380-415				
Current - 50Hz	Maximum fuse amps (MFA)			A	20	25		40	

(1) Cooling: indoor temp. 27°CDB, 19°CWB; outdoor temp. 35°CDB; equivalent piping length: 7.5m; level difference: 0m (2) Heating: indoor temp. 20°CDB; outdoor temp. 7°CDB, 6°CWB; equivalent refrigerant piping: 7.5m; level difference: 0m (3) MFA is used to select the circuit breaker and the ground fault circuit interrupter (earth leakage circuit breaker). (4) In accordance with EN/IEC 61000-3-11, respectively EN/IEC 61000-3-12, it may be necessary to consult the distribution network operator to ensure that the equipment is connected only to a supply with Zsys ≤ Zmax, respectively Ssc ≥ minimum Ssc value. (5) EN/IEC 61000-3-11: European/international technical standard setting the limits for voltage changes, voltage fluctuations and flicker in public low-voltage supply systems for equipment with rated ≤ 75A (6) EN/IEC 61000-3-12: European/international technical standard setting the limits for harmonic currents produced by equipment connected to public low-voltage system with input current > 16A and ≤ 75A per phase (7) Technical cooling setting, refer to the installation manual for more information (8) Refer to refrigerant pipe selection or installation manual

Specifications

VRV-III - Heat Recovery

OUTDOOR SYSTEM						REYQ18P9	REYQ20P9	REYQ22P8	REYQ24P8	REYQ26P8	REYQ28P8	REYQ30P8	REYQ32P8	REYQ34P9	REYQ36P9
System	Outdoor unit module 1					REMQ8P9		REMQ10P8	REMQ12P8	REMQ10P8	REMQ12P8	REMQ14P8	REMQ16P8	REMQ8P9	
	Outdoor unit module 2					REMQ10P8	REMQ12P8			REMQ16P8				REMQ10P8	REMQ12P8
	Outdoor unit module 3					-								REMQ16P8	
Capacity range					HP	18	20	22	24	26	28	30	32	34	36
Cooling capacity	Nom.				kW	50.4 [1]	55.9 [1]	61.5 [1]	67.0 [1]	73.0 [1]	78.5 [1]	85.0 [1]	90.0 [1]	95.4 [1]	101 [1]
Heating capacity	Nom.				kW	56.5 [2]	62.5 [2]	69.0 [2]	75.0 [2]	81.5 [2]	87.5 [2]	95.0 [2]	100 [2]	107 [2]	113 [2]
Power input - 50Hz	Cooling	Nom.			kW	12.7	14.9	17.0	19.2	21.8	23.8	26.6	28.4	26.9	29.1
	Heating	Nom.			kW	13.4	15.2	17.1	18.9	20.6	22.3	24.2	25.8	26.3	28.1
EER						3.97	3.75	3.62	3.49	3.35	3.29	3.19	3.16	3.55	3.47
COP						4.22	4.11	4.04	3.97	3.96	3.92		3.87	4.07	4.02
Maximum number of connectable indoor units						39	43	47	52	56	60	64			
Indoor index connection	Min./Nom./Max.					225/450/585	250/500/650	275/550/715	300/600/780	325/650/845	350/700/910	375/750/975	400/800/1,040	425/850/1,105	450/900/1,170
Sound power level	Cooling	Nom.			dBA	81	83							84	85
Sound pressure level	Cooling	Nom.			dBA	61	62	63						64	
Piping connections	Liquid	Type/OD			mm	Braze connection/15.9				Braze connection/19.1					
	Gas	Type/OD			mm	Braze connection/28.6				Braze connection/34.9					Braze connection/41.3
	Discharge gas	Type/OD			mm	Braze connection/22.2	Braze connection/28.6								
	Oil equalizing	OD			mm	19.1									
	Piping length	OU - IU		Max.	m	165									
		After branch		Max.	m	90 (18)									
	Total piping length	System		Actual	m	1,000									
	Level difference	OU - IU	Outdoor unit in highest position/ Indoor unit in highest position		m	50/40									
		IU - IU		Max.	m	15									
Current - 50Hz	Maximum fuse amps (MFA)				A	45	50			60		70		80	

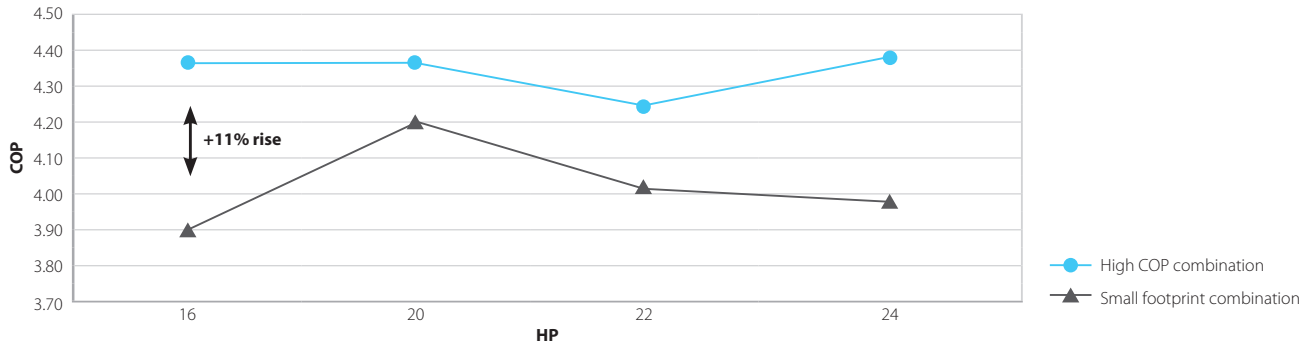
OUTDOOR SYSTEM					REYQ34P9	REYQ36P9	REYQ38P8	REYQ40P8	REYQ42P8	REYQ44P8	REYQ46P8	REYQ48P8
System	Outdoor unit module 1				REMQ8P9		REMQ10P8	REMQ12P8	REMQ10P8	REMQ12P8	REMQ14P8	REMQ16P8
	Outdoor unit module 2				REMQ10P8	REMQ12P8			REMQ16P8			REMQ16P8
	Outdoor unit module 3				REMQ16P8							
Capacity range				HP	34	36	38	40	42	44	46	48
Cooling capacity	Nom.			kW	95.4 [1]	101 [1]	107 [1]	112 [1]	118 [1]	124 [1]	130 [1]	135 [1]
Heating capacity	Nom.			kW	107 [2]	113 [2]	119 [2]	125 [2]	132 [2]	138 [2]	145 [2]	150 [2]
Power input - 50Hz	Cooling	Nom.		kW	26.9	29.1	31.2	33.4	35.8	38.0	40.8	42.6
	Heating	Nom.		kW	26.3	28.1	30.0	31.8	33.5	35.2	37.1	38.7
EER					3.55	3.47	3.43	3.35	3.29	3.26	3.18	3.16
COP					4.07	4.02	3.96	3.93	3.94	3.92	3.90	3.87
Maximum number of connectable indoor units					64							
Indoor index connection	Min./Nom./Max.				425/850/1,105	450/900/1,170	475/950/1,235	500/1,000/1,300	525/1,050/1,365	550/1,100/1,430	575/1,150/1,495	600/1,200/1,560
Sound power level	Cooling	Nom.		dBA	84	85						
Sound pressure level	Cooling	Nom.		dBA	64		65					
Piping connections	Liquid	OD		mm	19.1							
	Gas	OD		mm	34.9	41.3						
	Discharge gas	OD		mm	28.6		34.9					
	Oil equalizing	OD		mm	19.1							
	Total piping length	System	Actual	m	40 (14)	1,000						
	Level difference	OU - IU	Outdoor unit in highest position/Indoor unit in highest position	m	50/40							
		IU - IU	Max.	m	15							
Current - 50Hz	Maximum fuse amps (MFA)			A	80		90		100		110	

OUTDOOR UNIT MODULE					REMQ8P9	REMQ10P8	REMQ12P8	REMQ14P8	REMQ16P8
Dimensions	Unit	HeightxWidthxDepth		mm	1,680x930x765			1,680x1,240x765	
Weight	Unit			kg	204	254		334	
Heat exchanger	Type				Cross fin coil				
Fan-Type					Propeller fan				
Fan-Air flow rate	Cooling	Nom.		m^3/min	180	185	200	230	
Fan-External static pressure	Max.			Pa	78				
Compressor	Type				Hermetically sealed scroll compressor				
Compressor 2	Type					Hermetically sealed scroll compressor			
Compressor 3	Type							Hermetically sealed scroll compressor	
Operation range	Cooling	Standard	Min.	°CDB	-5				
		Max.		°CDB	43				
	Heating	Min.~Max.		°CWB	-20~15.5				
Refrigerant	Type				R-410A				
	Charge			kg	8.2	9.0	9.1	11.7	
	Control				Expansion valve (electronic type)				
Power supply	Phase/Frequency/Voltage			Hz/V	3~/50/380-415				

(1) Cooling: indoor temp. 27°CDB, 19°CWB; outdoor temp. 35°CDB; equivalent piping length: 7.5m; level difference: 0m (2) Heating: indoor temp. 20°CDB; outdoor temp. 7°CDB, 6°CWB; equivalent refrigerant piping: 7.5m; level difference: 0m (3) Technical cooling setting, contact your local dealer for more information

VRV Heat Recovery - high COP

The high COP combination has the highest energy efficiency within the Daikin heat recovery range. It is up to 11% more efficient, compared with the small footprint combination.



HP		16	20	22	24
High COP combination	combination	8 + 8	8 + 12	10 + 12	12 + 12
	COP	4.36	4.36	4.24	4.37
	EER	4.29	4.04	3.84	3.89
Small footprint combination	combination	16	8 + 12	10 + 12	12 + 12
	COP	3.90	4.12	4.03	3.97
	EER	3.19	3.77	3.61	3.49

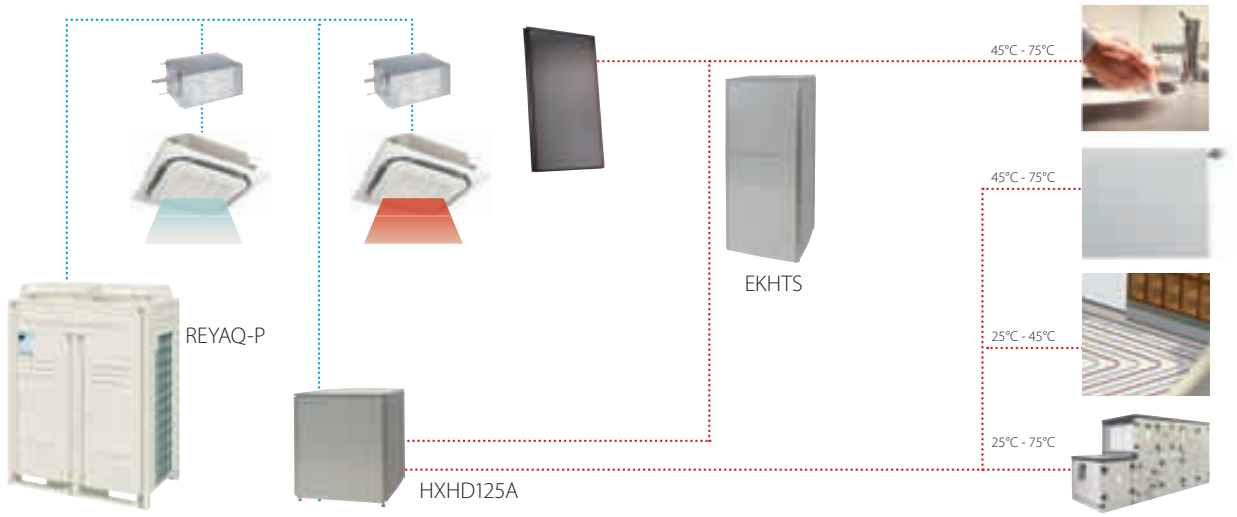
OUTDOOR SYSTEM					REYHQ16P	REYHQ20P	REYHQ22P	REYHQ24P
System	Outdoor unit module 1				REMQ8P9		REMQ10P8	REMHQ12P8
	Outdoor unit module 2				REMQ8P9	REMHQ12P8		
Capacity range				HP	16	20	22	24
Cooling capacity	Nom.			kW	45.0 [1]	56.0 [1]	61.5 [1]	67.0 [1]
Heating capacity	Nom.			kW	50.0 [2]	62.5 [2]	69.0 [2]	75.0 [2]
Power input - 50Hz	Cooling	Nom.		kW	10.5	13.9	16.0	17.2
	Heating	Nom.		kW	11.5	14.3	16.3	17.2
EER					4.29	4.04	3.84	3.89
COP					4.36		4.24	4.37
Maximum number of connectable indoor units					34	43	47	52
Indoor index connection	Min./Nom./Max.				200/400/520	225/450/585	250/500/650	275/550/715
Sound power level	Cooling	Nom.		dBA	82	85		87
Sound pressure level	Cooling	Nom.		dBA	62	64		66
Refrigerant	Circuits	Quantity			1			
Piping connections	Liquid	Type/OD		mm	Braze connection/12.7	Braze connection/15.9		
	Gas	Type/OD		mm	Braze connection/28.6			Braze connection/34.9
	Piping length	OU - IU	Max.	m	165			
		After branch	Max.	m	90 (18)			
	Total piping length	System	Actual	m	1,000			
	Level difference	OU - IU	Outdoor unit in highest position/ Indoor unit in highest position	m	50/40			
		IU - IU	Max.	m	15			
Current - 50Hz	Maximum fuse amps (MFA)			A	50	63		80

OUTDOOR UNIT MODULE				REMQ8P9	REMQ10P8	REMHQ12P8
Dimensions	Unit	HeightxWidthxDepth	mm	1,680x930x765		1,680x1,300x765
Weight	Unit		kg	204	254	331
Heat exchanger	Type			Cross fin coil		-
Fan-Type				Propeller fan		
Fan-Air flow rate	Cooling	Nom.	m^3/min	180	185	230
	Heating	Nom.	m^3/min	-		230
Fan-External static pressure	Max.		Pa	-		78
Sound power level	Cooling	Nom.	dBA	78		-
Compressor	Type			Hermetically sealed scroll compressor		
Compressor 2	Type			-	Hermetically sealed scroll compressor	
Operation range	Cooling	Min.	°CDB	-5		
		Max.	°CDB	43		
	Heating	Min.~Max.	°CWB	-20~15		
Refrigerant	Type			R-410A		
	Charge		kg	8.2	9.0	11.7
	Control			Expansion valve (electronic type)		
Refrigerant oil	Type			-		Synthetic (ether) oil
	Charged volume		l	-		2.5
Power supply	Phase/Frequency/Voltage		Hz/V	3~/50/380-415		
Current - 50Hz	Maximum fuse amps (MFA)		A	25		40

1) Cooling: indoor temp. 27°CDB, 19°CWB; outdoor temp. 35°CDB; equivalent piping length: 7.5m; level difference: 0m (2) Heating: indoor temp. 20°CDB; outdoor temp. 7°CDB, 6°CWB; equivalent refrigerant piping: 7.5m; level difference: 0m

VRV Heat Recovery with hydroboxes

Daikin offers a highly efficient and flexible solution, with all components integrated, for connection to heating only hydroboxes.



OUTDOOR UNIT					REYAQ10P	REYAQ12P	REYAQ14P	REYAQ16P
Capacity range				HP	10	12	14	16
Cooling capacity	Nom.			kW	28 [1]	33.5 [1]	40 [1]	45 [1]
Heating capacity	Nom.			kW	31.5 [2]	37.5 [2]	45 [2]	50 [2]
Power input - 50Hz	Cooling	Nom.		kW	7.09 [1]	8.72 [1]	11.4 [1]	14.1 [1]
	Heating	Nom.		kW	7.38 [2]	8.84 [2]	11.0 [2]	12.8 [2]
EER					3.95	3.84	3.51	3.19
COP					4.27	4.24	4.09	3.91
Maximum number of connectable indoor units					21	26	30	34
Indoor index connection	Min.				125	150	175	200
	Nom.				250	300	350	400
	Max.				325	390	455	520
Dimensions	Unit	HeightxWidthxDepth		mm	1,680x1,300x765			
Weight	Unit			kg	331		339	
Heat exchanger	Type				Cross fin coil			
Fan	Type				Propeller fan			
	Air flow rate	Cooling	Nom.	m^3/min	-			
	External static pressure	Max.		Pa	78			
Sound power level	Cooling	Nom.		dBA	78	80	83	84
Sound pressure level	Cooling	Nom.		dBA	58	60	62	63
Compressor	Type				Hermetically sealed scroll compressor			
Compressor 2	Type				Hermetically sealed scroll compressor			
Operation range	Cooling	Min.~Max.		°CDB	-5~43			
	Heating	Min.~Max.		°CWB	-20~15.5			
	Hot water production	Space heating	Min.~Max.	°CDB	-20~20 / 24 [3]	-20~20 / 24 [3]	-20~20 / 24 [3]	-20~20 / 24 [3]
		Domestic hot water	Min.~Max.	°CDB	-20~43			
Refrigerant	Type				R-410A			
	Charge			kg	10.6	10.8	11.1	
	Control				Expansion valve (electronic type)			
Refrigerant oil	Type				Daphne FVC68D			
Piping connections	Liquid	Type			Braze connection			
		OD		mm	9.52	12.7		
	Gas	Type			Braze connection			
		OD		mm	22.2	28.6		
	Discharge gas	Type			Braze connection			
		OD		mm	19.1		22.2	
	Piping length	OU - IU	Max.	m	100			
		After branch	Max.	m	40			
	Total piping length	System	Actual	m	300			
	Level difference	OU - IU	Outdoor unit in highest position/Indoor unit in highest position	m	40/40			
		IU - IU	Max.	m	15			
	Additional refrigerant charge			kg/m	See installation manual			
	High pressure side	Design pressure		bar	40			
Power supply	Phase/Frequency/Voltage			Hz/V	3~/50/380-415			
Current - 50Hz	Maximum fuse amps (MFA)			A	25		40	

(1) Cooling: indoor temp. 27°CDB, 19°CWB; outdoor temp. 35°CDB; 100% connection ratio (DX indoor units); For combination with HXHD125, cf. capacity table (2) Heating: indoor temp. 20°CDB; outdoor temp. 7°CDB, 6°CWB; 100% connection ratio (DX indoor units); For combination with HXHD125, cf. capacity table (3) In case of connection with a 20~50 type indoor unit, match to the size of the field pipe using the attached pipe. Connection between the attached pipe and the field pipe must be brazed.

Individual branch selector for VRV Heat Recovery

BSVQ-P8

Individual comfort thanks to VRV III BS Box. The BS box comes in individual and multi versions for maximum flexibility, faster installation and best value.

BSVQ100P8

- High comfort levels: individual control and change over, for one group of indoor units
- Maximum design flexibility because individual and multi boxes can be combined in one system
- Low built-in height
- No drain piping needed
- Allows multi tenant applications (option PCB required)

					BSVQ100P8	BSVQ160P8	BSVQ250P8
Power input	Cooling	Nom.		kW	0.005		
	Heating	Nom.		kW	0.005		
Maximum number of connectable indoor units					6	8	
Maximum capacity index of connectable indoor units					15 < x ≤ 100	100<x≤160	160<x≤250
Casing	Material				Galvanised steel plate		Galvanised steel
Dimensions	Unit	HeightxWidthxDepth		mm	207x388x326		
Weight	Unit			kg	12		15
Piping connections	Outdoor unit	Liquid	Type/OD	mm	Brazing connection/9.5		
		Gas	Type/OD	mm	Brazing connection/15.9	Brazing connection/15.9	Brazing connection/22.2
		Discharge gas	Type/OD	mm	Brazing connection/12.7	Brazing connection/12.7	Brazing connection/19.1
	Indoor unit	Liquid	Type/OD	mm	Brazing connection/9.5	Brazing connection/9.5	
		Gas	Type/OD	mm	Brazing connection/15.9		Brazing connection/22.2
Sound absorbing thermal insulation					Foamed polyurethane, frame resisting needle felt		
Power supply	Phase/Frequency/Voltage			Hz/V	1~/50/220-240		
Total circuit	Maximum fuse amps (MFA)			A	15		

Multi branch selector for VRV Heat Recovery

BSV4/6Q-PV

BSV4Q100PV

- Rapid installation as a result of fewer brazing points and less wiring
- High comfort levels: individual control and change over, for up to 4 or 6 groups of indoor units
- Maximum design flexibility because individual and multi boxes can be combined in one system
- Low built-in height
- No drain piping needed

					BSV4Q100PV	BSV6Q100PV
Power input	Cooling	Nom.		kW	0.020	0.030
	Heating	Nom.		kW	0.020	0.030
Maximum number of connectable indoor units					24	36
Maximum number of connectable indoor units per branch					6	
Number of branches					4	6
Maximum capacity index of connectable indoor units					400	600
Maximum capacity index of connectable indoor units per branch					100	
Casing	Material				Galvanised steel plate	
Dimensions	Unit	HeightxWidthxDepth		mm	209x1,053x635	209x1,577x635
Weight	Unit			kg	60	89
Piping connections	Outdoor unit	Liquid	Type/OD	mm	Brazing connection/12.7	Brazing connection/15.9
		Gas	Type/OD	mm	Brazing connection/28.6	
		Discharge gas	Type/OD	mm	Brazing connection/19.1	Brazing connection/28.6
	Indoor unit	Liquid	Type/OD	mm	Brazing connection/9.5	
		Gas	Type/OD	mm	Brazing connection/15.9	
Sound absorbing thermal insulation					Foamed polyurethane, frame resisting needle felt	
Power supply	Phase/Frequency/Voltage			Hz/V	1~/50/220-240	
Total circuit	Maximum fuse amps (MFA)			A	15	

Heat pump VRV IV RYYQ-T

The VRV IV Heat Pump inherits all the renowned technological features of the VRV III and adds a number of revolutionary technologies, setting the new standard in the market once again.

1 VRV configurator

Simplified commissioning and configuration via PC connection
7-segment LED indicator enables quick check of basic functions and easy error read-out

2 Gas cooled PCB

For maximum reliability

3 Full inverter compressor control

Enabling variable refrigerant temperature technology and low start-up currents

4 Heat accumulating element

Provides energy to defrost the outdoor unit while continuing to provide indoor heating

5 4 side and 3 row heat exchanger

Increases heat exchange surface for better efficiency

Variable refrigerant temperature

Customise your VRV for the optimum seasonal efficiency and comfort: Revolutionary variable refrigerant temperature control (optimised by Daikin for UK conditions for maximum efficiency and comfort) automatically adapts the system to the individual building and climate requirements.

Continuous heating during defrost via heat pump

The new standard in heating comfort: Unique continuous heating technology makes VRV IV Heat Pump the best alternative to traditional heating systems.

VRV configurator

Software for simplified commissioning, configuration and customisation

- Simplified commissioning: graphical interface to configure, commission and upload system settings
- Simplified servicing: additional 7-segment indicator for easy and quick access to basic functions and error read out

Heat pump variable refrigerant temperature VRT

> Default mode optimised by Daikin for UK conditions for maximum efficiency and comfort

> Customising VRV for optimal seasonal efficiency

Possible modes:

Automatic mode (Default setting on VRV IV)
Optimised by Daikin for UK conditions

The perfect balance : Top efficiency throughout most of the year. Quick reaction speed on the hottest days

High sensible mode

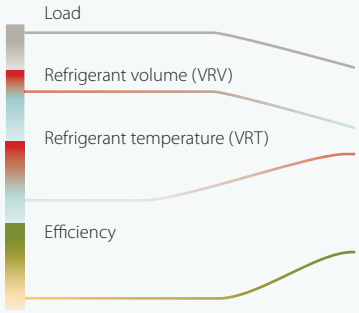
Year round top efficiency

Basic mode (current VRF standard)

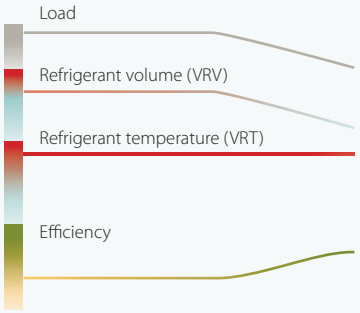
Quick reaction to peak load, to maintain set point

Effect of preset modes on efficiency and reaction speed:

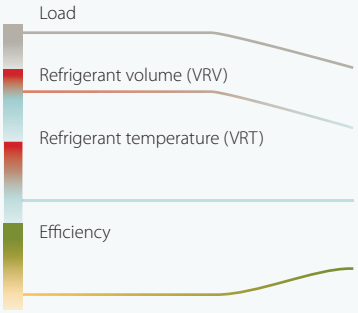
Automatic mode (Default setting on VRV IV)
Optimised by Daikin for UK conditions



High sensible mode



Basic mode (current VRF standard)



Revolutionary Variable Refrigerant Temperature (VRT) controls automatically adapt the VRV system to your individual building and climate requirements, thus drastically reducing operational running costs.

VRT enables customisation of the system using a choice of presets to optimise the energy and comfort balance.

This unique technology delivers a 28.1% increase in seasonal efficiency, because the system continually adjusts the refrigerant temperature according to the total required capacity and the external weather conditions.

How a 28% increase in seasonal efficiency is achieved

In automatic mode, the system constantly adjusts refrigerant temperature and volume according to the total required capacity and weather conditions, thus delivering major increases in seasonal efficiency.

For example, in mid season when there is little cooling needed and the room temperature is close to the setpoint, the system will adjust its refrigerant temperature to a higher temperature so less energy is needed.

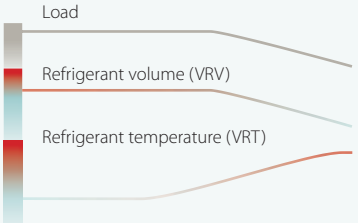
Control exactly how your system reacts in automatic mode

The submodes available allow the installer to easily fine tune the way the system reacts to changes in indoor and outdoor temperatures. The capacity can be boosted to over 100% if needed, prioritising fast reaction speed, or priority can be given to efficiency over speed of reaction.

Automatic mode
(Default setting on VRV IV)
Optimised by Daikin for UK conditions

The perfect balance : Maximum efficiency throughout most of the year. Quick reaction speed on the hottest days

Automatic mode
(Default setting on VRV IV)
Optimised by Daikin for UK conditions



The new standard in heating comfort

> Unique continuous heating technology
> The best alternative to traditional heating systems

VRV IV Heat Pump for continuous comfort, even during defrost

Because the VRV IV Heat Pump continues to provide heating even when in defrost mode, it provides the answer to any perceived disadvantages of specifying a heat pump for monovalent heating.

Heat pumps are known for their high energy efficiency in heating, but they accumulate ice during heating operation and this must be melted periodically using a defrost function that reverses the refrigeration cycle. This causes a temporary temperature drop, which can reduce comfort levels inside the building.

Defrosting can take over 10 minutes (depending on the size of the system) and occurs most frequently between -7 and +7°C when there is most humidity.

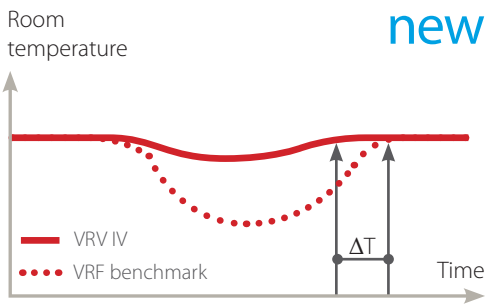
How does it work?

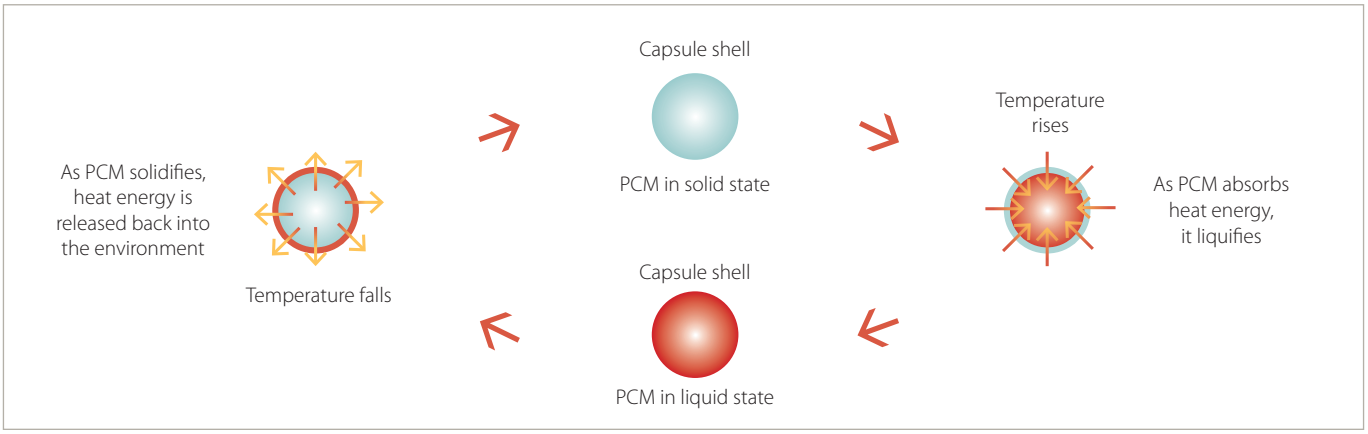
VRV IV Heat Pump features a unique heat-accumulating element, based on phase change materials, which provides energy to defrost the outdoor unit while continuing to provide heating, thus maintaining a comfortable indoor climate. The energy needed for defrosting is stored in the element during normal heating operations.

How phase change material works

A phase change material (PCM) will store or release energy when it changes phase from solid to liquid or liquid to solid.

The outdoor unit coil is defrosted …
… with the energy stored in the heat accumulating element …
… while indoors a comfortable temperature is maintained.





Continuous heating function is only available on RYYQ-T units.

VRV configurator software

> Saves time on commissioning
> Manages multiple systems in exactly the same way
> Makes it easy to retrieve initial system settings

Simplified commissioning

The VRV configurator is an advanced software solution for easy system configuration and commissioning:

› Less time is required on the roof configuring the outdoor unit
› Multiple systems at different sites can be managed in exactly the same way, thus offering simplified commissioning for key accounts
› Initial settings on the outdoor unit can be easily retrieved

Simplified servicing

Outdoor unit display makes it quick and easy on-site to adjust settings, check basic functions and read out errors. The 7-segment indicator saves time via:

› Easy-to-read error report
› Indication of standard service parameters to quickly check basic functions
› Clear menu for quick and easy servicing on-site

Wide range of indoor system combinations

VRV can be combined with a wide range of stylish indoor units, including the award winning Daikin Emura and radiant warmth Nexura units.

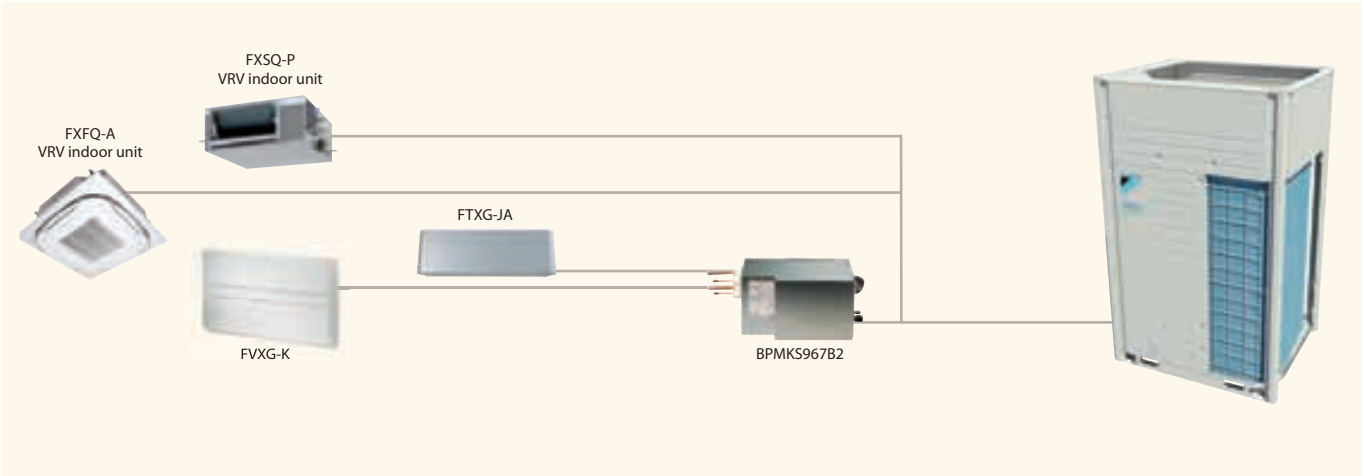
The system can also be designed to include a wide range of VAM ventilation units, Biddle air curtains and Air Handling Units up to a maximum of 64 indoor units in total. VRV can also be combined with low temperature hydroboxes, up to a maximum of 32 indoor units with up to 80% of the system being used to connect and control hydroboxes, thus providing an extremely energy efficient way to generate hot water via renewable energy.

Flexible piping design

VRV IV Heat Pump offers an extended piping length of 165m (190m equivalent piping length) with a total system piping length of 1,000m.

Better use of space

The small refrigerant pipes take up less space in shafts and ceilings leaving maximum space for commercial use of the space.



Connectable indoor units (from Split range)

	15 CLASS	20 CLASS	25 CLASS	35 CLASS	42 CLASS	50 CLASS	60 CLASS	71 CLASS
Daikin Emura – Wall mounted unit			FTXG25JW FTXG25JA	FTXG35JW FTXG35JA		FTXG50JW FTXG50JA		
Wall mounted unit	CTXS15K	FTXS20K	FTXS25K	FTXS35K CTXS35K	FTXS42K	FTXS50K	FTXS60G	FTXS71G
Nexura – Floor standing unit			FVXG25K	FVXG35K		FVXG50K		
Floor standing unit			FVXS25F	FVXS35F		FVXS50F		
Flexi type unit			FLXS25B	FLXS35B		FLXS50B	FLXS60B	

BPMKS box needed to connect Split indoors to VRV IV Heat Pump

Design considerations

- Restrictions apply when connecting hydroboxes, RA indoor units or Air Handling Units
- Whether the outdoor unit is located above or below the indoor units, the height difference between indoor and outdoor units is 90m*
- The level difference between the indoor units has been increased up to 30m
- After the first branch, the difference between the longest piping length and the shortest piping length is a maximum of 40m, as long as the longest piping length amounts to a maximum of 90m

* If not all conditions are met, the height difference can be lower.

Specifications

VRV IV Heat Pump with continuous heating: RYYQ-T*

OUTDOOR SYSTEM					RYYQ8T	RYYQ10T	RYYQ12T	RYYQ14T	RYYQ16T	RYYQ18T	RYYQ20T
Capacity range				HP	8	10	12	14	16	18	20
Cooling capacity	Nom.			kW	22.4	28.0	33.5	40.0	45.0	50.0	56.0
Heating capacity	Nom.			kW	25.0	31.5	37.5	45.0	50.0	56.0	63.0
Power input - 50Hz	Cooling	Nom.		kW	5.2	7.29	8.98	11.0	13.0	14.7	18.5
	Heating	Nom.		kW	5.5	7.38	9.10	11.2	12.8	14.4	17.0
EER					4.30	3.84	3.73	3.64	3.46	3.40	3.03
ESEER					7.53 [1]	7.20 [1]	6.96 [1]	6.83 [1]	6.50 [1]	6.38 [1]	5.67 [1]
COP					4.55	4.27	4.12	4.02	3.91	3.89	3.71
Maximum number of connectable indoor units					64 [2]						
Indoor index connection	Min.				100	125	150	175	200	225	250
	Nom.				200	250	300	350	400	450	500
	Max.				260	325	390	455	520	585	650
Dimensions	Unit	HxWxD		mm	1,685x930x765			1,685x1,240x765			
Weight	Unit			kg	261	268		364		398	
Sound power level	Cooling	Nom.		dBA	78	79	81		86		88
Sound pressure level	Cooling	Nom.		dBA	58		61		64	65	66
Operation range	Cooling	Min.~Max.		°CDB	-5~43						
	Heating	Min.~Max.		°CWB	-20~15.5						
Refrigerant	Type				R-410A						
Piping connections	Liquid	OD		mm	9.52		12.7			15.9	
	Gas	OD		mm	19.1	22.2	28.6				
	Piping length	OU - IU	Max.	m	165 [3]						
	Total piping length	System	Actual	m	1,000 [3]						
	Level difference	OU - IU		m	90 [3] Outdoor unit in highest position / 90 [3] Indoor unit in highest position						
Power supply	Phase/Frequency/Voltage			Hz/V	3N~/50/380-415						
Current - 50Hz	Maximum fuse amps (MFA)			A	20	25	32		40		50

(1) The AUTOMATIC ESEER value corresponds with normal VRV IV Heat Pump operation, taking into account advanced energy saving operation functionality (variable refrigerant temperature control operation) (2) Actual number of connectable indoor units depends on the indoor unit type (VRV indoor, Hydrobox, Split indoor, etc.) and the connection ratio restriction for the system (50% <= CR <= 130%) (3) Refer to technical specifications for more detail

OUTDOOR SYSTEM					RYYQ22T	RYYQ24T	RYYQ26T	RYYQ28T	RYYQ30T	RYYQ32T	RYYQ34T	RYYQ36T
System	Outdoor unit module 1				RYMQ10T	RYMQ8T	RYMQ12T	RYMQ12T	RYMQ12T	RYMQ16T	RYMQ16T	RYMQ16T
	Outdoor unit module 2				RYMQ12T	RYMQ16T	RYMQ14T	RYMQ16T	RYMQ18T	RYMQ16T	RYMQ18T	RYMQ20T
Capacity range				HP	22	24	26	28	30	32	34	36
Cooling capacity	Nom.			kW	61.5	67.4	73.5	78.5	83.5	90.0	95.0	101.0
Heating capacity	Nom.			kW	69.0	75.0	82.5	87.5	93.5	100.0	106.0	113.0
Power input - 50Hz	Cooling	Nom.		kW	16.3	18.2	20.0	22.0	23.7	26.0	27.7	31.5
	Heating	Nom.		kW	16.5	18.3	20.3	21.9	23.5	25.6	27.2	29.8
EER					3.77	3.70	3.68	3.57	3.52	3.46	3.43	3.21
ESEER					7.07 [1]	6.81 [1]	6.89 [1]	6.69 [1]	6.60 [1]	6.50 [1]	6.44 [1]	6.02 [1]
COP					4.18	4.10	4.06	4.00	3.98	3.91	3.90	3.79
Maximum number of connectable indoor units					64 [2]							
Piping connections	Liquid	OD		mm	15.9		19.1					
	Gas	OD		mm	28.6	34.9						41.3
	Piping length	OU - IU	Max.	m	165 [3]							
	Total piping length	System	Actual	m	1,000 [3]							
	Level difference	OU - IU		m	90 [3] Outdoor unit in highest position / 90 [3] Indoor unit in highest position							
Current - 50Hz	Maximum fuse amps (MFA)			A	63				80			

(1) The AUTOMATIC ESEER value corresponds with normal VRV IV Heat Pump operation, taking into account advanced energy saving operation functionality (variable refrigerant temperature control operation) (2) Actual number of connectable indoor units depends on the indoor unit type (VRV indoor, Hydrobox, Split indoor, etc.) and the connection ratio restriction for the system (50% <= CR <= 130%) (3) Refer to technical specifications for more detail

OUTDOOR SYSTEM					RYYQ38T	RYYQ40T	RYYQ42T	RYYQ44T	RYYQ46T	RYYQ48T	RYYQ50T	RYYQ52T	RYYQ54T
System	Outdoor unit module 1				RYMQ8T	RYMQ10T	RYMQ10T	RYMQ12T	RYMQ14T	RYMQ16T	RYMQ16T	RYMQ16T	RYMQ18T
	Outdoor unit module 2				RYMQ10T	RYMQ12T	RYMQ16T	RYMQ16T	RYMQ16T	RYMQ16T	RYMQ16T	RYMQ18T	RYMQ18T
	Outdoor unit module 3				RYMQ20T	RYMQ18T	RYMQ16T	RYMQ16T	RYMQ16T	RYMQ16T	RYMQ18T	RYMQ18T	RYMQ18T
Capacity range				HP	38	40	42	44	46	48	50	52	54
Cooling capacity	Nom.			kW	106.0	112.0	118.0	124.0	130.0	135.0	140.0	145.0	150.0
Heating capacity	Nom.			kW	120.0	125.0	132.0	138.0	145.0	150.0	156.0	162.0	168.0
Power input - 50Hz	Cooling	Nom.		kW	31.0		33.3	35.0	37.0	39.0	40.7	42.4	44.1
	Heating	Nom.		kW	29.9	30.9	33.0	34.7	36.8	38.4	40.0	41.6	43.2
EER					3.42	3.61	3.54		3.51	3.46	3.44	3.42	3.40
ESEER					6.36 [1]	6.74 [1]	6.65 [1]	6.62 [1]	6.60 [1]	6.50 [1]	6.46 [1]	6.42 [1]	6.38 [1]
COP					4.01	4.05	4.00	3.98	3.94	3.91	3.90	3.89	3.89
Maximum number of connectable indoor units					64 [2]								
Piping connections	Liquid	OD		mm	19.1								
	Gas	OD		mm	41.3								
	Piping length	OU - IU	Max.	m	165 [3]								
	Total piping length	System	Actual	m	1,000 [3]								
	Level difference	OU - IU		m	90 [3] Outdoor unit in highest position / 90 [3] Indoor unit in highest position								
Current - 50Hz	Maximum fuse amps (MFA)			A	100				125				

VRV Classic Heat Pump RXYCQ-A

The VRV Classic Heat Pump is ideal for projects with standard cooling and heating requirements and still allows you to control each zone individually, thus minimising VRV system running costs.

Indoor installation is also possible (as a result of high external static pressure of up to 78.4 Pa). This offers various benefits as it requires less piping length and therefore incurs lower installation costs.

Indoor installation can also deliver increased efficiency, while offering better visual aesthetics when there are constraints on outdoor areas.

- Connectable to all standard VRV indoor units, controls and ventilation
- Fits any building as indoor installation is also possible
- Spread your installation cost with a phased installation programme

VRV Classic

RXYCQ10-12A

OUTDOOR UNIT				*RXYCQ8A	*RXYCQ10A	*RXYCQ12A	*RXYCQ14A	*RXYCQ16A	*RXYCQ18A	*RXYCQ20A
Capacity range			HP	to be confirmed						
Cooling capacity	Nom.		kW	20.0	25.0	30.0	35.0	40.0	45.0	50.0
Heating capacity	Nom.		kW	22.4	28.0	33.6	37.5	44.8	50.4	56.0
Power input - 50Hz	Cooling	Nom.	kW	6.6	6.74	8.77	11.4	12.4	14.8	17.8
	Heating	Nom.	kW	5.8	6.83	8.43	9.16	11.4	13.2	15.6
EER				3.03	3.71	3.42	3.07	3.10	3.00	2.81
COP				3.86	4.00	3.90	3.85	3.80	3.65	3.50
Maximum number of connectable indoor units				to be confirmed						
Indoor index connection	Min.			100	125	150	175	200	225	250
	Nom.			200	250	300	350	400	450	500
	Max.			200	250	360	420	480	540	600
Dimensions	Unit	HxWxD	mm	1,680X635X765	1,680X930X765		1,680X1,240X765			
Weight	Unit		kg	to be confirmed						
Sound power level	Cooling	Nom.	dBA	to be confirmed						
Sound pressure level	Cooling	Nom.	dBA	58	59	61	61	64	65	66
Operation range	Cooling	Min.~Max	°CDB	-5~43						
	Heating	Min.~Max	°CWB	-20~15.5						
Refrigerant	Type			Refrigerant Type R-410A						
Piping connections	Liquid	OD	mm	9.52			12.7			15.9
	Gas	OD	mm	12.7	19.1	22.2	28.6			
	Piping length	max	m	135						
	Total piping length	system	m	300						
	Level difference	OU-IU	m	30 (Outdoor unit in highest position)						
Power supply	Phase/Frequency/Voltage		Hz/V	3~/50/380-415						

*Note: grey cells contain preliminary data

Mini Heat Pump VRV III-S RXYSQ-P8V1/Y1

Daikin's VRV III-S Heat Pump has an optimised design for small capacities. Its space saving design is slim and compact, requiring much less installation space than standard heat pumps.

With high COP values, a major feature of VRV III-S is its exceptional energy efficiency. The system achieves high COPs during both cooling and heating operation, thanks to the use of refined components and functions.

Advanced technologies

1 Super aero grille

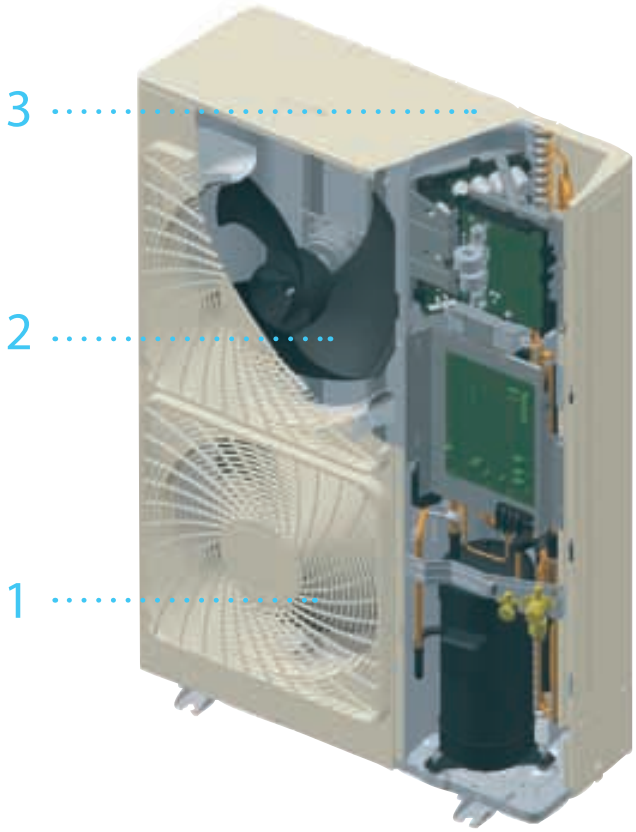
The spiral shaped ribs are aligned with the direction of discharge flow in order to minimise turbulence and reduce noise.

2 Smooth air inlet bell mouth and aero spiral fan

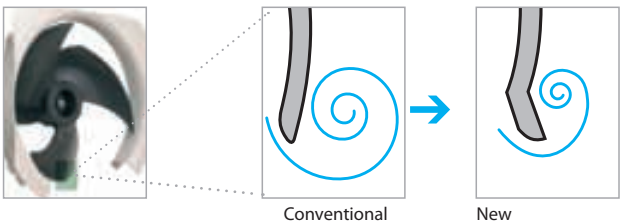
These features assist in significantly reducing noise. Guides are added to the bell mouth intake to reduce turbulence in the air flow generated by fan suction. The aero spiral fan features fan blades with bent blade edges, further reducing turbulence.

3 e-Bridge circuit

Prevents accumulation of liquid refrigerant in the condenser. This results in more efficient use of the condenser surface under all conditions and leads in turn to better energy efficiency. Increased evaporative capacity stems from the newly developed refrigeration circuit, the SCe-bridge circuit, which adds super cooling prior to the expansion cycle. By adopting this circuit, the COPs in both cooling and heating have been drastically improved.



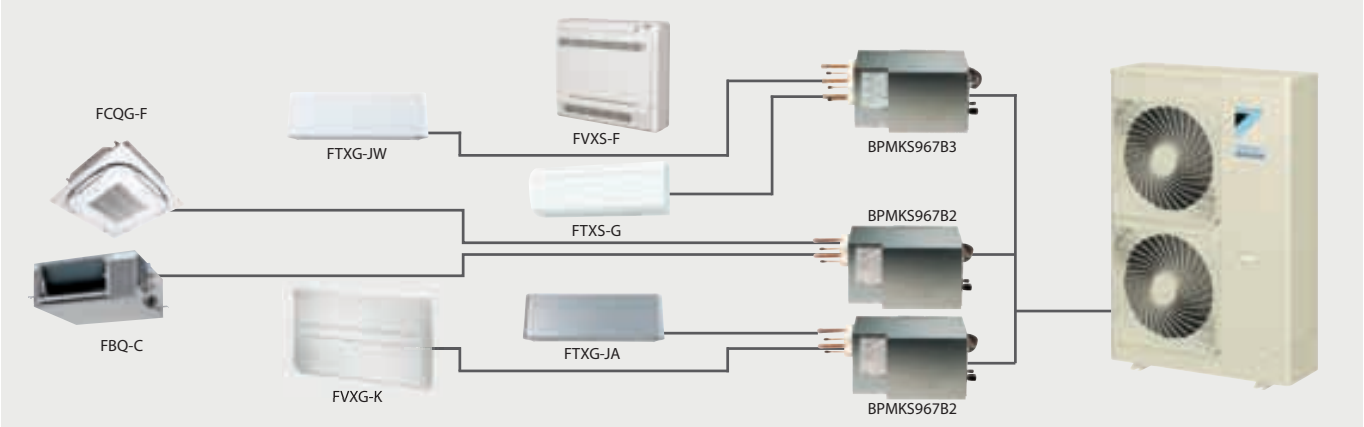
Aero spiral fan blade tips

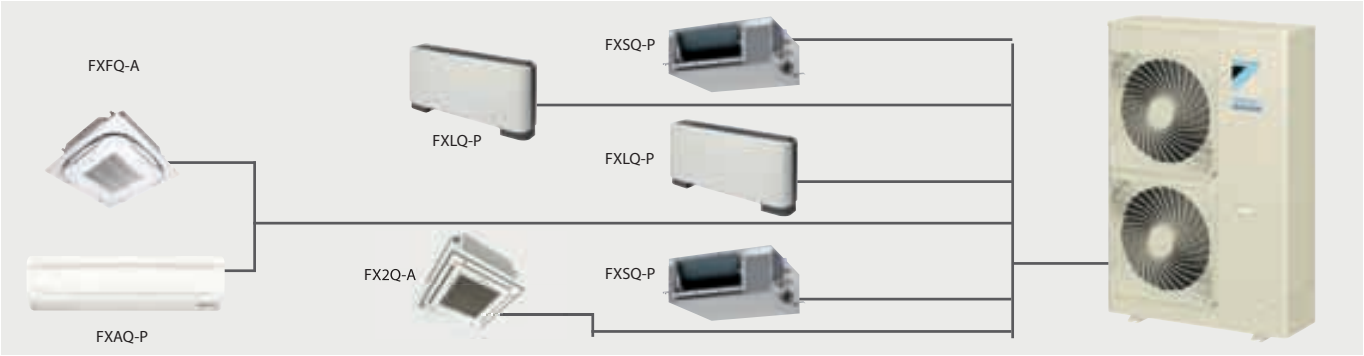


Escaping edges are sucked in by the bent blade edges, reducing overall turbulence.

Wide range of indoor units

Either connect VRV indoor units or stylish indoor units such as Daikin Emura and Nexura...





* VRV indoor units and stylish indoor units cannot be combined.

CONNECTABLE INDOOR UNITS

	Type	Model	Product name		Capacity 15	20	25	35	42	50	60	71
	CEILING MOUNTED CASSETTE	Round flow cassette (incl. autoclean function[2])	FCQG-F					■		■	■	
new	CEILING MOUNTED CASSETTE	Fully flat cassette	FFQ-C				■	■		■	■	
	CONCEALED CEILING	Small concealed ceiling unit	FDBQ-B				■					
	CONCEALED CEILING	Slim concealed ceiling unit	FDXS-F				■	■		■	■	
	CONCEALED CEILING	Concealed ceiling unit with inverter driven fan	FBQ-C					■		■	■	
	WALL MOUNTED	Daikin Emura Wall mounted unit	FTXG-JA/JW				■	■		■		
new	WALL MOUNTED	Wall mounted unit	CTXS-K FTXS-K		■	■	■	■	■	■		
	WALL MOUNTED	Wall mounted unit	FTXS-G								■	■
new	CEILING SUSPENDED	Ceiling suspended unit	FHQ-C					■		■	■	
	FLOOR STANDING	Nexura floor standing unit	FVXG-K				■	■		■		
	FLOOR STANDING	Floor standing unit	FVXS-F				■	■		■		
	FLOOR STANDING	Flexi type unit	FLXS-B				■	■		■	■	

1 Decoration panel BYCQ140CG + BRC1E51A needed

Specifications

VRV III-S Heat Pump - single phase (P8V1), three phase (P8Y1)

OUTDOOR UNIT					RXYSQ4P8V1	RXYSQ5P8V1	RXYSQ6P8V1	RXYSQ4P8Y1	RXYSQ5P8Y1	RXYSQ6P8Y1
Capacity range				HP	4	5	6	4	5	6
Cooling capacity	Nom.			kW	12.6 (1)	14.0 (1)	15.5 (1)	12.6 (1)	14.0 (1)	15.5 (1)
Heating capacity	Nom.			kW	14.2 (2)	16.0 (2)	18.0 (2)	14.2 (2)	16.0 (2)	18.0 (2)
Power input - 50Hz	Cooling	Nom.		kW	3.24	3.51	4.53	3.33	3.61	4.66
	Heating	Nom.		kW	3.12	3.86	4.57	3.21	3.97	4.70
EER					3.89	3.99	3.42	3.78	3.88	3.33
COP					4.55	4.15	3.94	4.42	4.03	3.83
Maximum number of connectable indoor units					8 (6) / 8 (7)	10 (6) / 9 (7)	12 (6) / 9 (7)	8 (6) / 8 (7)	10 (6) / 9 (7)	12 (6) / 9 (7)
Indoor index connection	Min.				50	62.5	70	50	62.5	70
	Nom.				100	125	140	100	125	140
	Max.				130	162.5	182	130	162.5	182
Dimensions	Unit	HeightxWidthxDepth		mm	1,345x900x320					
Weight	Unit			kg	120					
Fan	Type				Propeller fan					
	Air flow rate	Cooling	Nom.	m^3/min	106					
		Heating	Nom.	m^3/min	102	105		102	105	
Sound power level	Cooling	Nom.		dBA	66	67	69	66	67	69
Sound pressure level	Cooling	Nom.		dBA	50	51	53	50	51	53
	Heating	Nom.		dBA	52	53	55	52	53	55
Compressor	Type				Hermetically sealed scroll compressor					
Operation range	Cooling	Min.~Max.		°CDB	-5~46					
	Heating	Min.~Max.		°CWB	-20~15.5					
Refrigerant	Type				R-410A					
	Charge			kg	4.0					
	Control				Expansion valve					
	Circuits	Quantity			1					
Refrigerant oil	Type				Daphne FVC68D					
	Charged volume			l	1.5					
Piping connections	Liquid	Type			Flare connection					
		OD		mm	9.52					
	Gas	Type			Flare connection (VRV) / Braze connection (RA)		Braze connection	Flare connection (VRV) / Braze connection (RA)		Braze connection
		OD		mm	15.9 (6) / 19.1 (7)	15.9 (6) / 19.1 (7)	19.1	15.9 (6) / 19.1 (7)	15.9 (6) / 19.1 (7)	19.1
	Drain	OD		mm	26x3					
	Piping length	OU - BP	Total	m	55 (7)					
		BP - IU	Max./Total	m	15 (7)/60 (7)	15 (7)/80 (7)	15 (7)/90 (7)	15 (7)/60 (7)	15 (7)/80 (7)	15 (7)/90 (7)
	Total piping length	System	Actual	m	300 (6) / 115 (7)	300 (6) / 135 (7)	300 (6) / 145 (7)	300 (6) / 115 (7)	300 (6) / 135 (7)	300 (6) / 145 (7)
Power supply	Phase/Frequency/Voltage			Hz/V	1N~/50/220-240			3N~/50/380-415		
Current - 50Hz	Maximum fuse amps (MFA)			A	32.0			16.0		

(1) Cooling: indoor temp. 27°CDB, 19.0°CWB; outdoor temp. 35°CDB; equivalent piping length: 5m; level difference: 0m (2) Heating: indoor temp. 20°CDB; outdoor temp. 7°CDB, 6°CWB; equivalent refrigerant piping: 5m; level difference: 0m (3) In case VRV® indoor units are connected (4) In case RA indoors are connected (5) MFA is used to select the circuit breaker and the ground fault circuit interrupter (earth leakage circuit breaker). (6) EN/IEC 61000-3-12: European/international technical standard setting the limits for harmonic currents produced by equipment connected to public low-voltage system with input current > 16A and ≤ 75A per phase

Water cooled VRV RWEYQ-P

Water cooled VRV uses water as its heat source. Because the system is water cooled, the outdoor air temperature does not affect its heating capacity. In addition, water cooling means no defrost operation is required, and the resultant rapid start-up time assures quick and comfortable heating, even in cold environments.

Ideal for large buildings

Water cooled VRV is optimal for large buildings, including tall, multi-storey buildings, because the system can tolerate water pressure of up to 1.96 MPa.

Flexible refrigerant circuits

Considerable flexibility is available within the refrigerant circuit. Up to 120m actual piping length and 50m* height difference (if the VRV-W outdoor unit is above the indoor units) can exist between the VRV-W outdoor units and indoor units. What's more, water piping does not intrude on occupied spaces, so there are no leakage problems.

* 40m if the VRV-W outdoor unit is below the indoor units.

Space saving configuration

Water cooled VRV has the industry's most compact and lightweight design, thanks to a new water heat exchanger and optimisation of the refrigerant control circuit. The unit weight of 149kg* and height of 1m means that installation is easy and stacked configuration is also possible, contributing to further space savings.

* for 8HP unit

High sensible mode

The high sensible mode on the VRV outdoor units optimises the performance of the units for the European climate, offering the following benefits:

- Higher energy efficiency: as no energy is wasted on unnecessary dehumidification, the system works more efficiently in cooling mode
- Improved end-user comfort: thanks to the higher evaporation temperature, the discharge temperature of the indoor units will also be increased in cooling mode, providing improved comfort levels

Wide operation range

Standard water cooled outdoor units have a wide operation range of between 10°C and 45°C inlet water temperature, both in heating and cooling. For the geothermal series, the operation range is extended even more, down to -10°C* in heating and 6°C in cooling mode.

* Ethylene glycol should be added to the water when the water inlet temperature is below 5°C

Water cooled VRV Heat Recovery

VRV-W benefits from a 2-stage heat recovery facility, which enables simultaneous heating and cooling within the refrigerant system.

First stage heat recovery

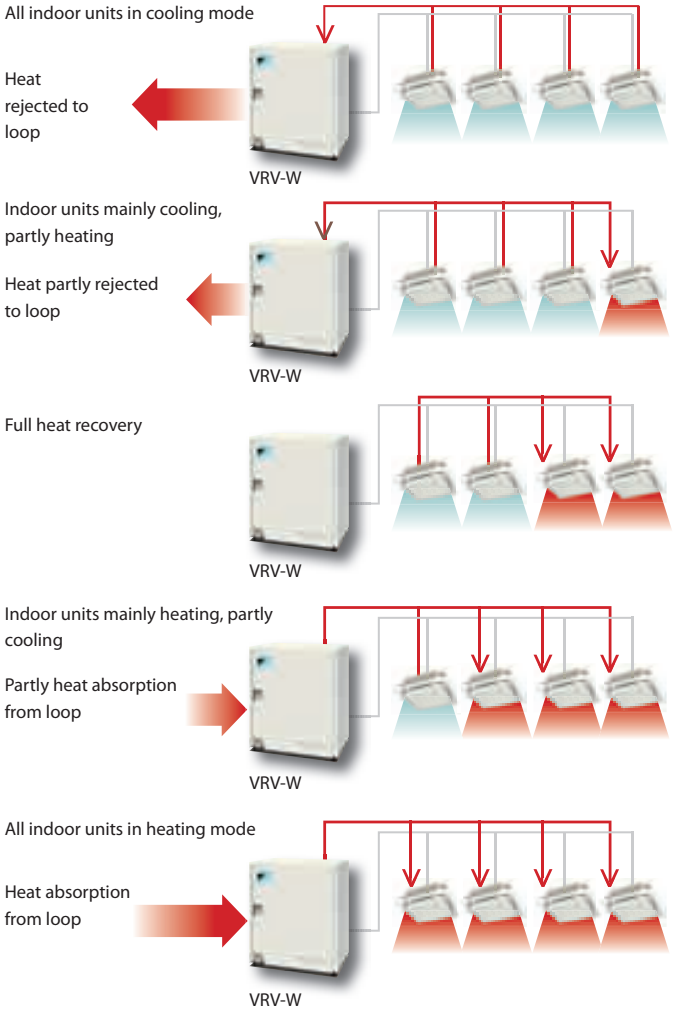
The first stage only applies to heat recovery units transferring heat from cooling indoor units to areas requiring heating. This maximises energy efficiency and reduces electricity costs.

Second stage heat recovery

Heat recovery is also available on heat pump units, in which the second stage is achieved within the water loop between the water cooled outdoor units. In addition, heat recovery occurs between the water-cooled outdoor units connected to the same loop and these systems exchange heat via the water.

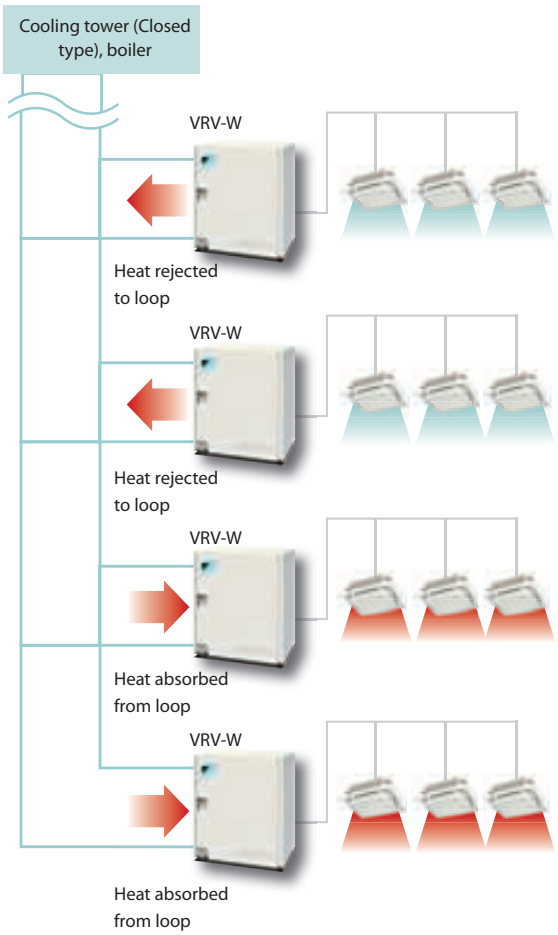
This two-stage heat recovery substantially improves energy efficiency. It is therefore the perfect solution for modern office buildings where some areas may require cooling, even in winter, depending on the amount of sunshine and number of individuals in the building.

Heat recovery between indoor units



Heat recovery between outdoor units

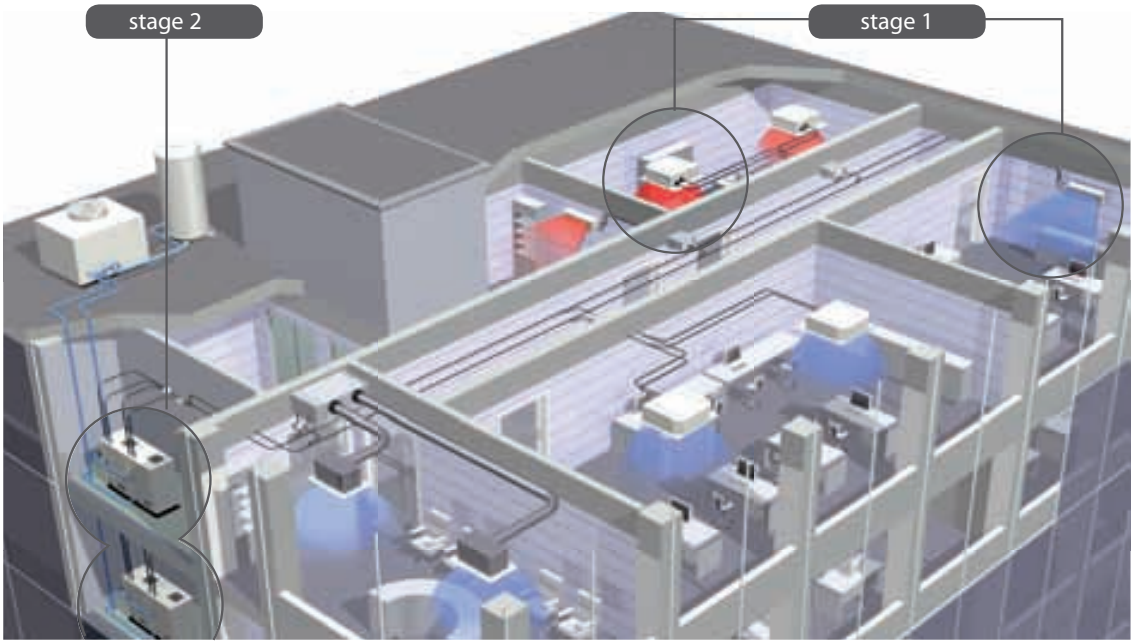
(Heat recovery and heat pump)



* Above system configurations are for illustration purposes only.

Specifications

VRV-W Standard series - Heat Recovery - Heat Pump



OUTDOOR UNIT					RWEYQ8P	RWEYQ10P	RWEYQ16P	RWEYQ18P	RWEYQ20P	RWEYQ24P	RWEYQ26P	RWEYQ28P	RWEYQ30P
System	Outdoor unit module 1				RWEYQ8P	RWEYQ10P	RWEYQ8P	RWEYQ10P		RWEYQ8P	RWEYQ10P		
	Outdoor unit module 2				-	-	RWEYQ8P		RWEYQ10P	RWEYQ8P		RWEYQ10P	
	Outdoor unit module 3				-	-	-			RWEYQ8P			RWEYQ10P
Capacity range				HP	8	10	16	18	20	24	26	28	30
Cooling capacity	Nom.			kW	22.4 [1]	26.7 [1]	44.8 [1]	49.1 [1]	53.4 [1]	67.2 [1]	71.5 [1]	75.8 [1]	80.1 [1]
Heating capacity	Nom.			kW	25.0 [2]	31.5 [2]	50.0 [2]	56.5 [2]	63.0 [2]	75.0 [2]	81.5 [2]	88.0 [2]	94.5 [2]
Power input - 50Hz	Cooling	Nom.		kW	4.55	6.03	9.10	10.6	12.1	13.7	15.1	16.6	18.1
	Heating	Nom.		kW	4.24	6.05	8.48	10.3	12.1	12.7	14.5	16.3	18.2
EER					4.89	4.14	4.92	4.63	4.41	4.91	4.74	4.57	4.43
COP					5.81	5.08	5.87	5.48	5.21	5.91	5.62	5.40	5.19
Maximum number of connectable indoor units					17	21	34	36					
Indoor index connection	Min.				100	125	200	225	250	300	325	350	375
	Nom.				200	250	400	450	500	600	650	700	750
	Max.				260	325	520	585	650	780	845	910	975
Dimensions	Unit	HeightxWidthxDepth		mm	1,000x780x550		-						
Weight	Unit			kg	149	150	-						
Heat exchanger	Type				Stainless steel plate		-						
Sound pressure level	Cooling	Nom.		dBA	50	51	53	54		55			56
Compressor	Type				Hermetically sealed scroll compressor		-						
Operation range	Inlet water temperature	Cooling	Min.~Max.	°CDB	10~45		-						
		Heating	Min.~Max.	°CWB	10~45		-						
Refrigerant	Type				R-410A		-						
	Charge			kg	3.5	4.2	-						
	Control				Electronic expansion valve		-						
Refrigerant oil	Type				Synthetic (ether) oil		-						
Piping connections	Liquid	Type			Flare connection								
		OD		mm	9.52		12.7	15.9		19.1			
	Gas	Type			Braze connection								
		OD		mm	19.1 [3]	22.2 [3]	28.6 [3]			34.9 [3]			
	Discharge gas	Type			Braze connection								
		OD		mm	15.9 [4] / 19.1 [5]	19.1 [4] / 22.2 [5]	22.2 [4] / 28.6 [5]			28.6 [4] / 34.9 [5]			
	Piping length	OU - IU	Max.	m	120								
		After branch	Max.	m	90 [15]								
	Total piping length	System	Actual	m	300								
	Level difference	OU - IU	Outdoor unit in highest position/Indoor unit in highest position	m	50/40								
		IU - IU	Max.	m	15								
Power supply	Phase/Frequency/Voltage			Hz/V	3~/50/380-415		-						
Current - 50Hz	Maximum fuse amps (MFA)			A	25		35			45			

(1) Cooling: indoor temp. 27°CDB, 19°CWB; Inlet water temperature: 30°C; equivalent refrigerant piping: 7.5m; level difference: 0m. (2) Heating: indoor temp. 20°CDB; inlet water temperature: 20°C; equivalent piping length: 7.5m; level difference: 0m (3) In case of heat pump system, gas pipe is not used (4) In case of heat recovery system (5) In case of heat pump system (6) This unit should not be installed outdoors, but indoors e.g. in a machine room. (7) Hold ambient temperature at 0-40°C and humidity at 80%RH or less. Heat rejection from the casing: 0.64kW/8HP (8) Select wire size based on the larger value of MCA or TOCA (9) Hold ambient temperature at 0-40°C and humidity at 80%RH or less. Heat rejection from the casing: 0.71kW/10HP

Geothermal series
RWEYQ-PR

Geothermal VRV uses ground water as a renewable energy source to deliver superior efficiency. The temperature of ground water, lakes and rivers remains relatively constant all year round. This means Daikin's water-cooled system maintains superior efficiency - even in the most extreme outdoor temperatures when the efficiency of air-cooled systems goes down.

VRV-W - Geothermal series - Heat Pump - Heat Recovery

OUTDOOR UNIT					RWEYQ8PR	RWEYQ10PR
Capacity range				HP	8	10
Cooling capacity	Nom.			kW	22.4 [1]	26.1 [1]
Heating capacity	Nom.			kW	25.0 [2]	31.5 [2]
Power input - 50Hz	Cooling	Nom.		kW	4.58	6.30
	Heating	Nom.		kW	4.30	6.20
EER					4.89	4.14
COP					5.81	5.08
Maximum number of connectable indoor units					17	21
Indoor index connection	Min.				100	125
	Nom.				200	250
	Max.				200	250
Dimensions	Unit	HeightxWidthxDepth		mm	1,000x780x550	
Weight	Unit			kg	149	150
Heat exchanger	Type				Stainless steel plate	
Sound pressure level	Cooling	Nom.		dBA	50	51
Compressor	Type				Hermetically sealed scroll compressor	
Operation range	Inlet water temperature	Cooling	Min.~Max.	°CDB	6~45	
		Heating	Min.~Max.	°CWB	-10~45	
Refrigerant	Type				R-410A	
	Charge			kg	3.5	4.2
	Control				Electronic expansion valve	
Refrigerant oil	Type				Synthetic (ether) oil	
Piping connections	Liquid	Type			Flare connection	
		OD		mm	9.52	
	Gas	Type			Braze connection	
		OD		mm	19.1 [3]	22.2 [3]
	Discharge gas	Type			Braze connection	
		OD		mm	15.9 [4] / 19.1 [5]	19.1 [4] / 22.2 [5]
	Piping length	OU - IU	Max.	m	120	
		After branch	Max.	m	90 (15)	
	Total piping length	System	Actual	m	300	
	Level difference	OU - IU	Outdoor unit in highest position/ Indoor unit in highest position	m	50/40	
		IU - IU	Max.	m	15	
Power supply	Phase/Frequency/Voltage			Hz/V	3~/50/380-415	
Current - 50Hz	Maximum fuse amps (MFA)			A	25	

(1) Cooling: indoor temp. 27°CDB, 19°CWB; Inlet water temperature: 30°C; equivalent refrigerant piping: 7.5m; level difference: 0m. (2) Heating: indoor temp. 20°CDB; inlet water temperature: 20°C; equivalent piping length: 7.5m; level difference: 0m (3) In case of heat pump system, gas pipe is not used (4) In case of heat recovery system (5) In case of heat pump system (6) This unit should not be installed outdoors, but indoors e.g. in a machine room. (7) Hold ambient temperature at 0-40°C and humidity at 80%RH or less. Heat rejection from the casing: 0.64kW/8HP (8) Select wire size based on the larger value of MCA or TOCA

Controls

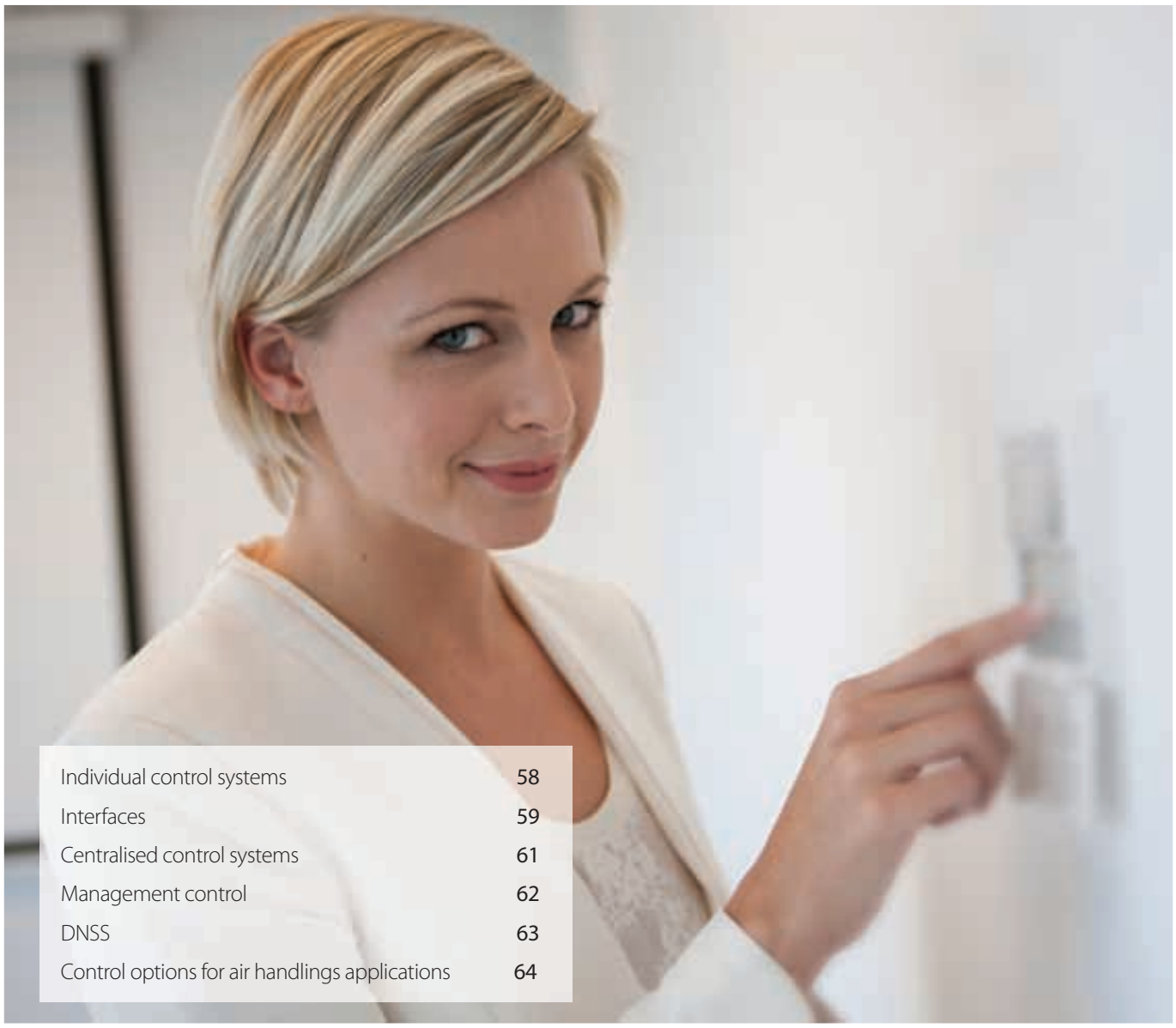
Any air conditioning system will only operate as efficiently as its control system allows. The importance of precise, user-friendly equipment is as relevant to simple residential room temperature controls as it is to full remote monitoring and regulation of large scale commercial buildings.

To keep pace with the technical advances of modern air conditioning and meet the urgent need to achieve higher energy efficiencies and manage fuel costs, Daikin invests heavily in the research and production of similarly advanced and comprehensive methods of control.

In buildings with multiple air conditioning units that operate for long hours, system efficiency is of paramount importance in reducing energy consumption.

Maximising efficiency demands maximum control of all aspects of system operation including round the clock monitoring, preventative maintenance and fault predictive analysis, plus rapid response in the event of malfunctions.

Daikin manufactures and markets many state-of-the-art computerised control systems that offer building owners, landlords and tenants comprehensive system cover, backed up by vital data on operational performance and running costs.



Individual control systems

A series of energy saving functions can be individually selected:

- Temperature range limit
- Setback function
- Presence & floor sensor connection (available on new round flow cassette)
- kWh indication
- Set temperature auto reset
- Off timer

Temperature range limit avoids excessive heating or cooling

Save energy by restricting the lower temperature limit in cooling and upper temperature limit in heating mode.
Note : Also available in auto cooling/heating change over mode.

kWh indication keeps track of your consumption

The kWh indication shows an indicative electricity consumption over the last day/month/year.

Other functions

- Up to 3 independent schedules can be set, so the user can easily change the schedule throughout the year (e.g. Summer, winter, mid-season)
- Ability to restrict individual menu functions
- Easy to use: all main functions directly accessible
- Easy setup: clear graphical user interface for advanced menu settings
- Real time clock with auto update to daylight saving time
- Supports multiple languages (English, German, Dutch, Spanish, Italian, Portuguese, French, Greek, Russian, Turkish, Polish)
- Built-in backup power: when a power failure occurs all settings remain stored up to 48 hours

BRC1E52B

BRC4*/BRC7*

BRC2C51

BRC1E52B

Wired remote control

- Easy to use: all main functions directly accessible
- Energy saving functions: set temperature auto reset, set temperature range limit
- Easy setup: improved graphical user interface for advanced menu settings
- Real time clock with auto update to daylight saving time
- Schedule timer with holiday setting, improved weekly timer and home leave operation
- Supports multiple languages (English, German, Dutch, Spanish, Italian, Portuguese, French, Greek, Russian, Turkish)
- Automatically displays installer contact in event of a malfunction

BRC4*/BRC7*

Infrared remote control

- Operation buttons: ON/OFF, timer mode start /stop, timer mode on/off, programme time, temperature setting, air flow direction (1), operating mode, fan speed control, filter sign reset (2), inspection (2)/test indication (2)
- Display: operating mode, battery change, set temperature, air flow direction (1), programmed time, fan speed, inspection/test operation (2)

1. Not applicable for FXDQ, FXSQ, FXNQ, FBDQ, FDXS, FBQ
2. For FX** units only
3. For all features of the remote control, refer to the operation manual

BRC2C51

Simplified remote control

- Simple, compact and easy to operate unit, suitable for use in hotel bedrooms
- Operation buttons: ON/OFF, operating mode selection, fan speed control, temperature setting
- Display: Cool/heat changeover control, Heat Recovery Ventilation (HRV) in operation, set temperature, operating mode, centralised control indication, fan speed, defrost/hot start, malfunction adjustment, operating mode selection, fan speed control, filter sign reset, inspection test/operation

Interfaces

The following interfaces enable the integration of RA, Sky Air, VRV, Daikin Altherma Flex and Air Handling Units in building management systems (BMS) or home automation systems.

RTD-RA

- Modbus interface for monitoring and control of residential indoor units

RTD-NET

- Modbus interface for monitoring and control of Sky Air, VRV, VAM and VKM
- Duty/standby function for server rooms

RTD-10

Advanced integration into BMS of Sky Air, VRV, VAM and VKM through either:

- Modbus
- Voltage (0-10V)
- Resistance

RTD-20

- Advanced integration of Sky Air, VRV, VAM/VKM and air curtains
- Clone or independent zone control
- CO_2 sensor for VAM fresh air control
- Save on running costs via
  - pre/post and trade mode
  - set point limitation
  - overall shut down
  - PIR sensor for adaptive deadband

RTD-HO

- Modbus interface for monitoring and control of Sky Air, VRV, VAM and VKM
- Intelligent hotel room controller

RTD-W

- Modbus interface for monitoring and control of Daikin Altherma Flex Type, VRV HT hydrobox and chillers

BACnet Interface

Integrated control system for seamless connection between VRV, Applied Systems and BMS systems

- Interface for BMS system
- Communication via BACnet protocol (connection via Ethernet)
- Unlimited sitesize
- Easy and fast installation
- PPD data is available on BMS system (only for VRV)

LonWorks Interface

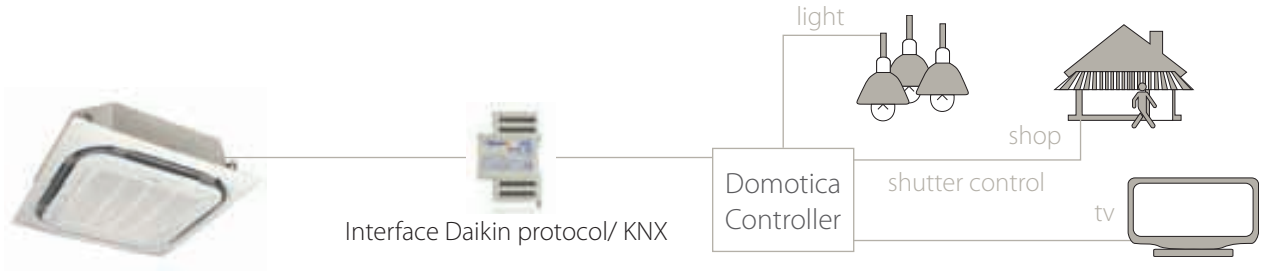
Open network integration of VRV monitoring and control functions into LonWorks networks

- Interface for Lon connection to LonWorks networks
- Communication via Lon protocol (twisted pair wire)
- Unlimited site size
- Quick and easy installation

Integration of Split, Sky Air and VRV in HA/BMS systems

Connect Sky Air / VRV indoor units to KNX interface for BMS integration

Concept



KNX INTERFACE LINE-UP

One particularly important feature is the ability to programme a 'scenario', in which the end-user selects a range of commands to be executed simultaneously once the scenario is selected. For instance, a 'Finish Work' scenario might include switching off the air conditioning and lights, closing the shutters and switching on the alarm.

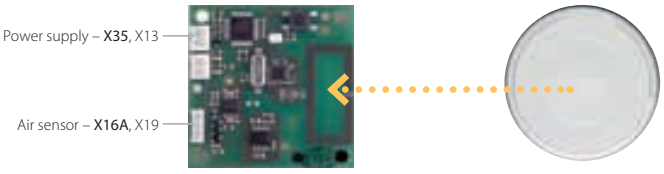
KNX INTERFACE FOR

	 KLIC-DD Size 90x60x35mm	 KLIC-DI Size 45x45x15mm	
	Split	Sky Air	VRV
BASIC CONTROL			
ON/OFF	✓	✓	✓
Mode	Auto, heat, dry, fan, cool	Auto, heat, dry, fan, cool	Auto, heat, dry, fan, cool
Temperature	✓	✓	✓
Fan speed levels	3 or 5 + auto	2 or 3	2 or 3
Swing	Stop or movement	Stop or movement	Swing or fixed positions (5)
ADVANCED FUNCTIONALITIES			
Error management	Communication errors, Daikin unit errors		
Scenes	✓	✓	✓
Auto switch off	✓	✓	✓
Temperature limitation	✓	✓	✓
Initial configuration	✓	✓	✓
Master and slave configuration		✓	✓

Wireless room temperature sensor - K.RSS

- Flexible and easy installation
- Accurate temperature measurement thanks to flexible placement of the sensor
- No need for wiring
- No need to drill holes
- Ideal for refurbishment

CONNECTION DIAGRAM Daikin indoor unit PCB **(FXSQ-P example)**



SPECIFICATIONS

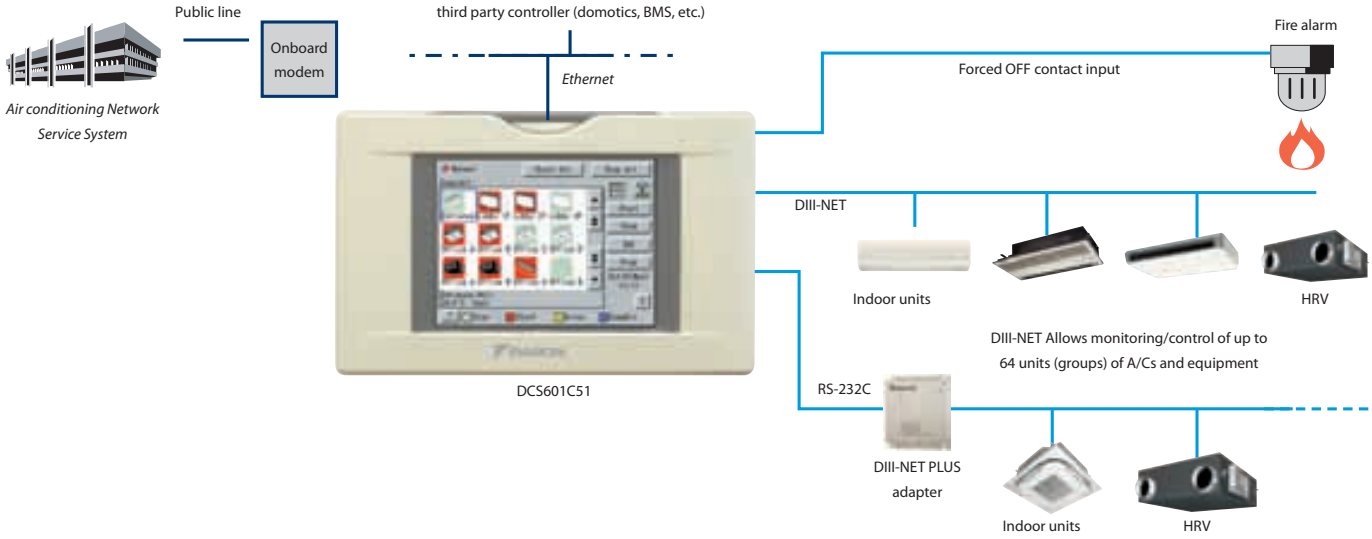
			WIRELESS ROOM TEMPERATURE SENSOR KIT (K.RSS)	
			WIRELESS ROOM TEMPERATURE RECEIVER	WIRELESS ROOM TEMPERATURE SENSOR
Dimensions		mm	50 x 50	ø 75
Weight		g	40	60
Power supply			16VDC, max. 20 mA	N/A
Battery life			N/A	+/- 3 years
Battery type			N/A	3 Volt Lithium battery
Maximum range		m	10	
Operation range		°C	0~50	
Communication	Type		RF	
	Frequency	MHz	868.3	

› Room temperature is sent to the indoor unit every 90 seconds or if the temperature difference is 0.2°C or larger.
› For latest information, please visit bit.ly/K.RSS

Centralised control systems

intelligent touch Controller

Detailed and easy monitoring and operation of VRV systems
(max. 2 X 64 groups/indoor units)



System layout
- Up to 2 x 64 indoor units can be controlled
- Touch panel (full colour LCD via icon display)

Management
- Easy management of electricity consumption
- Enhanced history function

Control
- Individual control (set point, start/stop, fan speed) (max. 2 x 64 groups/indoor units)
- Set back schedule
- Enhanced scheduling function (8 schedules, 17 patterns)
- Flexible grouping in zones
- Yearly schedule
- Fire emergency stop control
- Interlocking control
- Increased HRV monitoring and control function
- Automatic cooling/heating change-over
- Heating optimisation
- Temperature limit
- Password security: 3 levels (general, administration and service)
- Quick selection and full control
- Simple navigation

Monitoring
- Visualisation via Graphical User Interface (GUI)
- Icon colour display change function
- Indoor units operation mode
- Indication filter replacement

Cost performance
- Free cooling function
- Labour saving
- Easy installation
- Compact design: limited installation space
- Overall energy saving

Open interface
- Communication to any third party controller (domotics, BMS, etc.) is possible via open interface (http option)

Connectable to
- VRV
- HRV
- Sky Air (via interface adapter)
- Split (via interface adapter)

Management control

intelligent Manager

User friendliness

- Intuitive user interface
- Visual layout view and direct access to indoor unit main functions
- All functions directly accessible via touch screen or web interface

Smart energy management

Smart energy management tools monitor if energy use is according to plan and help detect origins of energy waste, thus maximising efficiency.

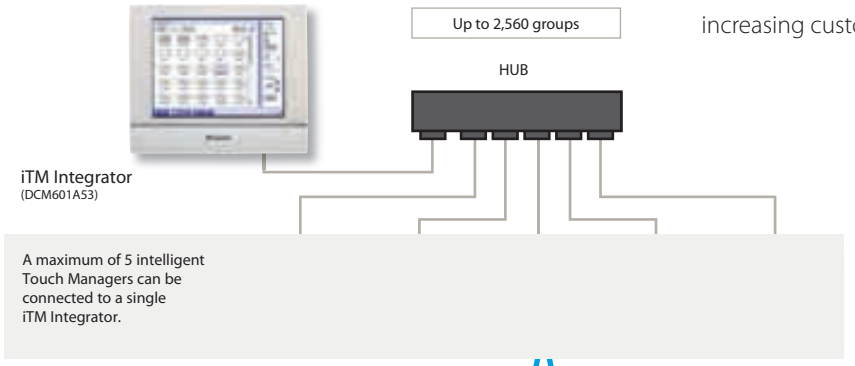
Flexibility

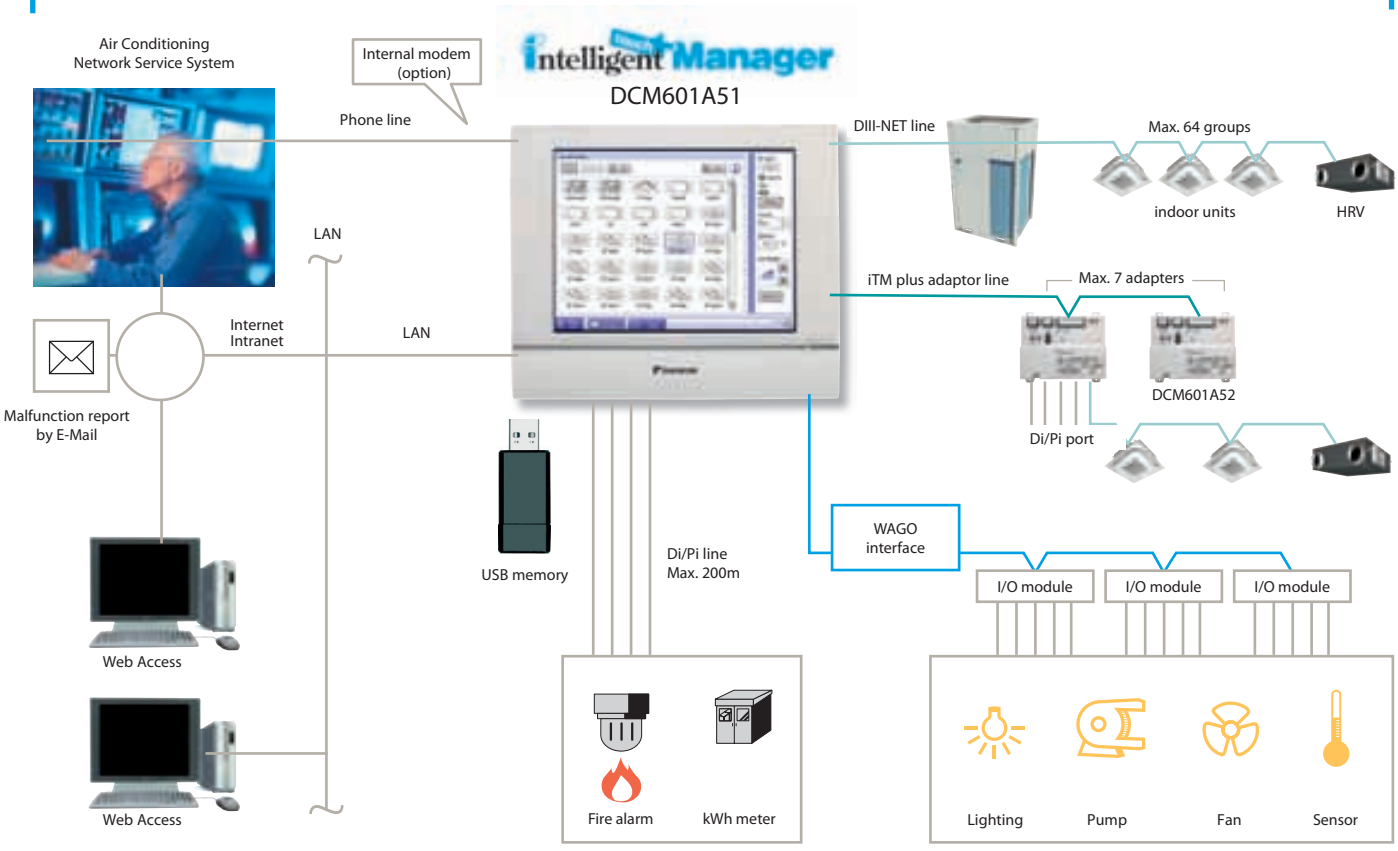
Modular design for use in small to large applications - from simple A/C controls to small BMS control of lighting pumps.

Easy servicing and commissioning

Perform the refrigerant containment check remotely when it is most convenient, thus avoiding need for on-site visit while increasing customer satisfaction.

System overview





Daikin network service system (DNSS)

The challenge for technical managers is to safeguard the long term optimal operation of an air conditioning system, without incurring huge costs along the way.

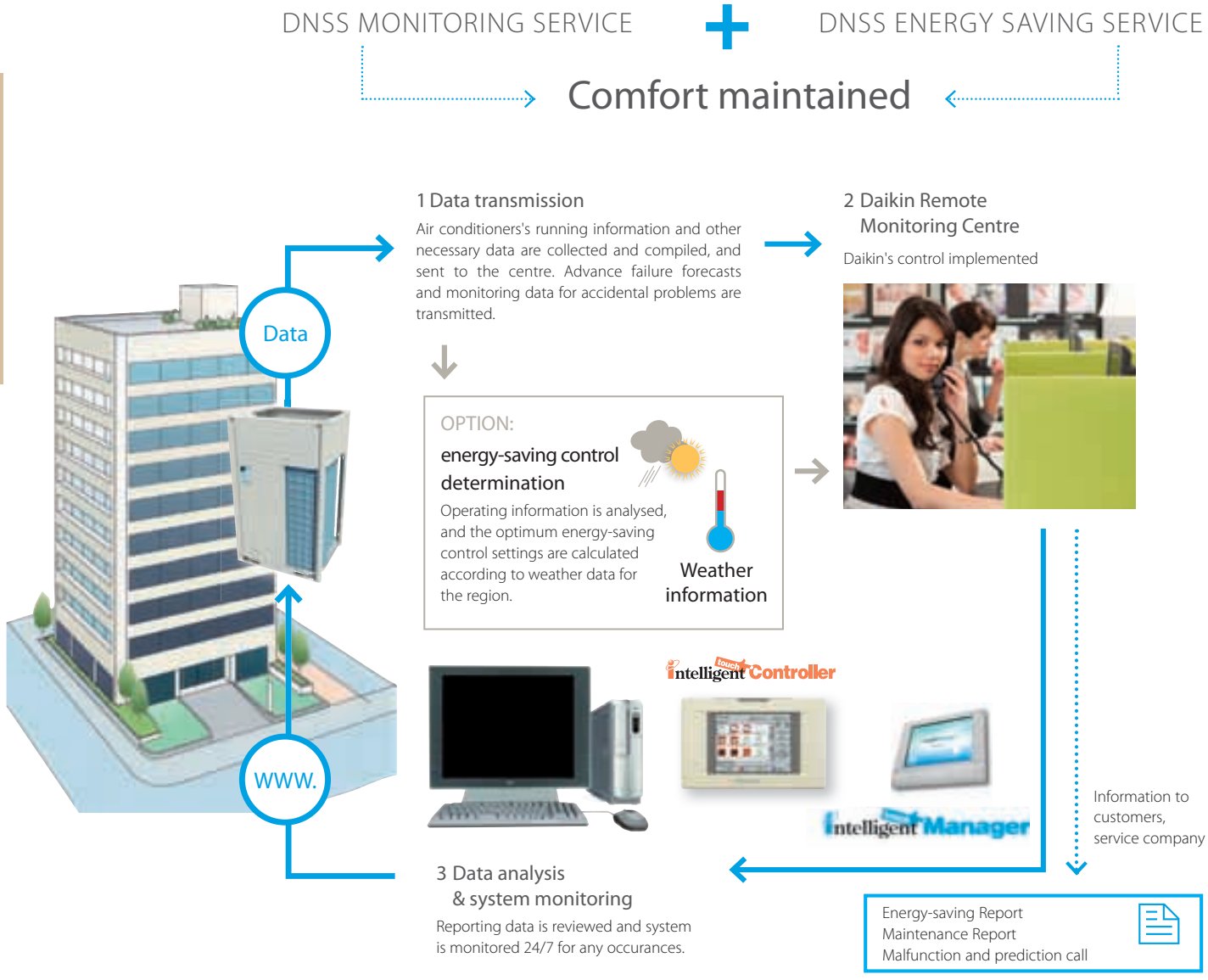
The Daikin Network Service System (DNSS) operates via an internet connection between the air conditioning system and Daikin's Remote Monitoring Centre.

Expert service engineers monitor the operating status of the entire system non-stop all through the year.

The DNSS monitoring service prevents troubles and prolongs the life of your equipment, by enabling you to predict faults and make technical decisions based on accurate data analysis.

This innovative solution helps you to minimise equipment down time and control cost without sacrificing comfort levels.

DNSS is also supported by the optional DNSS energy saving service, which enables you to optimise energy efficiency.



* A contract with Daikin is necessary for applying Energy-saving Air conditioning Network Service System. If you would like an estimation, please contact us.

Control options for air handling applications

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 translates 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):

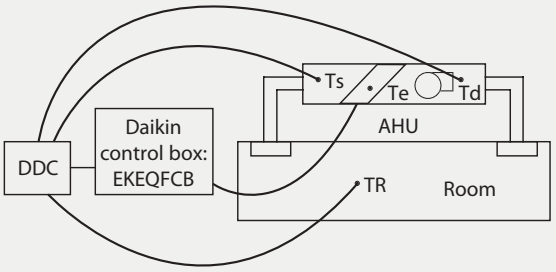
By fixed evaporating temperature

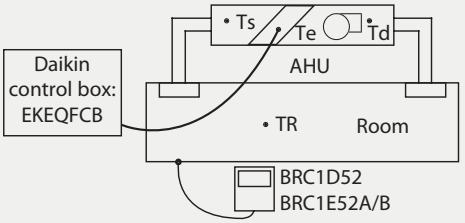
A fixed target evaporating temperature of between 3°C and 8°C can be set by the customer. In this case, room temperature is only indirectly controlled. The cooling load is determined from the actual evaporating temperature (i.e. load to the heat exchanger). A Daikin wired remote controller (BRC1D52 or BRC1E52A/B - optional) can be connected for error indication.

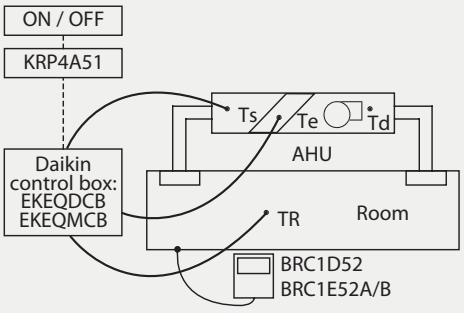
Possibility Z (Td/Tr control):

Using Daikin wired remote controller (BRC1D52 or BRC1E51A/B - 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 EKFQMCB*	Using Daikin wired remote controller BRC1D52 or BRC1E52A/B Temperature control using air suction temperature

* EKEQMCB (for 'multi' application)

Indoor units

As many as 64 separate indoor units can be operated from the single refrigerant circuit of a 54 HP VRV heat pump system.

The Daikin VRV indoor unit range is one of the widest on the market, offering **no less than 26 stylish and elegant models in 116 different variants** - all designed to maximise comfort, minimise operating noise and simplify installation and servicing. Options include ceiling mounted cassettes, concealed ceiling, ceiling suspended, wall mounted and floor standing models.

The Roundflow cassette now includes an optional auto cleaning filter, which automatically cleans itself daily, leading to yearly energy savings of up to 50%. Dust from the filter is collected in the unit for removal simply by vacuum cleaning.

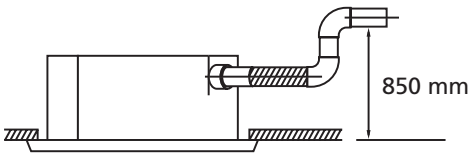
Designed to fit rooms of any size and shape, Daikin indoor units are also user friendly, ultra reliable, easy to control and quiet in operation.

From January 2013, all indoor units will have to comply with the Ecodesign legislation on fans. As a market leader, Daikin has ensured that all indoors units comply with this legislation by adopting DC fans in all indoor units, improving their energy efficiency even further.

FXFQ-A

Round flow cassette

- Daikin has introduced the first auto cleaning cassette to the European market
- The round flow cassette provides a more comfortable environment and offers greater savings in energy consumption, thanks to daily auto cleaning of the filter
- 360° air discharge ensures uniform air flow and temperature distribution
- Modern decoration panel is available in 3 different variations: pure white (RAL9010) auto cleaning panel, pure white (RAL9010) standard panel with grey louvers and pure white (RAL9010) standard panel with white louvers
- Easy dust removal using vacuum cleaner, without opening the unit, saves on maintenance costs
- The presence sensor (optional) adjusts the set point if no one is detected in the room. It also automatically directs air flow away from people to avoid draughts
- The floor sensor (optional) detects the average floor temperature and ensures even temperature distribution between ceiling and floor
- Individual flap control: one or more flaps can be easily closed via the wired remote controller (BRC1E52A/B) when refurbishing or rearranging the interior
- Low energy consumption thanks to specially developed small tube heat exchanger, DC fan motor and drain pump
- Fresh air intake: up to 20 %
- Low installation height: 214mm for class 20-63
- Standard drain pump with 850mm lift



FXFQ20-63A BRC1E52A/B BRC7A532F

INDOOR UNIT				FXFQ20A	FXFQ25A	FXFQ32A	FXFQ40A	FXFQ50A	FXFQ63A	FXFQ80A	FXFQ100A	FXFQ125A
Cooling capacity	Nom.		kW	2.2	2.8	3.6	4.5	5.6	7.1	9.0	11.2	14.0
Heating capacity	Nom.		kW	2.5	3.2	4.0	5.0	6.3	8.0	10.0	12.5	16.0
Power input - 50Hz	Cooling	Nom.	kW	0.038				0.053	0.061	0.092	0.115	0.186
	Heating	Nom.	kW	0.038				0.053	0.061	0.092	0.115	0.186
Dimensions	Unit	HeightxWidthxDepth	mm	204x840x840						246x840x840		288x840x840
Weight	Unit		kg	19			20	21		24		26
Decoration panel	Model			BYCQ140D7W1								
	Colour			Pure White (RAL 9010)								
	Dimensions	HeightxWidthxDepth	mm	60x950x950								
	Weight		kg	5.4								
Decoration panel 2	Model			BYCQ140D7W1W								
	Colour			Pure White (RAL 9010)								
	Dimensions	HeightxWidthxDepth	mm	60x950x950								
	Weight		kg	5.4								
Decoration panel 3	Model			BYCQ140D7GW1								
	Colour			Pure White (RAL 9010)								
	Dimensions	HeightxWidthxDepth	mm	145x950x950								
	Weight		kg	10.3								
Fan-Air flow rate - 50Hz	Cooling	High/Nom./Low	m^3/min	12.5/10.6/8.8			13.6/11.6/9.5	15.0/12.8/10.5	16.5/13.5/10.5	22.8/17.6/12.4	26.5/19.5/12.4	33.0/26.5/19.9
	Heating	High/Nom./Low	m^3/min	12.5/10.6/8.8			13.6/11.6/9.5	15.0/12.8/10.5	16.5/13.5/10.5	22.8/17.6/12.4	26.5/19.5/12.4	33.0/26.5/19.9
Sound power level	Cooling	High/Nom.	dBA	49/-			51/-		53/-	55/-	60/-	61/-
Sound pressure level	Cooling	High/Nom./Low	dBA	31/29/28			33/31/29		35/33/30	38/34/30	43/37/30	45/41/36
	Heating	High/Nom./Low	dBA	31/29/28			33/31/29		35/33/30	38/34/30	43/37/30	45/41/36
Refrigerant	Type			R-410A								
Piping connections	Liquid/OD/Gas/OD/Drain		mm	6.35/12.7/VP25 (O.D. 32 / I.D. 25)					9.52/15.9/VP25 (O.D. 32 / I.D. 25)			
Power supply	Phase/Frequency/Voltage		Hz/V	1~/50/60/220-240/220								
Current - 50Hz	Maximum fuse amps (MFA)		A	16								

BYCQ140D7W1 = pure white panel with grey louvers , BYCQ140D7W1W = pure white standard panel with white louvers, BYCQ140D7GW1 = Pure white auto cleaning panel
The BYCQ140D7W1W has white insulations. Be informed that formations of dirt on white insulation is visibly stronger & that it is consequently not advised to install the decoration panel in environments exposed to concentrations of dirt.

Fully flat cassette

Designed to be different

Unique in the market, the fully flat cassette is a remarkable blend of iconic design and engineering excellence, with an elegant matt crystal white or a silver and matt crystal white finish.

Fitting flush within the ceiling modules and fully flat with the ceiling itself, the cassette is both stylish and unobtrusive.

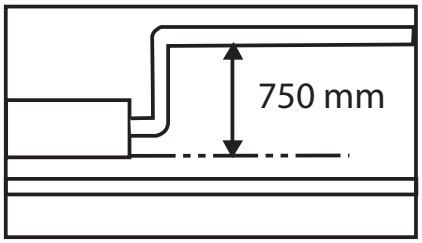
Superb efficiency and comfort is delivered through the combined use of floor and presence sensors and, when necessary, the individual flap control via the wired remote controller makes it simple to close one or more flaps.

FXZQ-A

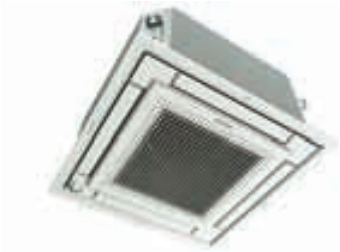
Fully flat cassette

AVAILABLE MAY 2013

- Unique design in the market: integrates fully flat into the ceiling and fits flush into architectural ceiling modules
- 15 class unit especially developed for small or well-insulated rooms, such as hotel bedrooms and small offices
- The presence sensor (optional) adjusts the set point if no one is detected in the room. It also automatically directs air flow away from people to avoid draughts
- The floor sensor (optional) detects the average floor temperature and ensures even temperature distribution between ceiling and floor
- Individual flap control: one or more flaps can be easily closed via the wired remote controller (BRC1E52A/B) when refurbishing or rearranging the interior
- Low energy consumption thanks to a specially developed small tube heat exchanger, DC fan motor and drain pump
- Fresh air intake for a healthier environment (optional)
- Standard drain pump with 750mm lift



BRC1E52A/B BRC7F530W/S



FXZQ-A (matt crystal white panel)

FXZQ-A (silver and matt crystal white panel)

- Modern decoration panel is available in 3 different variations:
  - pure white (RAL9010) fully flat panel with silver louvers
  - pure white (RAL9010) fully flat panel with white louvers
  - pure white (RAL9010) standard panel with white louvers

INDOOR UNIT				*FXZQ15A	*FXZQ20A	*FXZQ25A	*FXZQ32A	*FXZQ40A	*FXZQ50A
Cooling capacity	Nom.		kW	1.7	2.2	2.8	3.6	4.5	5.6
Heating capacity	Nom.		kW	1.9	2.5	3.2	4.0	5.0	6.3
Power input - 50Hz	Cooling	Nom.	kW	to be confirmed					
	Heating	Nom.	kW	to be confirmed					
Dimensions	Unit	HeightxWidthxDepth	mm	260x575x575					
Weight	Unit		kg	17.5			18		
Decoration panel	Model			BYFQ60CW					
	Colour			Fresh white (N9.5)					
	Dimensions	HeightxWidthxDepth	mm	46x620x620					
Decoration panel 2	Model			BYFQ60CS					
	Colour			Fresh white (N9.5) + Silver (B471)					
	Dimensions	HeightxWidthxDepth	mm	46x620x620					
Decoration panel 3	Model			BYFQ60B2					
	Colour			Pure White (RAL 9010)					
	Dimensions	HeightxWidthxDepth	mm	55x700x700					
Fan-Air flow rate - 50Hz	Cooling	High/Nom./Low	m^3/min	8.5/7.5/6.5	8.7/7.5/6.5	9/8/6.5	10/8.5/7	11.5/9.5/8	14.5/12.5/10
Sound power level	Cooling	Nom.	dBA	49	49	50	51	54	60
Sound pressure level	Cooling	High/Nom./Low	dBA	32.5/28/25.5	32/29.5/25.5	30/29/25	33.5/30/26	37/32/28	43/40/33
Refrigerant	Type			R-410A					
Piping connections	Liquid/OD/Gas/OD/Drain		mm	6.35/12.7/	6.35/12.7/	6.35/12.7/	6.35/12.7/	6.35/12.7/	6.35/12.7/
Power supply	Phase/Frequency/Voltage		Hz/V	1~ / 50/60 / 220-240/220					
Current - 50Hz	Maximum fuse amps (MFA)		A	to be confirmed					

BYFQ60CW = panel in matt crystal white, BYFQ60CS = panel in a combination of silver and matt crystal white, BYFQ60B2 = standard panel

*Note: grey cells contain preliminary data

FXCQ-A

2-way blow ceiling mounted cassette

- Low energy consumption thanks to a specially developed small tube heat exchanger, DC fan motor and drain pump
- Stylish unit blends easily with any interior, as the flaps close entirely when not in operation
- Improved comfort thanks to automatic adjustment of air flow to required load
- Individual flap control: one or more flaps can be easily closed via the wired remote controller (BRC1E52A/B) when refurbishing or rearranging the interior
- Easy to install: depth of all units is 620mm
- Maintenance operations can be performed by removing the front panel
- Standard drain pump with 500mm lift

FXCQ20-40A

BRC1E52A/B BRC7CA52

INDOOR UNIT				*FXCQ20A	*FXCQ25A	*FXCQ32A	*FXCQ40A	*FXCQ50A	*FXCQ63A	*FXCQ80A	*FXCQ125A
Cooling capacity	Nom.		kW	2.2	2.8	3.6	4.5	5.6	7.1	9.0	14.0
Heating capacity	Nom.		kW	2.5	3.2	4.0	5.0	6.3	8.0	10.0	16.0
Power input - 50Hz	Cooling	Nom.	kW	0.031	0.039	0.039	0.041	0.059	0.063	0.090	0.149
	Heating	Nom.	kW	0.028	0.035	0.035	0.037	0.056	0.060	0.086	0.146
Dimensions	Unit	HeightxWidthxDepth	mm	305x775x620				305x990x620		305x1,445x620	
Required ceiling void >			mm	355							
Weight	Unit		kg	19				22	25	33	38
Decoration panel	Model			BYBCQ40HW1				BYBCQ63HW1		BYBCQ125HW1	
	Colour			Fresh white (6.5Y 9.5/0.5)							
	Dimensions	HeightxWidthxDepth	mm	55x1,070x700				55x1,285x700		55x1,740x700	
	Weight		kg	10				11		13	
Fan-Air flow rate - 50Hz	Cooling	High/Nom./Low	m^3/min	10.5/9/7.5	11.5/9.5/8		12/10.5/8.5	15/13/10.5	16/14/11.5	26/22.5/18.5	32/27.5/22.5
	Heating	High/Nom./Low	m^3/min	10.5/9/7.5	11.5/9.5/8		12/10.5/8.5	15/13/10.5	16/14/11.5	26/22.5/18.5	32/27.5/22.5
Sound power level	Cooling	Nom.	dBA	to be confirmed							
Sound pressure level	Cooling	High/Nom./Low	dBA	32/30/28	34/31/29	34/32/30	36/33/31	37/35/31	39/37/32	42/38/33	46/42/38
	Heating	High/Nom./Low	dBA	32/30/28	34/31/29	34/32/30	36/33/31	37/35/31	39/37/32	42/38/33	46/42/38
Refrigerant	Type			R-410A							
Piping connections	Liquid/OD/Gas/OD/Drain		mm	6.35/12.70/VP25 (O.D. 32 / I.D. 25)					9.52/15.90/VP25 (O.D. 32 / I.D. 25)		
Power supply	Phase/Frequency/Voltage		Hz/V	1~/50/220-240							
Current - 50Hz	Maximum fuse amps (MFA)		A	to be confirmed							

*Note: grey cells contain preliminary data

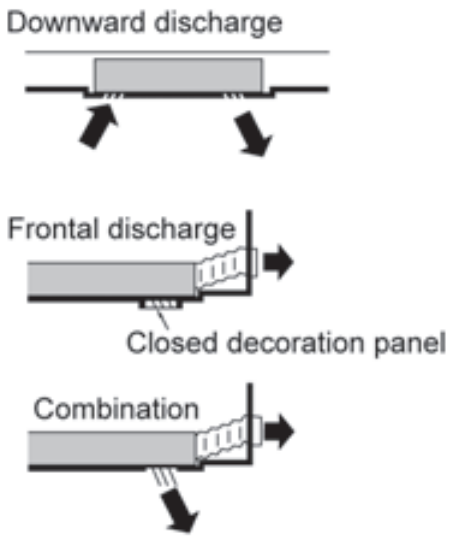
FXKQ-MA

Ceiling mounted corner cassette

› Compact dimensions: can be mounted easily in a narrow ceiling void (only 220mm of ceiling space required, or 195mm with a panel spacer, available as an accessory)
› Optimum air flow conditions are created, either by downward air discharge, frontal air discharge (via optional grille) or a combination of both
› Standard drain pump with 500mm lift

FXKQ-MA

BRC1E52A/B BRC4C61



INDOOR UNIT				FXKQ25MA	FXKQ32MA	FXKQ40MA	FXKQ63MA
Cooling capacity	Nom.		kW	2.8	3.6	4.5	7.10
Heating capacity	Nom.		kW	3.2	4.0	5.0	8.00
Power input - 50Hz	Cooling	Nom.	kW	0.066		0.076	0.105
	Heating	Nom.	kW	0.046		0.056	0.085
Dimensions	Unit	HeightxWidthxDepth	mm	215x1,110x710			215x1,310x710
Weight	Unit		kg	31			34
Decoration panel	Model			BYK45FJW1			BYK71FJW1
	Colour			White			
	Dimensions	HeightxWidthxDepth	mm	70x1,240x800			70x1,440x800
	Weight		kg	8.5			9.5
Fan-Air flow rate - 50Hz	Cooling	High/Low	m^3/min	11/9		13/10	18/15
Sound power level	Cooling	Nom.	dBA	-			
Sound pressure level	Cooling	High/Low	dBA	38.0/33.0		40.0/34.0	42.0/37.0
Refrigerant	Type			R-410A			
Piping connections	Liquid/OD/Gas/OD/Drain		mm	6.35/12.7/VP25 (O.D. 32 / I.D. 25)			9.52/15.9/VP25 (O.D. 32 / I.D. 25)
Power supply	Phase/Frequency/Voltage		Hz/V	1~/50/60/220-240/220			
Current - 50Hz	Maximum fuse amps (MFA)		A	15			

FXDQ-M9

Small concealed ceiling cassette

- Designed for hotel bedrooms
- Compact dimensions (230mm high and 652mm deep), can be mounted easily in a ceiling void
- Blends unobtrusively with any interior décor: only the suction and discharge grilles are visible
- The air suction direction can be altered from rear to bottom suction
- For easy mounting, the drain pan can be located to the left or right of the unit

FXDQ-M9

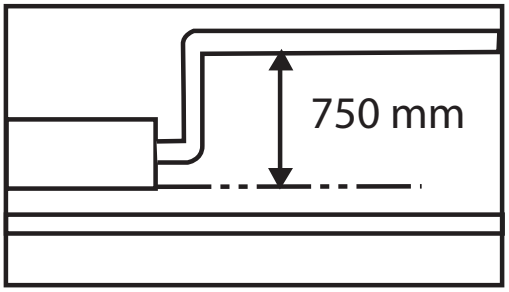
BRC1E52A/B BRC4C62

INDOOR UNIT				FXDQ20M9	FXDQ25M9
Cooling capacity	Nom.		kW	2.2	2.8
Heating capacity	Nom.		kW	2.5	3.2
Power input - 50Hz	Cooling	Nom.	kW	0.050	
	Heating	Nom.	kW	0.050	
Casing Colour				Unpainted	
Dimensions	Unit	HeightxWidthxDepth	mm	230x502x652	
Required ceiling void >			mm	250	
Weight	Unit		kg	17	
Fan-Air flow rate - 50Hz	Cooling	High/Low	m^3/min	6.7/5.2	7.4/5.8
	Heating	High/Low	m^3/min	6.7/5.2	7.4/5.8
Sound power level	Cooling	Nom.	dBA	50	
Sound pressure level	Cooling	High/Low	dBA	37/32	
	Heating	High/Low	dBA	37/32	
Refrigerant	Type			R-410A	
Piping connections	Liquid/OD/Gas/OD/Drain		mm	6.35/12.7/I.D. 21.6, O.D. 27.2	
Power supply	Phase/Frequency/Voltage		Hz/V	1~/50/230	
Current - 50Hz	Maximum fuse amps (MFA)		A	16	

FXDQ-A

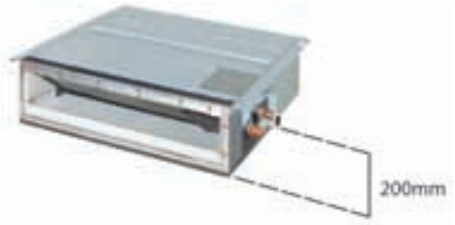
Slim concealed ceiling unit

- Compact dimensions: can be mounted easily in a ceiling void of only 240mm
- Blends unobtrusively with any interior décor: only the suction and discharge grilles are visible
- 15 class unit especially developed for small or well insulated rooms, such as hotel bedrooms and small offices
- Low energy consumption thanks to DC fan motor
- Medium external static pressure means unit can be used with flexible ducts of varying lengths
- Standard drain pump with 750mm lift



FXDQ15-32A

BRC1E52A/B BRC4C65



Indoor unit				*FXDQ15A	*FXDQ20A	*FXDQ25A	*FXDQ32A	*FXDQ40A	*FXDQ50A	*FXDQ63A
Cooling capacity	Nom.		kW	1.7	2.2	2.8	3.6	4.5	5.6	7.1
Heating capacity	Nom.		kW	1.9	2.5	3.2	4.0	5.0	6.3	8.0
Power input - 50Hz	Cooling	Nom.	kW	to be confirmed						
	Heating	Nom.	kW	to be confirmed						
Dimensions	Unit	HeightxWidthxDepth	mm	200x700x620				200x900x620		
Weight	Unit		kg	31				35	36	40
Fan-Air flow rate - 50Hz	Cooling	High/Low	m^3/min	to be confirmed						
Sound power level	Cooling	Nom.	dBA	50	51			52	53	54
Sound pressure level	Cooling	High/Low	dBA	to be confirmed						
	Heating	High/Nom./Low	dBA	32/31/29	33/31/29			34/32/30	35/33/31	36/34/32
Refrigerant	Type			R-410A						
Piping connections	Liquid/OD/Gas/OD/Drain		mm	6.35/12.7/						9.52/15.90/
Power supply	Phase/Frequency/Voltage		Hz/V	1~/50/220-240						
Current - 50Hz	Maximum fuse amps (MFA)		A	to be confirmed						

*Note: grey cells contain preliminary data

FXSQ-P

Concealed ceiling unit - medium static pressure

The FXSQ-P concealed ceiling unit reduces energy consumption by 20%, compared with the FXSQ-M8 series, thanks to the use of a new DC fan.

The FXSQ-P concealed ceiling unit features 3-step airflow control, which offers improved comfort. The unit is ideal for shops and medium sized offices, because it can be used with ducts of varying lengths.

FXSQ20-32P

BRC1E52A/B BRC4C65

Easy to use controller

The new wired controller (BRC1E52A/B) allows easy navigation through menu items, via a personalised display and minimal buttons. A 7-day schedule timer enables users to programme the air conditioning daily or weekly, with up to five different actions per day possible.

Versatile solution for many systems

› Allows multi-tenant applications (option PCB required)
› Up to 120 Pa external static pressure facilitates use with flexible lengths of ducts

Easy installation

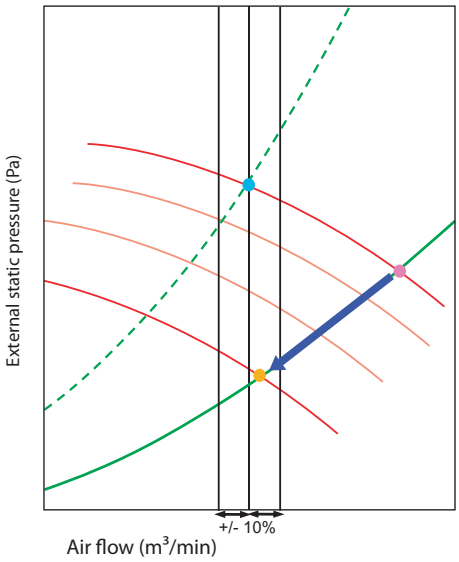
› Air flow is adjusted automatically towards the nominal air flow rate
› Drain-up pump with 624mm lift fitted as standard

Flexible airflow options

› 3-step airflow control
› ESP can be changed via wired remote control, to optimise the supply air volume

Installing and commissioning the system

› The installer calculates the total duct resistance to determine the required ESP
› During testing, the unit will automatically select the correct fan curve for the nominal air flow rate
› Thanks to the high number of fan curves available, adjustments to duct work can be avoided, for quicker installation



FXSQ-P-Medium static pressure

INDOOR UNIT				FXSQ20P	FXSQ25P	FXSQ32P	FXSQ40P	FXSQ50P	FXSQ63P	FXSQ80P	FXSQ100P	FXSQ125P	FXSQ140P
Cooling capacity	Nom.		kW	2.2	2.8	3.6	4.5	5.6	7.1	9.0	11.2	14.0	16.0
Heating capacity	Nom.		kW	2.5	3.2	4.0	5.0	6.3	8.0	10.0	12.5	16.0	18.0
Power input - 50Hz	Cooling	Nom.	kW	0.041		0.044	0.097		0.074	0.118	0.117	0.185	0.261
	Heating	Nom.	kW	0.029		0.032	0.085		0.062	0.106	0.105	0.173	0.249
Casing Colour				Unpainted									
Dimensions	Unit	HeightxWidthxDepth	mm	300x550x700			300x700x700		300x1,000x700		300x1,400x700		
Required ceiling void >			mm	350									
Weight	Unit		kg	23			26		35		46		47
Decoration panel	Model			BYBS32DJW1			BYBS45DJW1		BYBS71DJW1		BYBS125DJW1		
	Colour			White (10Y9/0.5)									
	Dimensions	HeightxWidthxDepth	mm	55x650x500			55x800x500		55x1,100x500		55x1,500x500		
	Weight		kg	3.0			3.5		4.5		6.5		
Fan-Air flow rate - 50Hz	Cooling	High/Low	m^3/min	9/6.5		9.5/7	16/11		19.5/16	25/20	32/23	39/28	46/32
	Heating	High/Low	m^3/min	9/6.5		9.5/7	16/11		19.5/16	25/20	32/23	39/28	46/32
Fan-External static pressure - 50Hz	High/Nom.		Pa	70/30			100/30			100/40	120/40	120/50	140/50
Sound power level	Cooling	Nom.	dBA	55		56	63		59	63	61	66	67
Sound pressure level	Cooling	High/Low	dBA	32/26		33/27	37/29		37/30	38/32		40/33	42/34
	Heating	High/Low	dBA	32/26		33/27	37/29		37/30	38/32		40/33	42/34
Refrigerant	Type			R-410A									
Piping connections	Liquid/OD/Gas/OD/Drain		mm	6.35/12.7/VP25 (O.D. 32 / I.D. 25)					9.52/15.9/VP25 (O.D. 32 / I.D. 25)				
Power supply	Phase/Frequency/Voltage		Hz/V	1~/50/60/220-240/220									
Current - 50Hz	Maximum fuse amps (MFA)		A	16									

FXMQ-P7

Concealed ceiling unit - high static pressure

The FXMQ-P7 concealed ceiling unit is a compact unit that can be used for many applications, delivering improved comfort thanks to 3-step airflow control.

With a DC fan motor, the FXMQ-P7 concealed ceiling unit reduces energy consumption significantly, so it's an efficient choice for many kinds of commercial buildings.

Easy to use controller

The new wired controller (BRC1E52A/B) allows easy navigation through menu items, via a personalised display and minimal buttons. A 7-day schedule timer enables users to programme the air conditioning daily or weekly, with up to five different actions per day possible.

FXMQ20-32P7

Versatile solution for many systems

- Allows multi-tenant applications (option PCB required)
- Compact height of 300mm, allows installation in narrow ceiling voids
- Up to 200 Pa external static pressure allows extensive ductwork runs and flexible application
- Built-in drain pump with 700mm lift fitted as standard

Flexible airflow options

- 3-step airflow control
- External Static Pressure (ESP) can be changed via wired remote control, allowing optimisation of the supply air volume (changeable in 13 or 14 stages)
- The air suction direction can be from bottom or rear
- Standard air filter

FXMQ-P7-High static pressure

INDOOR UNIT				FXMQ20P7	FXMQ25P7	FXMQ32P7	FXMQ40P7	FXMQ50P7	FXMQ63P7	FXMQ80P7	FXMQ100P7	FXMQ125P7
Cooling capacity	Nom.		kW	2.2	2.8	3.6	4.5	5.6	7.1	9.0	11.2	14.0
Heating capacity	Nom.		kW	2.5	3.2	4.0	5.0	6.3	8.0	10.0	12.5	16.0
Power input - 50Hz	Cooling	Nom.	kW	0.049		0.053	0.151	0.110	0.120	0.171	0.176	0.241
	Heating	Nom.	kW	0.037		0.041	0.139	0.098	0.108	0.159	0.164	0.229
Casing Colour				Unpainted								
Dimensions	Unit	HeightxWidthxDepth	mm	300x550x700			300x700x700	300x1,000x700			300x1,400x700	
Required ceiling void >			mm	350								
Weight	Unit		kg	23			26	35			46	
Decoration panel	Model			BYBS32DJW1			BYBS45DJW1	BYBS71DJW1			BYBS125DJW1	
	Colour			White (10Y9/0.5)								
	Dimensions	HeightxWidthxDepth	mm	55x650x500			55x800x500	55x1,100x500			55x1,500x500	
	Weight		kg	3.0			3.5	4.5			6.5	
Fan-Air flow rate - 50Hz	Cooling	High/Low	m^3/min	9/6.5		9.5/7	16/11	18/15	19.5/16	25/20	32/23	39/28
	Heating	High/Low	m^3/min	9.0/6.5		9.5/7	16/11	18/15	19.5/16	25/20	32/23	39/28
Fan-External static pressure - 50Hz	High/Nom.		Pa	100/50			160/100	200/100				
Sound power level	Cooling	High/Nom.	dBA	56/-		57/-	65/-	61/-	64/-	67/-	65/-	70/-
Sound pressure level	Cooling	High/Nom./Low	dBA	33/31/29		34/32/30	39/37/35	41/39/37	42/40/38	43/41/39		44/42/40
	Heating	High/Nom./Low	dBA	33/31/29		34/32/30	39/37/35	41/39/37	42/40/38	43/41/39		44/42/40
Refrigerant	Type			R-410A								
Piping connections	Liquid/OD/Gas/OD/Drain		mm	6.35/12.7/VP25 (I.D. 25/O.D. 32)					9.52/15.9/VP25 (I.D. 25/O.D. 32)			
Power supply	Phase/Frequency/Voltage		Hz/V	1~/50/60/220-240/220								
Current - 50Hz	Maximum fuse amps (MFA)		A	16								

FXMQ-MA

Large concealed ceiling unit

› Up to 270Pa external static pressure allows extensive ductwork runs and flexible application: ideal for use in large areas
› Blends unobtrusively with any interior décor: only the suction and discharge grilles are visible
› Up to 31.5kW in heating mode

FXMQ-MA

BRC1E52A/B BRC4C65

INDOOR UNIT				FXMQ200MA	FXMQ250MA
Cooling capacity	Nom.		kW	22.4	28.0
Heating capacity	Nom.		kW	25.0	31.5
Power input - 50Hz	Cooling	Nom.	kW	1.294	1.465
	Heating	Nom.	kW	1.294	1.465
Dimensions	Unit	HeightxWidthxDepth	mm	470x1,380x1,100	
Weight	Unit		kg	137	
Fan-Air flow rate - 50Hz	Cooling	High/Low	m^3/min	58/50	72/62
Fan-External static pressure - 50Hz	High/Nom.		Pa	221/132	270/191
Sound power level	Cooling	Nom.	dBA	-	
Sound pressure level	Cooling	High/Low	dBA	48/45	
Refrigerant	Type			R-410A	
Piping connections	Liquid/OD/Gas/OD/Drain		mm	9.52/19.1/PS1B	9.52/22.2/PS1B
Power supply	Phase/Frequency/Voltage		Hz/V	1~/50/60/220-240/220	
Current - 50Hz	Maximum fuse amps (MFA)		A	15	

FXAQ-P

Wall mounted unit

- Ideal solution for shops, restaurants or offices without false ceilings
- Low energy consumption thanks to DC fan motor
- Can be installed in both new and existing buildings
- Flat, stylish front panel blends easier within any interior décor and is easier to clean
- 15 class unit especially developed for small or well-insulated rooms, such as hotel bedrooms and small offices
- Five different discharge angles can be programmed via the remote control
- Maintenance operations can be performed from the front of the unit

FXAQ15-32P

BRC1E52A/B BRC7E63

INDOOR UNIT				FXAQ15P	FXAQ20P	FXAQ25P	FXAQ32P	FXAQ40P	FXAQ50P	FXAQ63P
Cooling capacity	Nom.		kW	1.7	2.2	2.8	3.6	4.5	5.6	7.1
Heating capacity	Nom.		kW	1.9	2.5	3.2	4.0	5.0	6.3	8.0
Power input - 50Hz	Cooling	Nom.	kW	0.017	0.019	0.028	0.030	0.020	0.033	0.050
	Heating	Nom.	kW	0.025	0.029	0.034	0.035	0.020	0.039	0.060
Casing Colour				White (3.0Y8.5/0.5)						
Dimensions	Unit	HeightxWidthxDepth	mm	290x795x238				290x1,050x238		
Weight	Unit		kg	11				14		
Fan-Air flow rate - 50Hz	Cooling	High/Low	m^3/min	7.0/4.5	7.5/4.5	8/5	8.5/5.5	12/9	15/12	19/14
Sound power level	Cooling	Nom.	dBA	-						
Sound pressure level	Cooling	High/Low	dBA	34.0/29.0	35.0/29.0	36.0/29.0	37.5/29.0	39.0/34.0	42.0/36.0	47.0/39.0
Refrigerant	Type			R-410A						
Piping connections	Liquid/OD/Gas/OD/Drain		mm	6.35/12.7/VP13 (I.D. 13/O.D. 18)						9.52/15.9/VP13 (I.D. 13/O.D. 18)
Power supply	Phase/Frequency/Voltage		Hz/V	1~/50/220-240						
Current - 50Hz	Maximum fuse amps (MFA)		A	16						

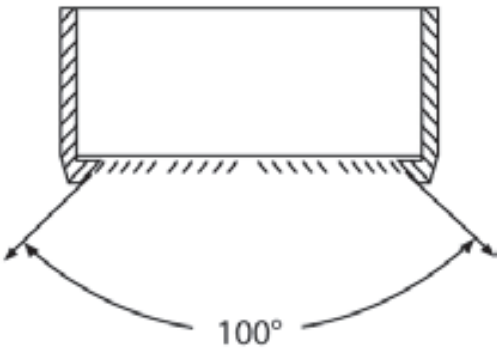
FXHQ-A

Ceiling suspended unit

- Ideal solution for commercial spaces with no or low false ceilings
- The unit can easily be mounted in corners and narrow spaces, as it only needs 30mm lateral service space
- Low energy consumption thanks to DC fan motor and drain pump
- Stylish unit blends easily with any interior, as the flaps close entirely when not in operation
- Can be installed in both new and existing buildings
- Air flow distribution for ceiling heights up to 3.8m without capacity loss
- Wider air discharge thanks to Coanda effect: up to 100°

FXHQ100A

BRC1E52A/B BRC7GA53

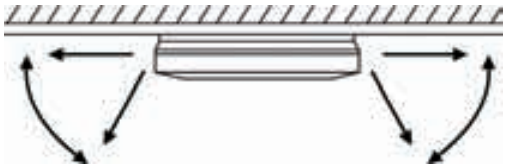


INDOOR UNIT				*FXHQ32A	*FXHQ63A	*FXHQ100A
Cooling capacity	Nom.		kW	3.6	7.1	11.2
Heating capacity	Nom.		kW	4.0	8.0	12.5
Power input - 50Hz	Cooling	Nom.	kW	0.107	0.111	0.237
	Heating	Nom.	kW	0.107	0.111	0.237
Casing Colour				Fresh white (6.5Y 9.5/0.5)		
Dimensions	Unit	HeightxWidthxDepth	mm	235x960x690	235x1,270x690	235x1,590x690
Weight	Unit		kg	24	33	39
Fan-Air flow rate - 50Hz	Cooling	High/Nom./Low	m^3/min	14/12/10	20/17/14	29.5/24/19
	Heating	High/Nom./Low	m^3/min	14/12/10	20/17/14	29.5/24/19
Sound power level	Cooling	Nom.	dBA	to be confirmed		
Sound pressure level	Cooling	High/Nom./Low	dBA	36/34/31	37/35/34	44/37/34
	Heating	High/Nom./Low	dBA	36/34/31	37/35/34	44/37/34
Refrigerant	Type			R-410A		
Piping connections	Liquid/OD/Gas/OD/Drain		mm	6.35/12.70/VP20 (I.D. 20/O.D. 26)	9.52/15.90/VP20 (I.D. 20/O.D. 26)	
Power supply	Phase/Frequency/Voltage		Hz/V	1~/50/220-240		
Current - 50Hz	Maximum fuse amps (MFA)		A	16		

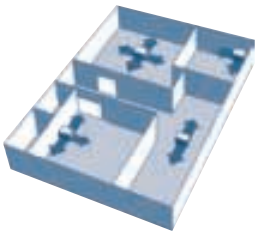
FXUQ-A

4-way blow ceiling suspended unit

- Ideal solution for commercial spaces with no or low false ceilings
- Separate BEVQ box is no longer needed: the expansion valve is integrated in the indoor unit
- Low energy consumption thanks to a specially developed small tube heat exchanger, DC fan motor and drain pump
- Stylish unit blends easily with any interior, as the flaps close entirely when not in operation
- Improved comfort thanks to automatic adjustment of air flow to match required load
- Individual flap control: one or more flaps can be easily closed via the wired remote controller (BRC1E52A/B) when refurbishing or rearranging the interior
- Can be installed in both new and existing buildings
- Same outlook for all models (unified dimensions)
- Air flow distribution for ceiling heights up to 3.5m without capacity loss
- Standard drain pump with 500mm lift
- Air can be discharged in five different angles between 0 and 60°



- Possibility to shut one or two flaps for easy installation in corners



FXUQ-A

BRC1E52A/B BRC7CB528

INDOOR UNIT				*FXUQ71A	*FXUQ100A
Cooling capacity	Nom.		kW	8.0	11.2
Heating capacity	Nom.		kW	9.0	12.5
Power input - 50Hz	Cooling	Nom.	kW	0.090	0.200
	Heating	Nom.	kW	0.073	0.179
Casing Colour				Fresh white (6.5Y 9.5/0.5)	
Dimensions	Unit	HeightxWidthxDepth	mm	198x950x950	
Weight	Unit		kg	26	27
Fan-Air flow rate - 50Hz	Cooling	High/Nom./Low	m^3/min	22.5/19.5/16	31/26/21
	Heating	High/Nom./Low	m^3/min	22.5/19.5/16	31/26/21
Sound power level	Cooling	Nom.	dBA	to be confirmed	
Sound pressure level	Cooling	High/Nom./Low	dBA	40/38/36	47/44/40
	Heating	High/Nom./Low	dBA	40/38/36	47/44/40
Refrigerant	Type			R-410A	
Piping connections	Liquid/OD/Gas/OD/Drain		mm	9.52/15.90/VP20 (I.D. 20/O.D. 26)	
Power supply	Phase/Frequency/Voltage		Hz/V	1~/50/60/220-240/220	
Current - 50Hz	Maximum fuse amps (MFA)		A	16	

FXLQ-P

Floor standing unit

- Stylish modern casing finished in pure white (RAL9010) and iron grey (RAL7011)
- Unit can be installed as a free standing model, using an optional back plate
- Its low height means the unit fits perfectly beneath a window
- Requires very little installation space
- Wired remote control can easily be integrated in the unit
- Wall mounted installation facilitates cleaning beneath the unit where dust tends to accumulate

FXLQ20-25P

BRC1E52A/B BRC7C62

INDOOR UNIT				FXLQ20P	FXLQ25P	FXLQ32P	FXLQ40P	FXLQ50P	FXLQ63P
Cooling capacity	Nom.		kW	2.2	2.8	3.6	4.5	5.6	7.1
Heating capacity	Nom.		kW	2.5	3.2	4.0	5.0	6.3	8.000
Power input - 50Hz	Cooling	Nom.	kW	0.049		0.090		0.110	
	Heating	Nom.	kW	0.049		0.090		0.110	
Casing Colour				Fresh white (RAL9010) / Dark grey (RAL7011)					
Dimensions	Unit	HeightxWidthxDepth	mm	600x1,000x232		600x1,140x232		600x1,420x232	
Weight	Unit		kg	27		32		38	
Fan-Air flow rate - 50Hz	Cooling	High/Low	m^3/min	7/6		8/6	11/8.5	14/11	16/12
Sound power level	Cooling	Nom.	dBA	-					
Sound pressure level	Cooling	High/Low	dBA	35/32			38/33	39/34	40/35
Refrigerant	Type			R-410A					
Piping connections	Liquid/OD/Gas/OD/Drain		mm	6.35/12.7/					9.52/15.9/
Power supply	Phase/Frequency/Voltage		Hz/V	1~/50/60/220-240/220					
Current - 50Hz	Maximum fuse amps (MFA)		A	15					

FXNQ-P

Concealed floor standing unit

- Its low height means the unit fits perfectly beneath a window
- Blends unobtrusively with any interior décor: only the suction and discharge grilles are visible
- Requires very little installation space
- The connecting port faces downward, eliminating the need to attach auxiliary piping

FXNQ20-32P

BRC1E52A/B BRC4C65

INDOOR UNIT				FXNQ20P	FXNQ25P	FXNQ32P	FXNQ40P	FXNQ50P	FXNQ63P
Cooling capacity	Nom.		kW	2.2	2.8	3.6	4.5	5.6	7.1
Heating capacity	Nom.		kW	2.5	3.2	4.0	5.0	6.3	8.0
Power input - 50Hz	Cooling	Nom.	kW	0.049		0.090		0.110	
	Heating	Nom.	kW	0.049		0.090		0.110	
Dimensions	Unit	HeightxWidthxDepth	mm	610x930x220		610x1,070x220		610x1,350x220	
Weight	Unit		kg	19		23		27	
Fan-Air flow rate - 50Hz	Cooling	High/Low	m^3/min	7/6		8/6	11/8.5	14/11	16/12
Sound power level	Cooling	Nom.	dBA	-					
Sound pressure level	Cooling	High/Low	dBA	35/32			38/33	39/34	40/35
Refrigerant	Type			R-410A					
Piping connections	Liquid/OD/Gas/OD/Drain		mm	6.35/12.7/					9.52/15.9/
Power supply	Phase/Frequency/Voltage		Hz/V	1~/50/60/220-240/220					
Current - 50Hz	Maximum fuse amps (MFA)		A	15					

Low temperature hydrobox for VRV

HXY-A

The low temperature hydrobox offers air-to-water connection to VRV and is ideal for applications such as under floor heating, air handling units and low temperature radiators.

- Highly efficient space heating and cooling
- Leaving water temperature range from 5°C to 45°C without the need for an electric heater
- Super wide operating range for hot water production from -20 to +43°C ambient outdoor temperature
- Saves time on system design as all water-side components are fully integrated, providing direct control over leaving water temperature
- Saves space with contemporary wall hung design
- Requires no gas connection or oil tank
- Connectable to VRV IV heat pump

HXY-A

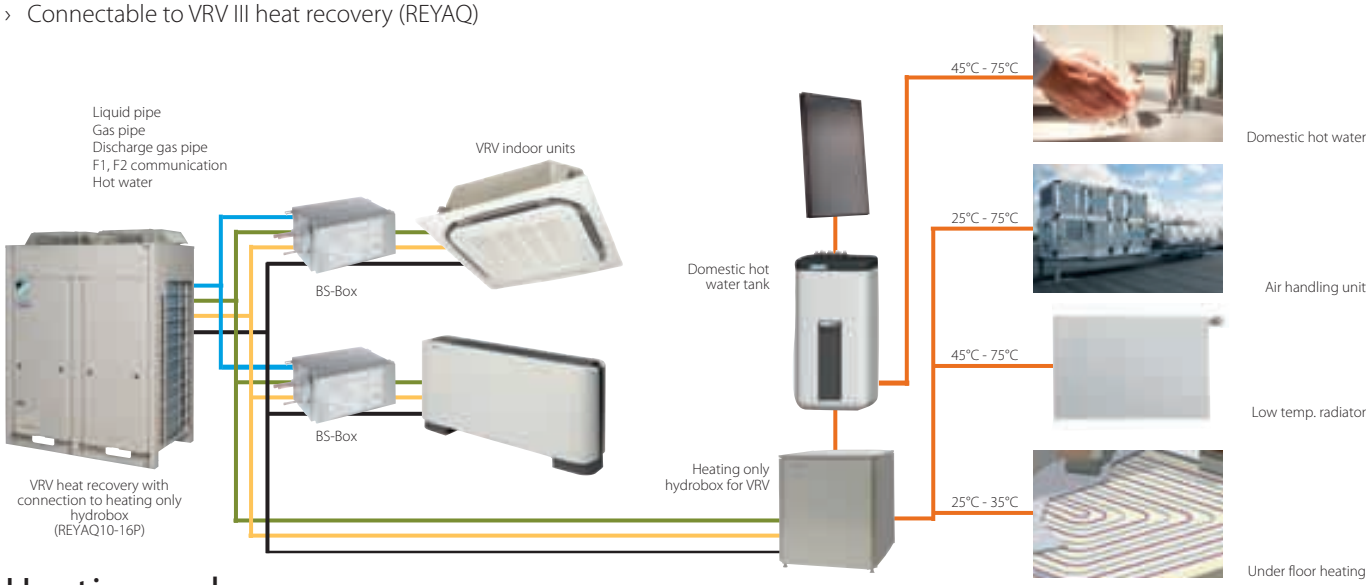
INDOOR UNIT					HXY080A	HXY125A
Cooling capacity	Nom.			kW	8	12.5
Heating capacity	Nom.			kW	9	14
Casing	Colour				White	
	Material				Precoated sheet metal	
Dimensions	Unit	HeightxWidthxDepth		mm	890x480x344	
Weight	Unit			kg	44	
Sound pressure level	Nom.			dBA	-	
Operation range	Heating	Ambient	Min.~Max.	°C	-20~24	
		Water side	Min.~Max.	°C	25~45	
	Cooling	Ambient	Min.~Max.	°C	~-	
		Water side	Min.~Max.	°C	-~-	
Refrigerant	Type				-	
Refrigerant circuit	Gas side diameter			mm	15.9	
	Liquid side diameter			mm	9.5	
Water circuit	Piping connections diameter			inch	G 1"1/4 (female)	
Power supply	Phase/Frequency/Voltage			Hz/V	1~/50/220-240	
Recommended fuses				A		

High temperature hydrobox for VRV

HXHD-A

The high temperature hydrobox offers air-to-water connection to VRV and is ideal for applications such as bathrooms, sinks, under floor heating, radiators and air handling units.

- Uses heat pump technology to produce hot water efficiently, providing up to 17% savings compared with a gas boiler
- Free heating is provided by transferring heat from areas requiring cooling to areas requiring heating or hot water
- Possibility to connect thermal solar collectors to the domestic hot water tank
- Leaving water temperature range from 25 to 80°C without the need for an electric heater
- Super wide operating range for hot water production from -20 to +43°C ambient outdoor temperature
- No need to design the water side of the system: all water-handling components are fully integrated
- No mixing valve is required, as the system provides direct leaving water temperature control
- Various control possibilities with weather dependant set point or thermostat control
- The indoor unit and domestic hot water tank can be stacked to save space, or installed next to each other, if ceiling height is limited
- No gas connection needed
- Connectable to VRV III heat recovery (REYAQ)



Heating only

INDOOR UNIT					HXHD125A
Heating capacity	Nom.			kW	14.0
Casing	Colour				Metallic grey
	Material				Precoated sheet metal
Dimensions	Unit	HeightxWidthxDepth		mm	705x600x695
Weight	Unit			kg	92
Sound pressure level	Nom.			dBA	42 (1)/43 (2)
	Night quiet mode	Level 1		dBA	38 (1)
Operation range	Heating	Ambient	Min.~Max.	°C	-20~20 /24 (3)
		Water side	Min.~Max.	°C	25~80
	Domestic hot water	Ambient	Min.~Max.	°CDB	-20~43
		Water side	Min.~Max.	°C	45~75
Refrigerant	Type				R-134a
Refrigerant circuit	Gas side diameter			mm	12.7
	Liquid side diameter			mm	9.52
Water circuit	Piping connections diameter			inch	G 1" (female)
	Heating water system	Water volume	Min.~Max.	l	20~200
Power supply	Phase/Frequency/Voltage			Hz/V	1~/50/220-240
Current	Recommended fuses			A	20

(1) Sound levels are measured at: EW 55°C; LW 65°C (2) Sound levels are measured at: EW 70°C; LW 80°C (3) Field setting

Air curtains

CYVS/M/L-DK-F/C/R

Biddle air curtains provide highly efficient solutions for retailers and consultants to combat the issue of climate separation across their outlet or office doorway.

Open door trading

Although the customer friendly aspects of open door trading are widely appreciated by retail and commercial outlet managers, open doors can also give rise to massive losses in conditioned warm or cold air – so can waste huge amounts of energy.

Biddle air curtains, however, not only create a pleasant trading and working environment, they offer significant economies by providing an efficient way to preserve indoor temperatures.

High efficiency and low CO_2 emissions

Efficient outdoor/indoor climate separation limits heat loss through the door entrance and creates a more stable store environment, thus enhancing the efficiency of the air conditioning system.

By combining Biddle air curtains with highly efficient Daikin VRV and ERQ heat pumps, building owners and managers benefit from substantial energy savings of up to 72% compared with electric air curtains.

Short payback period

This advanced solution delivers such impressive energy savings, that their installation provides a remarkable payback period of less than 1.5 years, with massive potential extra savings likely from reductions in future energy bills.

Free-Hanging (F)

Cassette (C)

Recessed (C)

Comfort through patented technology

Customers and staff alike can enjoy optimum indoor comfort all year round, irrespective of the external weather conditions, thanks to the advanced rectifier technology inherent in Biddle air curtains.

Easy installation

Installation of these systems is quick and easy. Integrating a Biddle air curtain with a Daikin VRV system also eliminates the need to install multiple outdoor units, thereby reducing installation time and costs still further.

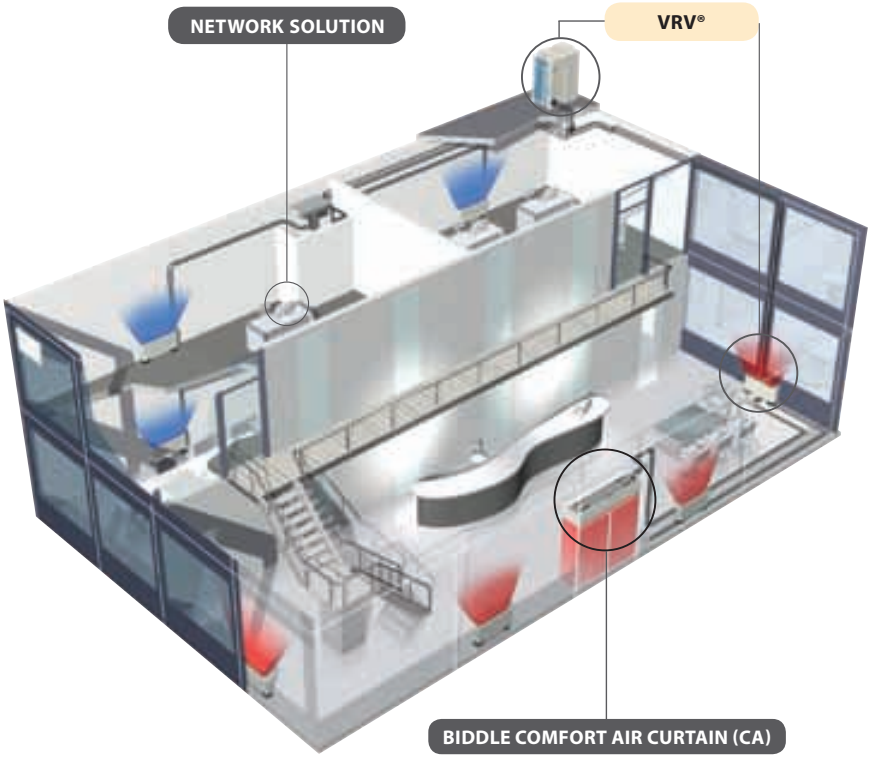
This unrivalled combination offers customers the ultimate environmentally conscious solution comprising cooling, heating, outdoor indoor climate separation and fresh air ventilation.

Biddle air curtain for VRV:

- For connection to VRV heat recovery and heat pump
- VRV is among the first DX systems suitable for connection to air curtains
- Free-hanging model (F): easy wall mounted installation
- Cassette model (C): mounted into false ceiling leaving only the decoration panel visible
- Recessed model (R): neatly concealed in the ceiling

Cost benefits for operators:

- Offers payback in less than 1.5 years compared with installing an electric heat curtain
- Delivers around 85% air separation efficiency, greatly reducing both heat loss and the required indoor heating capacity
- Provides virtually free air curtain heating via recovered heat from indoor units in cooling mode (in case of VRV heat recovery)
- Maximises energy efficiency, thanks to almost zero down flow turbulence, optimised air flow and advanced discharge rectifier technology
- Easy and quick to install at reduced costs since no additional water systems, boilers or gas connections are required



				Small				Medium			
				CYVS100DK80*BN/*SN	CYVS150DK80*BN/*SN	CYVS200DK100*BN/*SN	CYVS250DK140*BN/*SN	CYVM100DK80*BN/*SN	CYVM150DK80*BN/*SN	CYVM200DK100*BN/*SN	CYVM250DK140*BN/*SN
Heating capacity	Speed 3		kW	7.40	9.0	11.6	16.2	9.2	11.0	13.4	19.9
Power input	Fan only	Nom.	kW	0.23	0.35	0.46	0.58	0.37	0.56	0.75	0.94
	Heating	Nom.	kW	0.23	0.35	0.46	0.58	0.37	0.56	0.75	0.94
Delta T	Speed 3		K	19	15		16	17	14	13	15
Casing	Colour			BN: RAL9010 / SN: RAL9006							
Dimensions	Unit	Height F/C/R	mm	270/270/270							
		Width F/C/R	mm	1,000/1,000/1,048	1,500/1,500/1,548	2,000/2,000/2,048	2,500/2,500/2,548	1,000/1,000/1,048	1,500/1,500/1,548	2,000/2,000/2,048	2,500/2,500/2,548
		Depth F/C/R	mm	590/821/561							
Required ceiling void >			mm	420							
Door height	Max.		m	2.3 (1) / 2.15 (2) / 2.0 (3)	2.3 (1) / 2.15 (2) / 2.0 (3)	2.3 (1) / 2.15 (2) / 2.0 (3)	2.3 (1) / 2.15 (2) / 2.0 (3)	2.5 (1) / 2.4 (2) / 2.3 (3)	2.5 (1) / 2.4 (2) / 2.3 (3)	2.5 (1) / 2.4 (2) / 2.3 (3)	2.5 (1) / 2.4 (2) / 2.3 (3)
Door width	Max.		m	1.0	1.5	2.0	2.5	1.0	1.5	2.0	2.5
Weight	Unit		kg	56	66	83	107	57	73	94	108
Fan-Air flow rate	Heating	Speed 3	m^3/h	1,164	1,746	2,328	2,910	1,605	2,408	3,210	4,013
Sound pressure level	Heating	Speed 3	dBA	47	49	50	51	50	51	53	54
Refrigerant	Type			R-410A							
Piping connections	Liquid/OD/Gas/OD		mm	9.52/16.0			9.52/19.0	9.52/16.0			9.52/19.0
Required accessories (should be ordered separately)				Daikin wired remote control (BRC1E52A/B or BRC1D52)							
Power supply	Voltage		V	230							

				Large			
				CYVL100DK125*BN/*SN	CYVL150DK200*BN/*SN	CYVL200DK250*BN/*SN	CYVL250DK250*BN/*SN
Heating capacity	Speed 3		kW	15.6	23.3	29.4	31.1
Power input	Fan only	Nom.	kW	0.75	1.13	1.50	1.88
	Heating	Nom.	kW	0.75	1.13	1.50	1.88
Delta T	Speed 3		K	15		14	12
Casing	Colour			BN: RAL9010 / SN: RAL9006			
Dimensions	Unit	Height F/C/R	mm	370/370/370			
		Width F/C/R	mm	1,000/1,000/1,048	1,500/1,500/1,548	2,000/2,000/2,048	2,500/2,500/2,548
		Depth F/C/R	mm	774/1,105/745			
Required ceiling void >			mm	520			
Door height	Max.		m	3.0 (1) / 2.75 (2) / 2.5 (3)	3.0 (1) / 2.75 (2) / 2.5 (3)	3.0 (1) / 2.75 (2) / 2.5 (3)	3.0 (1) / 2.75 (2) / 2.5 (3)
Door width	Max.		m	1.0	1.5	2.0	2.5
Weight	Unit		kg	76	100	126	157
Fan-Air flow rate	Heating	Speed 3	m^3/h	3,100	4,650	6,200	7,750
Sound pressure level	Heating	Speed 3	dBA	53	54	56	57
Refrigerant	Type			R-410A			
Piping connections	Liquid/OD/Gas/OD		mm	9.52/16.0	9.52/19.0	9.52/22.0	
Required accessories (should be ordered separately)				Daikin wired remote control (BRC1E52A/B or BRC1D52)			
Power supply	Voltage		V	230			

(1) Favourable conditions: covered shopping mall or revolving door entrance (2) Normal conditions: little direct wind, no opposite open doors, building with ground floor only (3) Unfavourable conditions: location at a corner or square, multiple floors and/or open stairway

Integrated ventilation

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 - the VRV system itself.

Heat reclaim ventilation

Proper ventilation is a key component of climate control in buildings, offices and shops.

At a basic level, it ensures a flow of incoming fresh air and outgoing stale air. However, Daikin's Heat Reclaim Ventilation (HRV) solution can do so much more.

HRV can recover heat and optimise the balance between the indoor and outdoor temperature and humidity, thus reducing the load on the system and increasing efficiency.

Heat reclaim ventilation

Outdoor air processing in a single unit

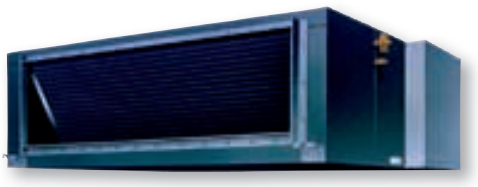
Daikin's FXMQ-MF air processing solution uses heat pump technology to combine fresh air treatment and air conditioning in a single system, thereby eliminating the usual design problems associated with balancing air supply and discharge.

The total system cost is reduced and design flexibility is enhanced because the air conditioning fan coil units and outdoor air treatment unit can be connected to the same refrigerant line.

VRV air handling applications

VRV air handling applications

For medium and large commercial spaces, Daikin offers a range of R-410A inverter condensing units that connect to air handling units. This approach combines the flexibility of our VRV units with air handling applications, resulting in a simple, reliable solution.

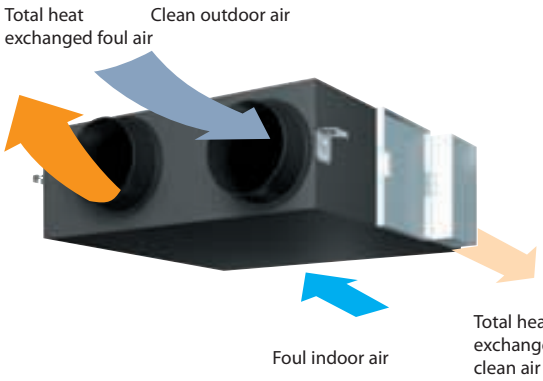


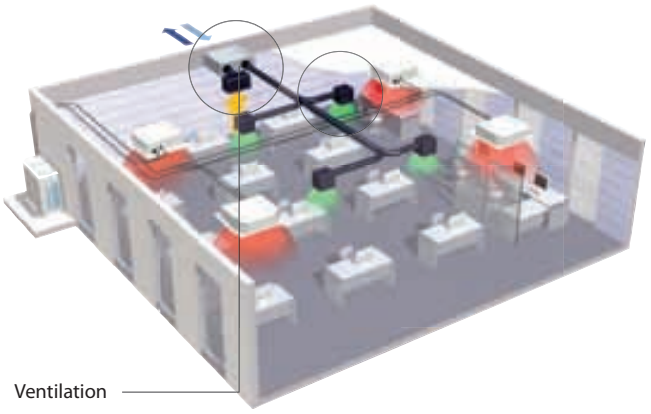
Outdoor air processing unit

Daikin Heat Reclaim Ventilation (HRV)

The VAM-FA/FB system modulates the temperature and humidity of incoming fresh air to match the indoor conditions. This provides a balance between the indoor and outdoor temperatures, significantly reducing the cooling or heating load on the air conditioning system.

- HRV units can be controlled individually or integrated with a Daikin VRV or Sky Air system
- Energy saving ventilation via recovery of indoor unit heat or cold
- Ideal solution for shops, restaurants or offices requiring maximum floor space for furniture, decorations and fittings
- Free cooling when outdoor temperature is below the indoor temperature (e.g. during the night)
- Low energy consumption thanks to DC inverter fans
- Prevents energy losses from over-ventilation while maintaining indoor air quality with CO_2 sensor (optional)
- Can be used as a stand-alone unit or integrated in the VRV system
- Wide range of units: air flow rate from 150 up to 2,000 m3/h
- High efficiency filters available in F6 ,F7 and F8 grades
- Specially developed heat exchange element with High Efficiency Paper (HEP)
- No drain piping needed
- Can operate in over- and under-pressure conditions





VENTILATION					VAM150FA	VAM250FA	*VAM350FB	*VAM500FB	*VAM650FB	*VAM800FB	*VAM1000FB	*VAM1500FB	*VAM2000FB
Power input - 50Hz	Heat exchange mode	Nom.	Ultra high	kW	0.116	0.141	-						
	Bypass mode	Nom.	Ultra high	kW	0.116	0.141	-						
Temperature exchange efficiency - 50Hz	Ultra high			%	74	72	75	74	74	74	75	75	75
Enthalpy exchange efficiency - 50Hz	Cooling	Ultra high		%	58		61	58	58	60	61	61	61
	Heating	Ultra high		%	64		65	62	63	65	66	66	66
Operation 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		Air to air cross flow total heat (sensible + latent heat) exchange						
Heat exchange element					Specially processed non-flammable paper		Specially processed non-flammable paper						
Dimensions	Unit	HeightxWidthxDepth		mm	285x776x525		301x828x816		364x1,004x868		364x1,004x1,156	726x1,514x868	
Weight	Unit			kg	24		33	33	48	48	61	132	158
Fan-Air flow rate - 50Hz	Heat exchange mode	Ultra high		m^3/h	150	250	350	500	650	800	1,000	1,500	2,000
	Bypass mode	Ultra high		m^3/h	150	250	350	500	650	800	1,000	1,500	2,000
Fan-External static pressure - 50Hz	Ultra high			Pa	69	64	98	98	93	137	157	137	137
Sound pressure level - 50Hz	Heat exchange mode	Ultra high		dBA	27 / 28.5	28 / 29	32 / 34	33 / 34.5	34.5 / 35.5	36 / 37	36 / 37	39.5 / 41.5	40 / 42.5
	Bypass mode	Ultra high		dBA	27 / 28.5	28 / 29	32 / 34	33.5 / 34.5	34.5 / 35.5	36 / 37	36 / 37	40.5 / 41.5	40 / 42.5
Operation range	Min.			°CDB	-15		-15						
	Max.			°CDB	50		50						
	Relative humidity			%	80% or less		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		1~/50/60/220-240/220						
Current	Maximum fuse amps (MFA)			A	15		15						

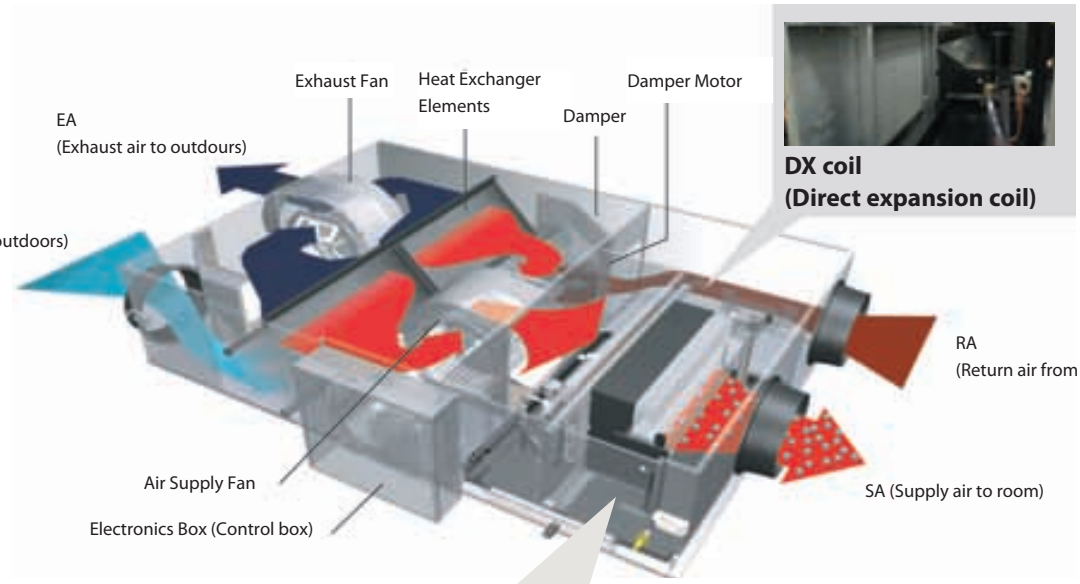
*Note: grey cells contain preliminary data

Heat reclaim ventilation, humidification and air processing

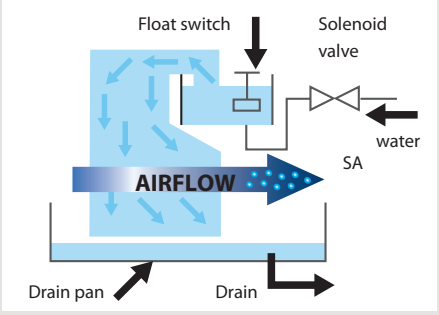
The VKM-GM/VKM-G series offers a fully integrated range of heat reclaim ventilation, humidification and air processing functions.

- Creates a high quality indoor environment by pre-conditioning incoming fresh air
- Humidification of the incoming air maintains a comfortable indoor humidity level, even during heating
- Energy saving ventilation via recovery of indoor unit heat/cold
- Ideal solution for shops, restaurants or offices requiring maximum floor space for furniture, decorations and fittings
- Free cooling when outdoor temperature is below indoor temperature (eg. during the night)
- Can be used as a stand-alone unit or integrated within a VRV system
- Wide range of units: air flow rate from 150 up to 2,000 m3/h
- Specially developed heat exchange element with High Efficiency Paper (HEP)
- No drain piping needed
- Can operate in over- and under-pressure conditions

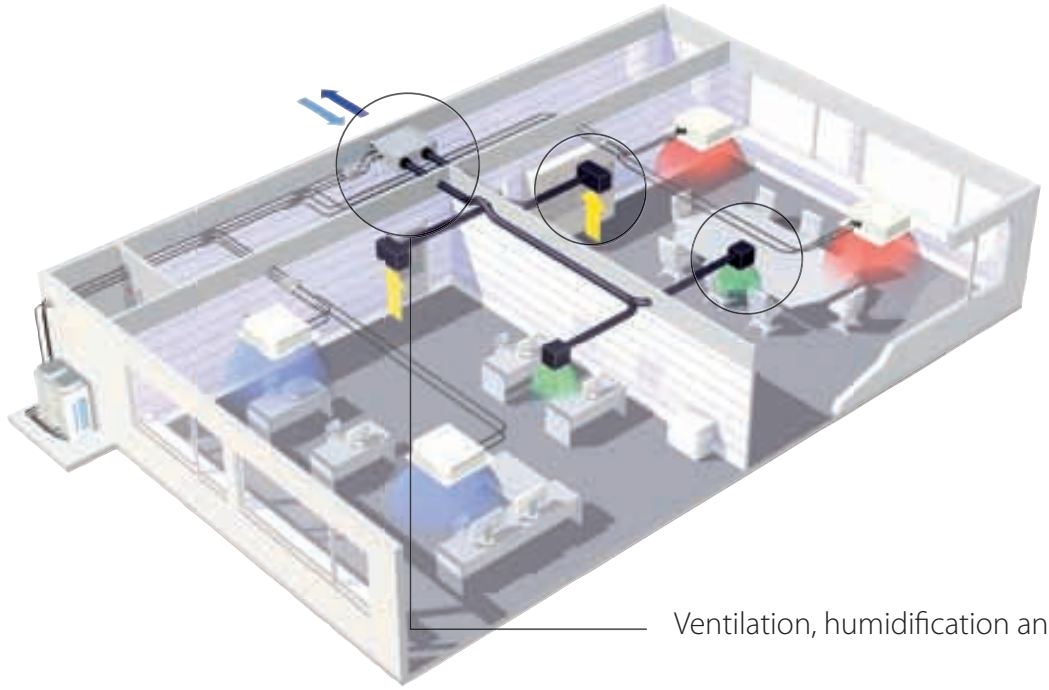
Operation example: humidification and air processing (heating mode)[1]



Humidifier element:
Utilising 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.



[1] VKM-GM example



VKM-GM example

Ventilation, humidification and air processing

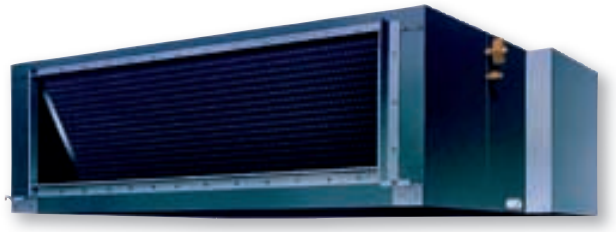
Ventilation & DX coil					VKM50G	VKM80G	VKM100G
Power input - 50Hz	Heat exchange mode	Nom.	Ultra high	kW	0.560	0.620	0.670
	Bypass mode	Nom.	Ultra high	kW	0.560	0.620	0.670
Fresh air conditioning load	Cooling			kW	4.71	7.46	9.12
	Heating			kW	5.58	8.79	10.69
Temperature exchange efficiency - 50Hz	Ultra high			%	76	78	74
Enthalpy exchange efficiency - 50Hz	Cooling	Ultra high		%	64	66	62
	Heating	Ultra high		%	67	71	65
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	387x1,764x832	387x1,764x1,214	
Weight	Unit			kg	96	109	114
Fan-Air flow rate - 50Hz	Heat exchange mode	Ultra high		m^3/h	500	750	950
	Bypass mode	Ultra high		m^3/h	500	750	950
Fan-External static pressure - 50Hz	Ultra high			Pa			
Sound pressure level - 50Hz	Heat exchange mode	Ultra high		dBA	38 / 38.5 / 39	40 / 41 / 41.5	40 / 40.5 / 41
	Bypass mode	Ultra high		dBA	38 / 38.5 / 39	40 / 41 / 41.5	40 / 40.5 / 41
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		
Connection duct diameter				mm	200	250	
Piping connections	Liquid	OD		mm	6.35		
	Gas	OD		mm	12.7		
	Drain				PT3/4 external thread		
Power supply	Phase/Frequency/Voltage			Hz/V	1~/50/220-240		
Current	Maximum fuse amps (MFA)			A	15		

Ventilation, DX coil & humidification					VKM50GM	VKM80GM	VKM100GM
Power input - 50Hz	Heat exchange mode	Nom.	Ultra high	kW	0.560	0.620	0.670
	Bypass mode	Nom.	Ultra high	kW	0.560	0.620	0.670
Fresh air conditioning load	Cooling			kW	4.71	7.46	9.12
	Heating			kW	5.58	8.79	10.69
Temperature exchange efficiency - 50Hz	Ultra high			%	76	78	74
Enthalpy exchange efficiency - 50Hz	Cooling	Ultra high		%	64	66	62
	Heating	Ultra high		%	67	71	65
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		
Dimensions	Unit	HeightxWidthxDepth		mm	387x1,764x832	387x1,764x1,214	
Weight	Unit			kg	102	120	125
Fan-Air flow rate - 50Hz	Heat exchange mode	Ultra high		m^3/h	500	750	950
	Bypass mode	Ultra high		m^3/h	500	750	950
Fan-External static pressure - 50Hz	Ultra high			Pa	160	140	110
Sound pressure level - 50Hz	Heat exchange mode	Ultra high		dBA	37 / 37.5 / 38	38.5 / 39 / 40	39 / 39.5 / 40
	Bypass mode	Ultra high		dBA	37 / 37.5 / 38	38.5 / 39 / 40	39 / 39.5 / 40
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		
Connection duct diameter				mm	200	250	
Piping connections	Liquid	OD		mm	6.35		
	Gas	OD		mm	12.7		
	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		

Outdoor air processing

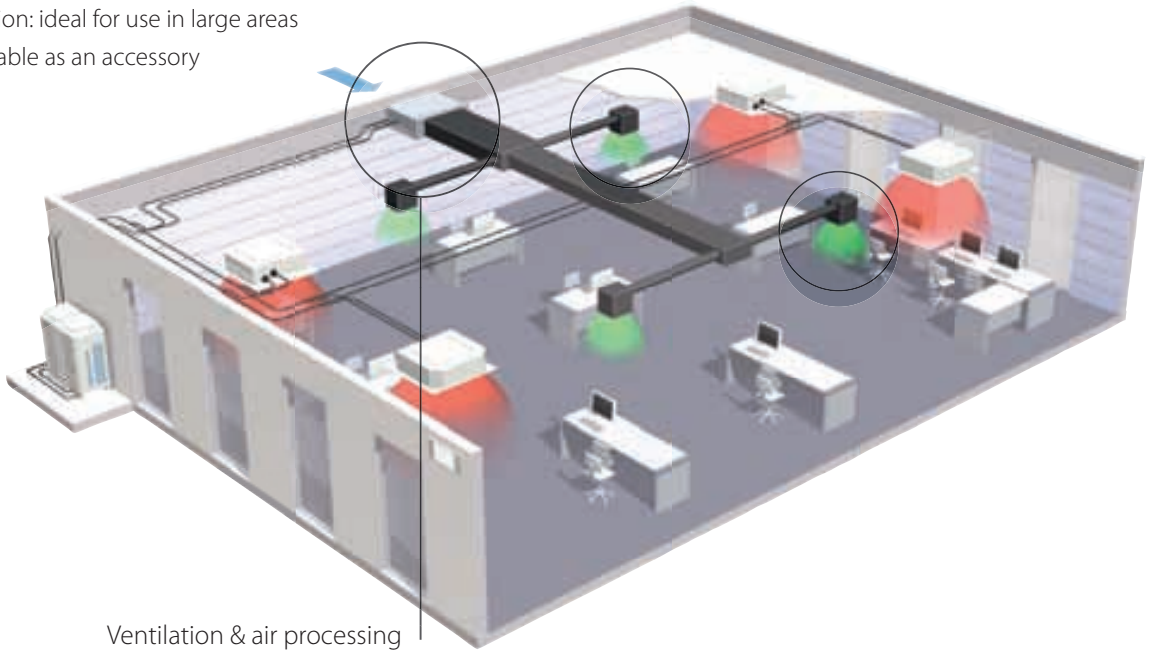
The FXMQ-MF is an outdoor air processing unit with integrated ventilation and air processing, combining fresh air treatment and air conditioning via a single system.

Both fresh air treatment and air conditioning can be provided via a single system using heat pump technology without the usual design problems associated with balancing air supply and discharge.



Air conditioning indoor units and an outdoor air treatment unit can be connected to the same refrigerant line, resulting in enhanced design flexibility and a significant reduction in total system costs.

- 100% fresh air intake possible
- Leaves maximum floor and wall space for furniture, decorations and fittings
- Operation range: -5°C to 43°C
- 225 Pa external static pressure allows extensive ductwork runs and flexible application: ideal for use in large areas
- Drain pump kit available as an accessory



Ventilation & air processing

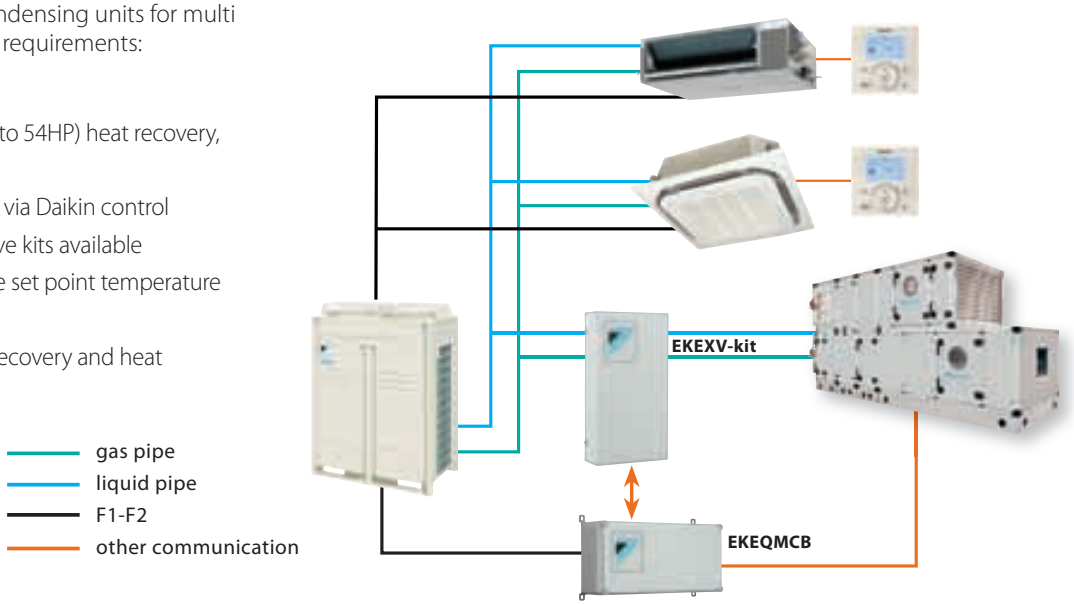
Ventilation & air processing				FXMQ125MF	FXMQ200MF	FXMQ250MF
Cooling capacity	Nom.		kW	14.0	22.4	28.0
Heating capacity	Nom.		kW	8.9	13.9	17.4
Power Input (50Hz)	Cooling	Nominal	kW	0.359	0.548	0.638
	Heating	Nominal	kW	0.359	0.548	0.638
Dimensions	Unit	HeightxWidthxDepth	mm	470x744x1,100	470x1,380x1,100	
Weight	Unit		kg	86	123	
Air Flow Rate	Cooling		m^3/min	18	28	35
	Heating		m^3/min	-		
External Static Pressure	Standard		Pa	185	225	205
Refrigerant	Type			R-410A		
Sound Power	Cooling	Nominal	dBA	-		
Sound Pressure	Cooling	Nominal (220V)	dBA	42	47	
Operation range	On coil temperature	Cooling max.	°CDB	43		
		Heating min.	°CDB	-5		
Piping connections	Liquid	OD	mm	9.52		
	Gas	OD	mm	15.9	19.1	22.2
	Drain			PS1B		
Power supply	Phase / Frequency / Voltage		Hz / V	1~ / 50 / 220-240		

[1] Not connectable to VRV III-S (RXYSQ-P8V1, RXYSQ-PBY1)

VRV air handling applications

A range of R-410A inverter condensing units for multi applications with air handling requirements:

- Inverter controlled units
- Large capacity range (from 5 to 54HP) heat recovery, heat pump R-410A
- Control of room temperature via Daikin control
- Large range of expansion valve kits available
- BRC1E52A/B is used to set the set point temperature (connected to the EKEQMCB)
- Connectable to all VRV heat recovery and heat pump systems



EKEXV - Expansion valve kit for air handling application

EKEXV class	Allowed heat exchanger capacity (kW)					
	Cooling (Evaporation temperature 6°C)			Heating (Condensing temperature 46°C)		
	Minimum	Standard	Maximum	Minimum	Standard	Maximum
50	5.0	5.6	6.2	5.6	6.3	7.0
63	6.3	7.1	7.8	7.1	8.0	8.8
80	7.9	9.0	9.9	8.9	10.0	11.1
100	10.0	11.2	12.3	11.2	12.5	13.8
125	12.4	14.0	15.4	13.9	16.0	17.3
140	15.5	16.0	17.6	17.4	18.0	19.8
200	17.7	22.4	24.6	19.9	25.0	27.7
250	24.7	28.0	30.8	27.8	31.5	34.7

- The system provides optimised air conditions such as fresh air and humidity control and can be used in small warehouses, showrooms and offices
- Wide range of units offers maximum application potential and flexible control options
- Air handling unit, control box and expansion valve kit are required for each combination
- Both option kits are designed for indoor and outdoor installation and can be wall mounted

Ventilation					EKEXV50	EKEXV63	EKEXV80	EKEXV100	EKEXV125	EKEXV140	EKEXV200	EKEXV250
Dimensions	Unit	HeightxWidthxDepth		mm	401x215x78							
Weight	Unit			kg	2.9							
Sound pressure level	Nom.			dBA	45							
Operation range	On coil temperature	Heating	Min.	°CDB	10 (1)							
		Cooling	Max.	°CDB	35 (2)							
Refrigerant	Type				R-410A							
Piping connections	Liquid	OD		mm	6.35	9.52						
	Gas	OD		mm	6.35	9.52						

(1) The temperature of the air entering the coil in heating mode can be reduced to -5° CDB. Contact your local dealer for more information. (2) 45% Relative humidity

EKEQ - Control box for air handling applications

- Wide range of control possibilities:
  - control x: room, suction or discharge temperature can be controlled via DDC control (field supplied)
  - control y: control by fixed evaporating temperature;
  - control z: room or suction temperature control via Daikin remote control
  - remote ON/OFF can be achieved by an optional adapter KRP4A51

Ventilation				EKEQFCB	EKEQDCB	EKEQMCB
Application				Pair		Multi
Outdoor unit				ERQ		VRV
Dimensions	Unit	HeightxWidthxDepth	mm	132x400x200		
Weight	Unit		kg	3.9	3.6	
Power supply	Phase/Frequency/Voltage		Hz/V	1~/50/230		

Product portfolio

Outdoor unit range

System	Type	Product name		Capacity (HP) 4	5	6	8	10	12	14	16	18	20	22	24
Cooling capacity (kW)[1]				12.6	14.0	15.5	22.4	28.0	33.5	40.0	45.0	49.0	55.9	61.5	67.0
Heating capacity (kW)[2]				14.2	16.0	18.0	25.0	31.5	37.5	45.0	50.0	56.5	62.5	69.0	75.0
AIR COOLED	HEAT PUMP	VRV IV RYYQ-T Heat pump with continuous heating	new												
		VRV III-S RXYSQ-P8V1 (Single phase) RXYSQ-P8Y1 (Three phase)													
		VRV Classic RXYCQ-A	new												
	HEAT RECOVERY	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													
Cooling capacity (kW)[3]							22.4	26.7			44.8	49.1	53.4		67.2
Heating capacity (kW)[4]							25.0	31.5			50.0	56.5	63.0		75.0
WATER COOLED	STANDARD SERIES H/R - H/P	VRV-W III RWEYQ-P													
	GEO-THERMAL SERIES H/R - H/P	VRV-W III RWEYQ-PR													

System	Type	Product name		4	5	8	10	12	13	14	16	18	20	22	24
Capacity class					140		280		360		460	500	540	636	712
Cooling capacity (kW)[1] HR/HP					-/14.0	-/22.4	28.0/28.0	-/33.5	36.0/-	-/40.0		50.0/50.4	54.0/55.9	63.6/61.5	71.2/67.0
Heating capacity (kW)[2] HR/HP					-/16.0	-/25.0	32.0/31.5	-/37.5	40.0/-	-/45.0	52.0/50.0	56.0/56.5	60.0/62.5	67.2/69.0	78.4/75.0
AIR COOLED	REPLACEMENT VRV HEAT RECOVERY - HEAT PUMP	VRV III-Q RQYQ-P VRVIII-Q - H/P													
		VRV III-Q RQCEQ-P VRVIII-Q - H/R													

Single unit Multi combination

[1] Nominal cooling capacities are based on : indoor temperature : 27°CDB, 19°CWB, inlet water temperature : 30°C, equivalent refrigerant piping : 7.5m, level difference : 0m.
[2] Nominal heating capacities are based on: indoor temperature: 20°CDB, outdoor temperature: 7°CDB, 6°CWB, equivalent refrigerant piping : 7.5m, level difference : 0m.
[3] Nominal cooling capacities are based on: indoor temperature : 27°CDB, 19°CWB, inlet water temperature : 30°C, equivalent refrigerant piping : 7.5m, level difference : 0m
[4] Nominal heating capacities are based on: indoor temperature : 20°CDB, inlet water temperature : 20°C, equivalent refrigerant piping : 7.5m, level difference : 0m

26	28	30	32	34	36	38	40	42	44	46	48	50	52	54
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
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
71.5	75.8	80.1												
81.5	88.0	94.5												

Capacity (HP)

26	28	30	32	34	36	38	40	42	44	46	48	50	52	54
744	816	848												
74.4/73.0	81.6/78.5	84.4/85.0	-/90.0	-/96.0	-/101.0	-/107.0	-/112.0	-/118.0	-/124.0	-/130.0	-/135.0			
80.8/81.5	87.2/87.5	89.6/95.0	-/100.0	-/108.0	-/113.0	-/119.0	-/125.0	-/132.0	-/138.0	-/145.0	-/150.0			

Indoor units		Ventilation			Air curtain	Hydrobox connection		Control systems		
+	•	+	+	•	+	+	x	+	+	+
+	•	+	x	+	+	x	x	+	+	+
+	x	+	+	x	x	x	x	+	+	+
+	x	+	+	+	+	x	x	+	+	+
+	x	+	+	+	+	x	x	+	+	+
+	x	+	+	+	+	x	+	+	+	+
+	x	+	+	+	+	x	x	+	+	+
+	x	+	+	+	+	x	x	+	+	+

VRV type indoor units (such as FXSQ)	Residential type indoor units (such as Daikin Emura) [5]	Heat Reclaim ventilation (such as VAM)	Fresh air indoor units (such as FXMQ-MF)	AHU connection kit (such as EKEXV)	Biddle Air curtain for VRV (CYV)	Low temperature hydrobox for VRV	High temperature hydrobox for VRV	Individual control (such as BRC [6])	Centralised control (such as DCS3*/DST [6])	Network solutions (such as DCS6*/DAM/DMS [6])
+	x	+	+	+	+	x	x	+	+	+
+	x	+	+	+	+	x	x	+	+	+

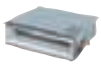
[5] BP-box required
[6] Exact control possibilities depend on the selected system components
+ All + components can be connected together to 1 system
• Can be connected, but not in combination with other components
x Can not be connected

Product Portfolio

Indoor unit range

VRV climate control brings freshness and warmth to offices, hotels, stores and many other commercial premises, enhancing the indoor environment. Whatever the air conditioning or heating requirement, a Daikin indoor unit can provide the answer. A VRV system can be supplied in combination with 26 different indoor unit models, offering a total of 116 variations.

VRV indoor unit range

	Type	Model	Product name		Capacity 15	20	25	32	40	50	63	71	80	100	125	140	200	250
new	CEILING MOUNTED CASSETTE	Round flow cassette autocleaning function[3] Presence & floor sensor[3]	FXFQ-A			■	■	■	■	■	■		■	■	■			
new	CEILING MOUNTED CASSETTE	4-way blow ceiling mounted cassette Presence & floor sensor[3]	FXZQ-A		■	■	■	■	■	■								
new	CEILING MOUNTED CASSETTE	2-way blow ceiling mounted cassette	FXCQ-A			■	■	■	■	■	■		■		■			
	CEILING MOUNTED CASSETTE	Ceiling mounted corner cassette	FXKQ-MA				■	■	■		■							
	CONCEALED CEILING	Small concealed ceiling unit	FXDQ-M9			■	■											
new	CONCEALED CEILING	Slim concealed ceiling unit	FXDQ-A		■	■	■	■	■	■	■							
	CONCEALED CEILING	Concealed ceiling unit with medium static pressure	FXSQ-P			■	■	■	■	■	■		■	■	■	■		
	CONCEALED CEILING	Concealed ceiling unit with high static pressure	FXMQ-P7			■	■	■	■	■	■		■	■	■			
	CONCEALED CEILING	Large concealed ceiling unit	FXMQ-MA[4]														■	■
	WALL MOUNTED	Wall mounted unit	FXAQ-P			■	■	■	■	■	■							
new	CEILING SUSPENDED	Ceiling suspended unit	FXHQ-A					■			■			■				
new	CEILING SUSPENDED	4-way blow ceiling suspended unit	FXUQ-MA									■		■	■			
	FLOOR STANDING	Floor standing unit	FXLQ-P			■	■	■	■	■	■							
	FLOOR STANDING	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

Split indoor unit range

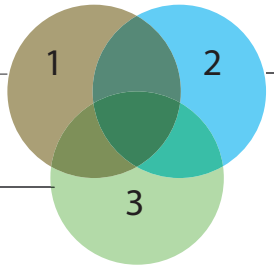
	Type	Model	Product name		Capacity 15	20	25	35	42	50	60	71	VRV IV Connectable outdoor unit: RYYQ-T	VRV II-S Connectable outdoor unit: RXYSQ-P8V1 RXYSQ-P8Y1
	CEILING MOUNTED CASSETTE	Round flow cassette (incl. autoclean function[1])	FCQG-F					■		■	■			✓
new	CEILING MOUNTED CASSETTE	Fully flat cassette	FFQ-C				■	■		■	■			✓
	CONCEALED CEILING	Small concealed ceiling unit	FDBQ-B				■							✓
	CONCEALED CEILING	Slim concealed ceiling unit	FDXS-F				■	■		■	■			✓
	CONCEALED CEILING	Concealed ceiling unit with inverter driven fan	FBQ-C					■		■	■			✓
	WALL MOUNTED	Daikin Emura Wall mounted unit	FTXG-JA/JW				■	■		■			✓	✓
new	WALL MOUNTED	Wall mounted unit	CTXS-K FTXS-K		■	■	■	■	■	■			✓	✓
	WALL MOUNTED	Wall mounted unit	FTXS-G								■	■	✓	✓
new	CEILING SUSPENDED	Ceiling suspended unit	FHQ-C					■		■	■			✓
	FLOOR STANDING	Nexura floor standing unit	FVXG-K				■	■		■			✓	✓
	FLOOR STANDING	Floor standing unit	FVXS-F				■	■		■			✓	✓
	FLOOR STANDING	Flexi type unit	FLXS-B				■	■		■	■		✓	✓

[1] Decoration panel BYCQ140CG + BRC1E52A needed

Ventilation range

Ventilation: provision of fresh air

Pre conditioning: cooling or heating of incoming fresh air to maintain a consistent temperature for maximum comfort



Humidification: optimise the balance between indoor and outdoor humidity

Type	Product name	Components of indoor air quality	Air flow rate (m^3/h)
HEAT RECLAIM VENTILATION	VAM-FA/FB	1 Ventilation	
	VKM-G	1 Ventilation 3 Pre conditioning	
	VKM-GM	1 Ventilation 2 Humidification 3 Pre conditioning	
OUTDOOR AIR PROCESSING UNIT [1]	FXMQ-MF	1 Ventilation 3 Pre conditioning	
VRV AIR HANDLING APPLICATIONS [2]	EKEXV-kit	1 Ventilation 3 Pre conditioning	

0 | 200 | 400 | 600 | 800 | 1,000 | 1,500 | 2,000 | 4,000 | 6,000 | 8,000

[1] Not connectable to VRV III-S (RXYSQ-P8V1, RXYSQ-P8Y1)

[2] Air flow rate is a calculated indication only, based on the following values: heating capacity EKEXV-kit * 200m^3/h

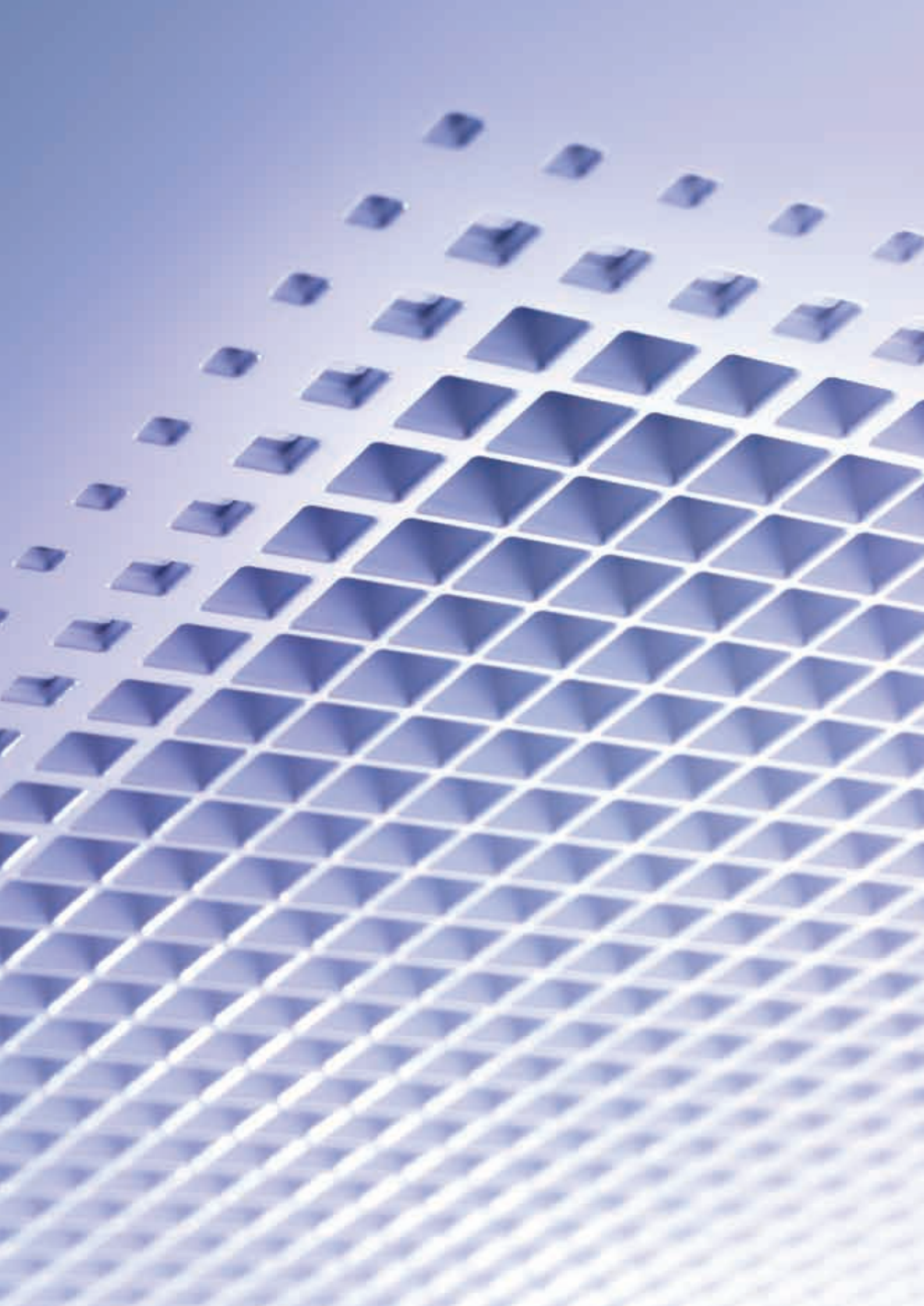
[3] For more information on Daikin air handling units refer to your local dealer

Network solutions

	Control				Monitoring								Options				Other control functions									
	Basic control functions: ON/OFF, temp. Setting, air flow settings	Automatic changeover	Weekly schedule control	Fire emergency stop control	Basic monitoring functions: ON/OFF status, operation mode, set point temp.	Indication filter replacement	Malfunction code	Password security	Touch screen	Daily/monthly/yearly reports	Control via GSM	Graphical report	Visualisation	Ppd	Web acces & control	Http option	Eco mode	Pre cooling / heating	0°Δ Between cooling & heating	Power limit control	Sliding t° avoids overcooling via sensor	Free cooling changeover	ACNSS connection air conditioning network service system	Scheduling presets (programs)	User friendliness	Max. Indoors groups
DS-NET	■	■		■	■	■	■				■		+													+	4x10
INTELLIGENT TOUCH CONTROLLER	■	■	■	■	■	■	■	■	■				++	■	■	■							■	■	8	+++	2x64
INTELLIGENT TOUCH MANAGER	■	■	■	■	■	■	■	■		■		■	+++	■	■		■	■	■	■	■	■		■	128	+++	1024
DMS-IF [1]	■	■		■	■	■	■						N/A													N/A	64
BACNET [2]	■	■		■	■	■	■						N/A	■												N/A	4x64

[1] Gateway for Lonworks networks [2] Gateway for BACnet networks

Notes



your comfort. **our world.**

Qualified for **Energy Technology List** www.eca.gov.uk ™

Authorised User No. 00061

DAIKIN UK **RECYCLING** END OF LIFE AIR CON UNITS

FSC

Carbon Balanced Paper

Visit **www.eca.gov.uk/etl** and type 'Daikin' in the quick search box for details of the latest ECA qualifying Daikin units

LLOYD'S REGISTER QUALITY ASSURANCE · ISO9001 · UKAS QUALITY MANAGEMENT 001

LLOYD'S REGISTER QUALITY ASSURANCE · ISO 14001 · UKAS ENVIRONMENTAL MANAGEMENT 001

EUROVENT CERTIFIED PERFORMANCE

Daikin Europe N.V. participates in the Eurovent Certification Programme for Air Conditioners (AC), Liquid Chilling Packages (LCP) and Fan Coil Units (FC); the certified data of certified models are listed in the Eurovent Directory. Multi units are Eurovent certified for combinations up to 2 indoor units. VRV products, Rooftops, FWB-J and FWD-units are not within the scope of the Eurovent Certification Programme.

CE Daikin units comply with the European regulations that guarantee the safety of the product.

Daikin products are distributed by:

The present catalogue is drawn up by way of information only and does not constitute an offer binding upon Daikin UK. Daikin UK has compiled the content of this catalogue to the best of its knowledge. No express or implied warranty is given for the completeness, accuracy, reliability or fitness for particular purpose of its content and the products and services presented therein. Specifications are subject to change without prior notice. Daikin UK explicitly rejects any liability for any direct or indirect damage, in the broadest sense, arising from or related to the use and/or interpretation of this catalogue. All content is copyrighted by Daikin UK.

UKEPCEN12-934 / 11.12 / Shere Marketing. Copyright 2012 Daikin.
Printed in the UK on FSC certified paper from sustainable sources.

Daikin Airconditioning UK Limited The Heights Brooklands Weybridge Surrey KT13 0NY Tel 0845 6419000 Fax 0845 6419009 www.daikin.co.uk

Scotland Region	Northern Region	Midlands Region	Western Region	North London	South London
0845 641 9330	0845 641 9340	0845 641 9370	0845 641 9320	0845 641 9360	0845 641 9355