

Quick & High Quality replacement

VRV IV Q SERIES

For Replacement Use

Cooling Only 50 Hz

R-410A

Reusing existing piping for speedy replacement to an advanced energy-saving air conditioning

Upgrading air conditioning systems in the past used to require replacement of refrigerant piping in buildings, leading to major construction and costs exceeding those of the original installation.

To save time and cost, Daikin developed the *VRV IV Q Series* as a model specializing in system replacement. This revolutionary system reuses existing piping and enables quick and high quality replacement to the latest energy-saving air conditioning system without renovation work for new piping.

Reusing existing refrigerant piping minimizes:

- Piping removal and new construction along with installation time and cost
- Impact to the interior and exterior of buildings
- Suspension of daily business operations for renovation

Improvement in capacity and greater number of indoor units with the *VRV IV Q Series*

- Increase in capacity is possible while using existing piping.
- More indoor units can be connected in a single system, enabling consolidation of existing piping.

An automatic refrigerant charge function enables high quality installation for the *VRV IV Q Series*.

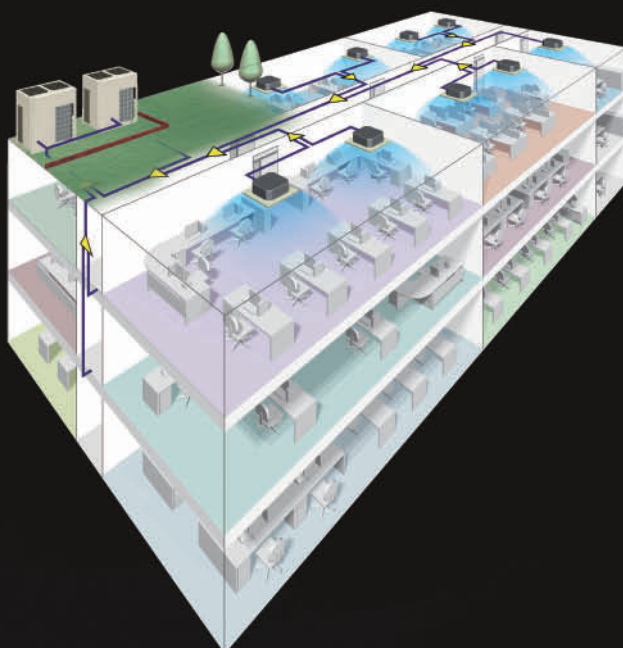
- The system is automatically charged with the proper amount of refrigerant even when the length of the existing piping is unknown.
- Equipment automatically performs a sequence of tasks from refrigerant charging to test operation.



VRV IV Q SERIES

system

VRV IV Q SERIES



Quick & High Quality
replacement

Enhanced lineup

2 types up 48 HP

Energy saving

Higher COP and VRT technology

Variety of indoor unit

Multiple functions for greater comfort

Convenient control system

Advanced energy-saving management

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Benefits of System Replacement

Quick, Quality and Economical

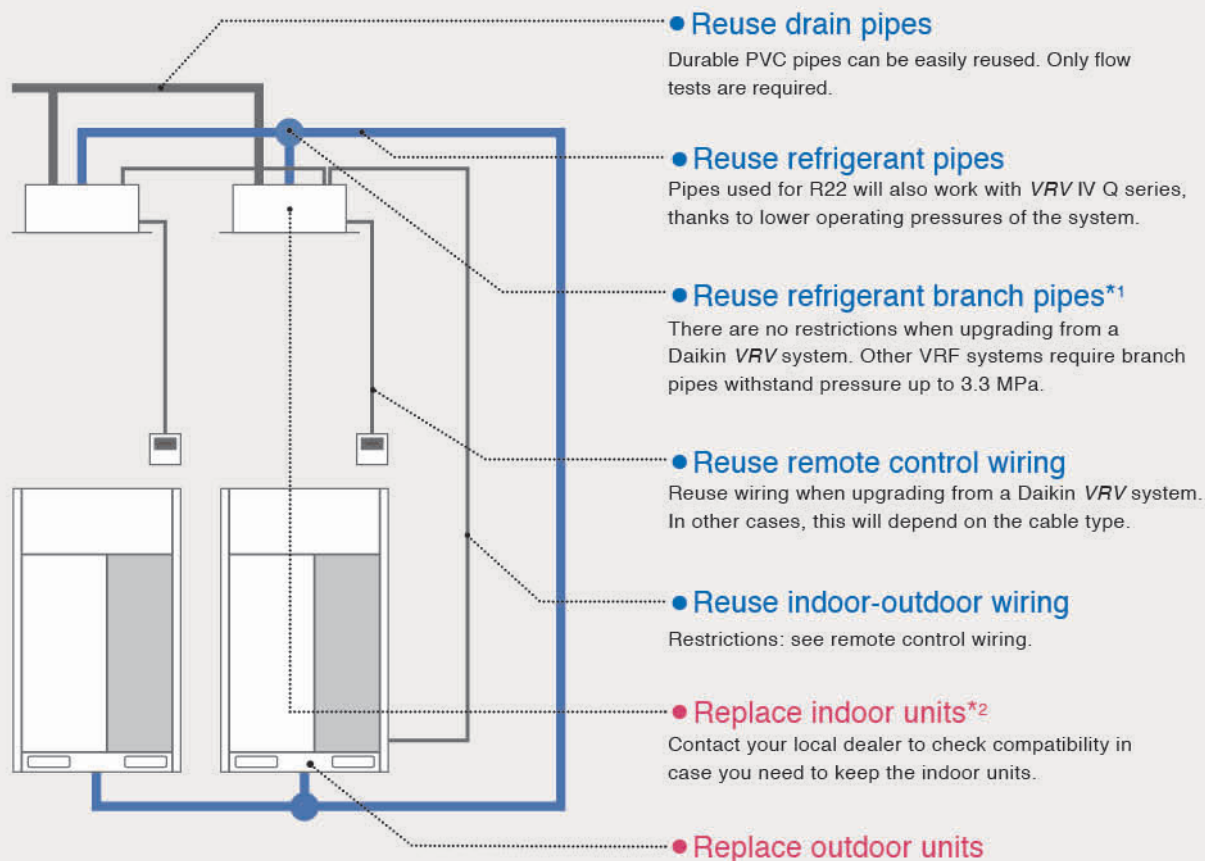
Reuse

Simple use of existing refrigerant piping.

In the past, special equipment and work was needed to clean pipes when using existing piping, but this is no longer required. A new function automatically deals with contamination inside piping during refrigerant charging, eliminating the work involved in cleaning.

Even applicable for non-DAIKIN systems!

The Daikin low-cost upgrade solution



*¹ For reuse of existing refrigerant piping, it is possible to use piping or branched piping capable of handling 3.3 MPa or more. Heat insulation is necessary for liquid piping and gas piping.

*² It is possible to keep R-22 indoor units from K-series and later version. It is not possible to combine old R-22 and new R-410A indoor units in one system due to incompatibility of communication.

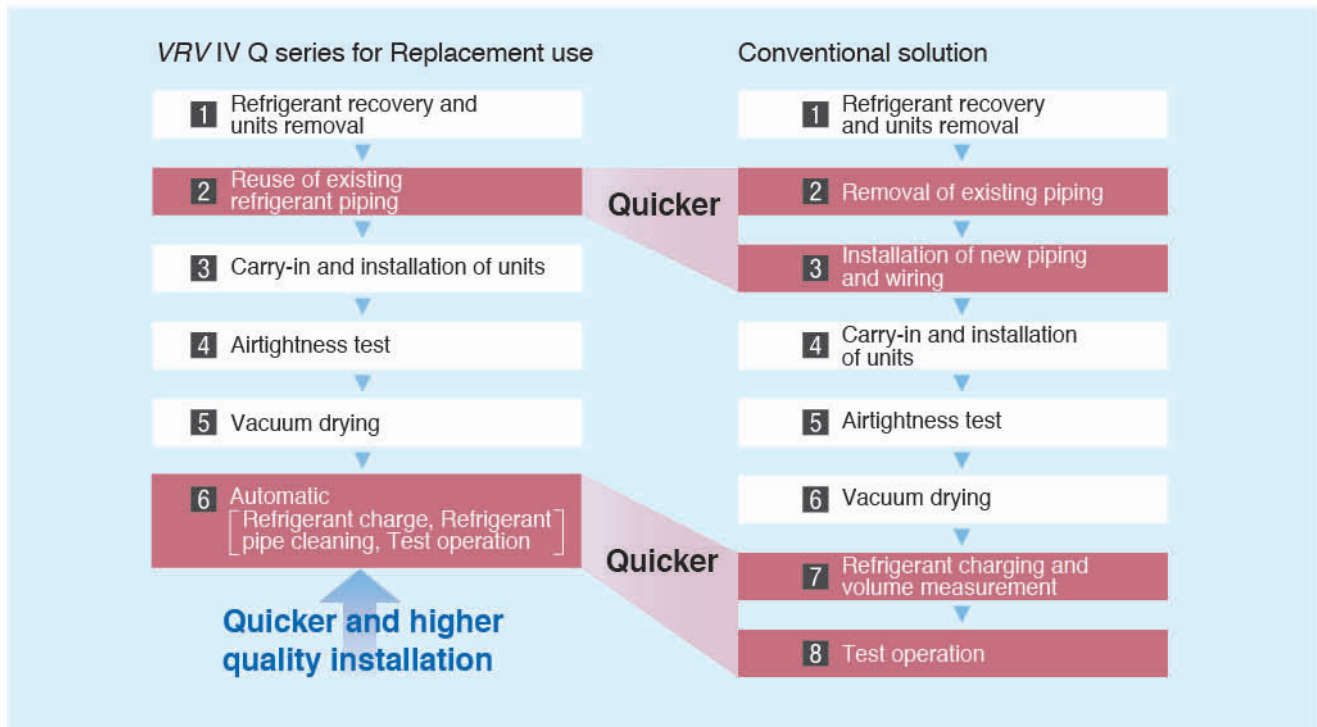
Automatic

Refrigerant charging, cleaning and test operation done with just a single switch.

The unique automatic refrigerant charge eliminates the need to calculate refrigerant volume, simplifying the installation process. Not knowing the exact piping lengths because of changes or mistakes in case you didn't do the original installation or replacing a competitor installation no longer poses a problem. Furthermore, there is no need to clean inside piping as this is handled automatically by the **VRV IV Q** unit.

Time saving

Enables smooth replacement of air conditioning with less effect on operations and users in the building.

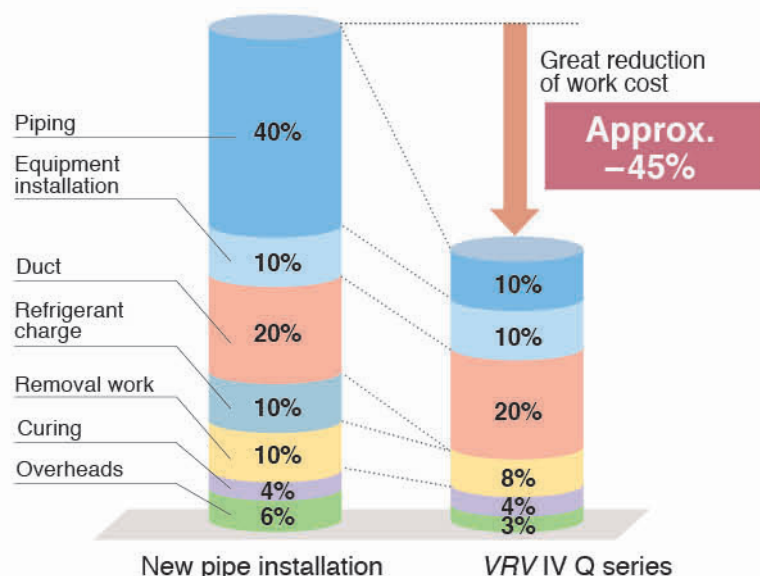


Cost saving

Work costs for pipe removal, installation and insulation account for almost 80% of the total cost. By the reuse of existing piping, 45% of cost down can be realized compared to installing new pipes. On top of the benefits from reusing pipes, costs of charging refrigerant to clean the pipes are also saved.

Cost details (10 HP example)

★Estimated in Japan by Daikin.

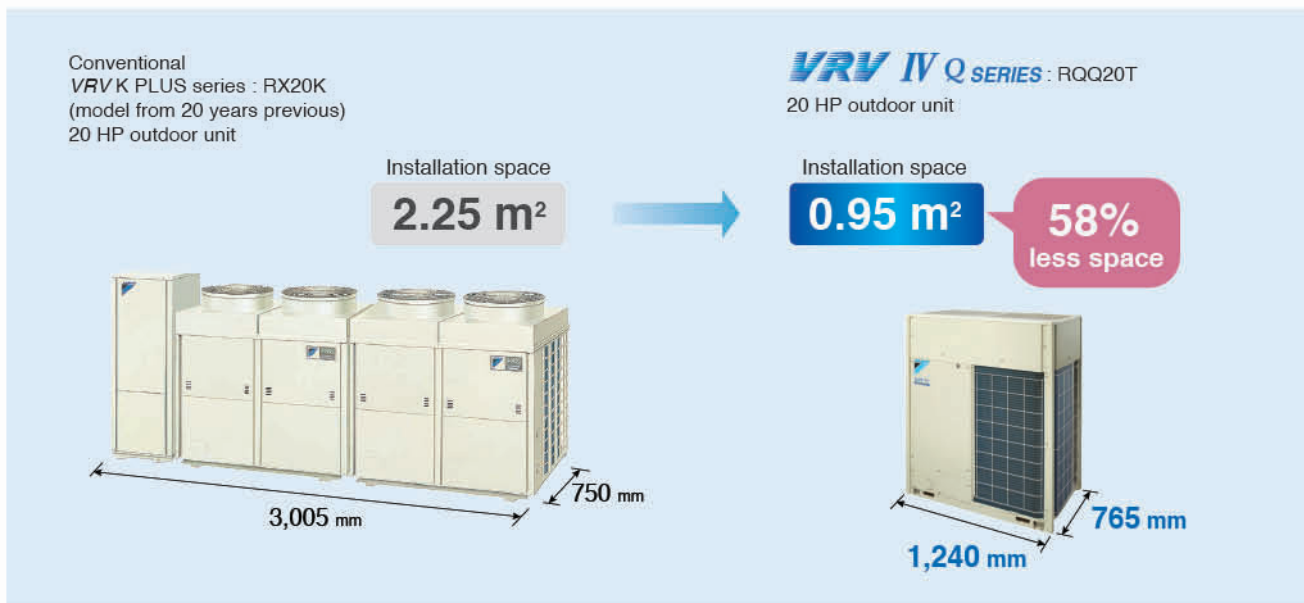


Benefits of System Replacement

Design flexibility

Significantly more compact outdoor unit enables the effective use of limited space!

Compact design enables the effective use of space taken up by existing machinery



High external static pressure 78.4 Pa

Conventional VRV K series
(model from 20 years previous)

49.0 Pa

VRV IV Q SERIES

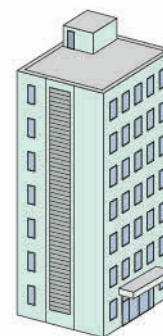
78.4 Pa

External static pressure

78.4 Pa

Easier discharge
hood connection
(field setting)

Easy installation on each floor
for use in tall buildings



Small and light, significantly reducing constraints during carry-in



Can be carried on a cart



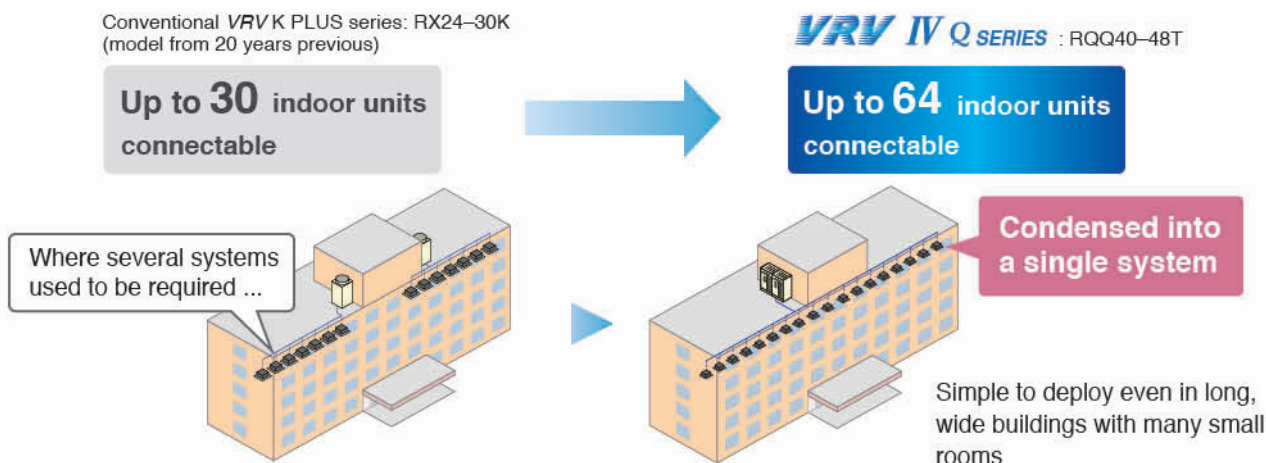
Can be transported easily by elevator

System flexibility

An increased number of connectable indoor units in a single system

More indoor units can be connected in a single system, enabling consolidation of existing piping!

The number of connectable indoor units has been drastically increased from 30 to 64.



Enables increased capacity

System can be upgraded using existing piping

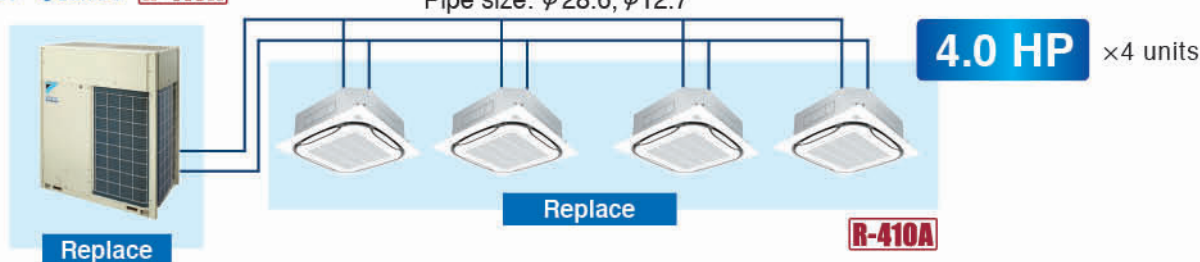
VRV IV Q series for replacement use enables the system capacity to be increased without changing the refrigerant piping. For example, it is possible to install a 16 HP VRV IV Q series using the refrigerant piping of an 10 HP R-22 system.

Before replacement
10 HP



After replacement

VRV IV Q SERIES R-410A
16 HP



* For reuse of existing refrigerant piping, it is possible to use piping or branched piping capable of handling 3.3 MPa or more. Heat insulation is necessary for liquid piping and gas piping.


Enhanced Lineup

2 types up to 48 HP

With its enhanced lineup of 2 types and Standard and Space saving types, **VRV IV Q** series outdoor units offer a high capacity up to 48 HP to meet an ever wider variety of needs.

Single outdoor unit


VRV III Q SERIES



8, 10, 12 HP
 14, 16 HP

1 type only

VRV IV Q SERIES



6, 8, 10, 12 HP
 14, 16, 18, 20 HP

2 type of Standard type and Space saving type

Lineup


	Mo/C																New Lineup							
HP	6	8	10	12	14	16	18	20	22	24	26	28	30	32	34	36	38	40	42	44	46	48		
Standard Type																								
Space Saving Type																								

Compact & Light Weight Design

New Space Saving type with refined design

As a leading global innovator, Daikin advanced from the conventional 2 module combination to a single module for 18 and 20 HP models. This allows the installation area to reduce by 33% as compared to the previous models.


VRV III Q SERIES



1,860 mm
 765 mm

18, 20 HP

VRV IV Q SERIES



1,240 mm
 765 mm

18, 20 HP

Foot print

1.42 m²

0.95 m²

33% decrease

Product weight

487 kg

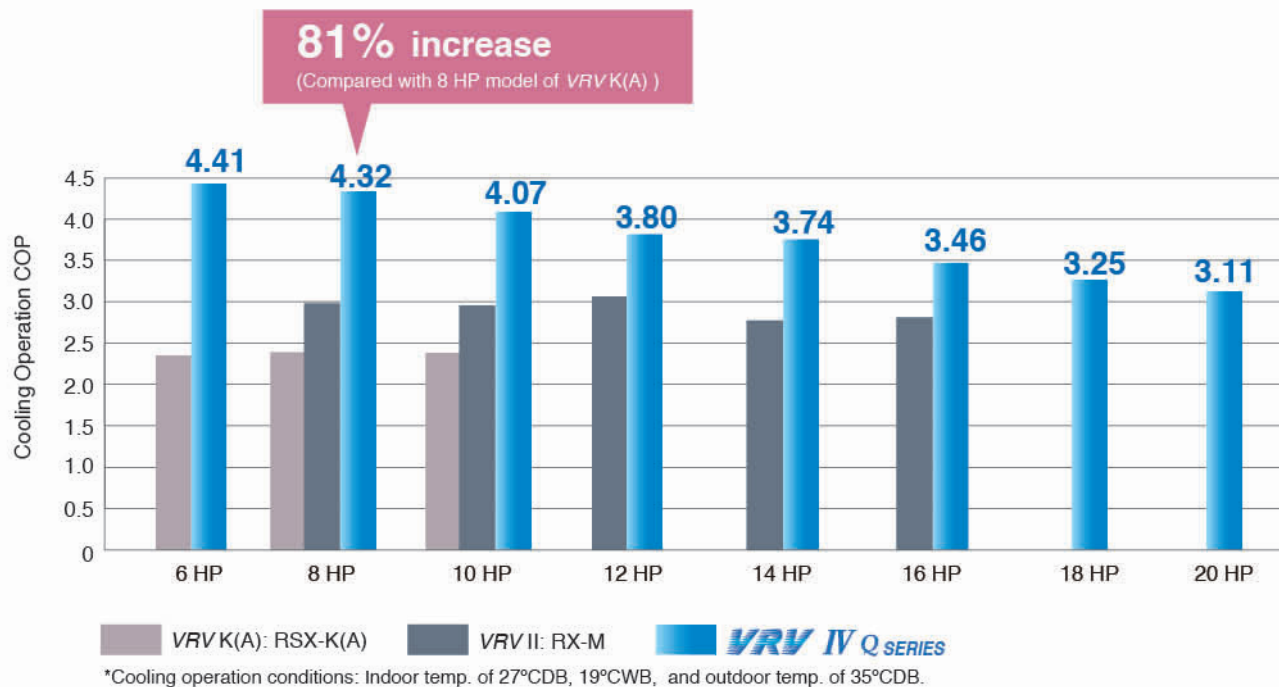
320 kg

34% decrease

Higher Coefficient of Performance (COP)

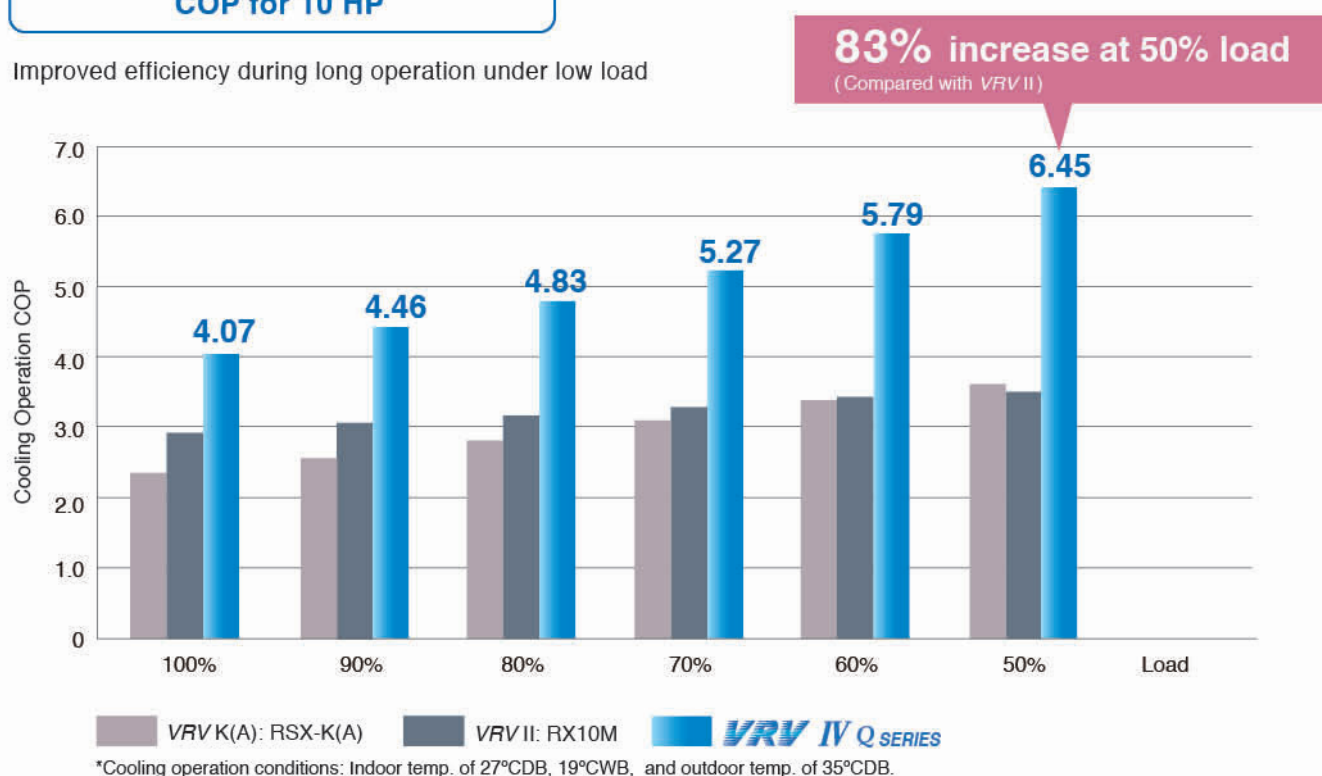
COP at 100% operation load

VRV IV Q series delivers highly efficient performance, contributing to high energy savings.



COP for 10 HP

Improved efficiency during long operation under low load



VRT-Variable Refrigerant Temperature

State-of-the-art energy saving technology for VRF system

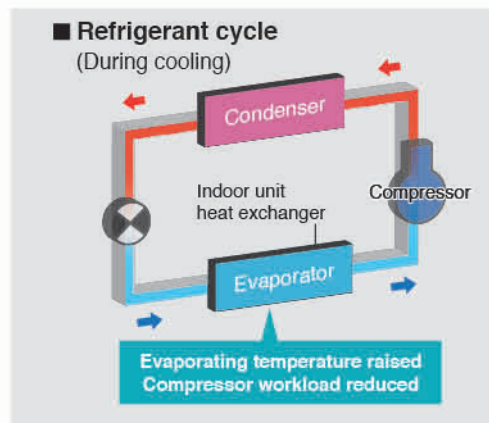
Customise your VRF system for optimal annual efficiency

The new **VRV IV** Q series now features VRT technology. VRT automatically adjusts refrigerant temperature to individual building and climate requirement, thus further improving annual energy efficiency and maintaining comfort. With this excellent technology, running costs are reduced.

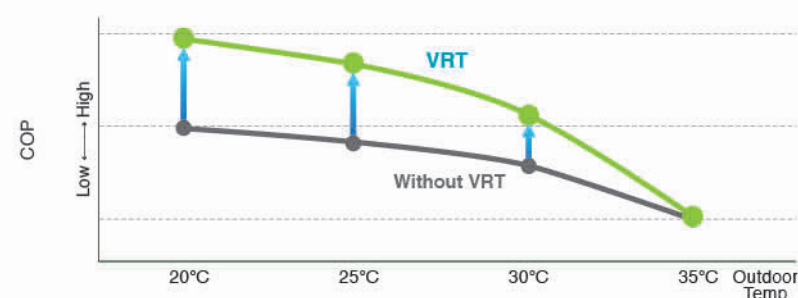
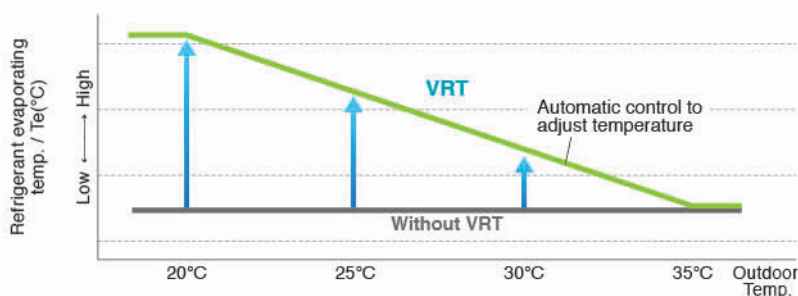
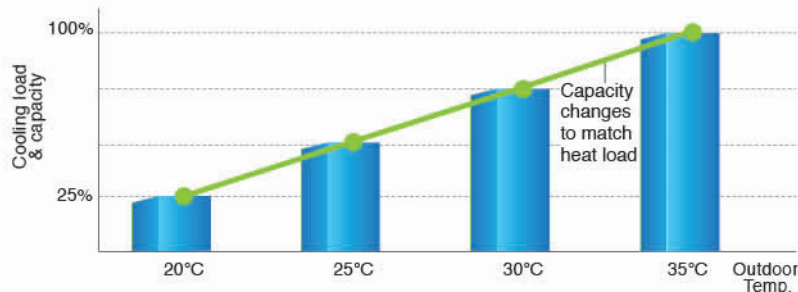


How is energy reduced?

During cooling, the refrigerant evaporating temperature (T_e) is raised to minimise the difference with the condensing temperature. Compressors work less, and this reduces power consumption.



■ Typical changes in evaporating temperature and COP depending on changing indoor load



Required capacity changes as air conditioning load changes according to outdoor temperature.

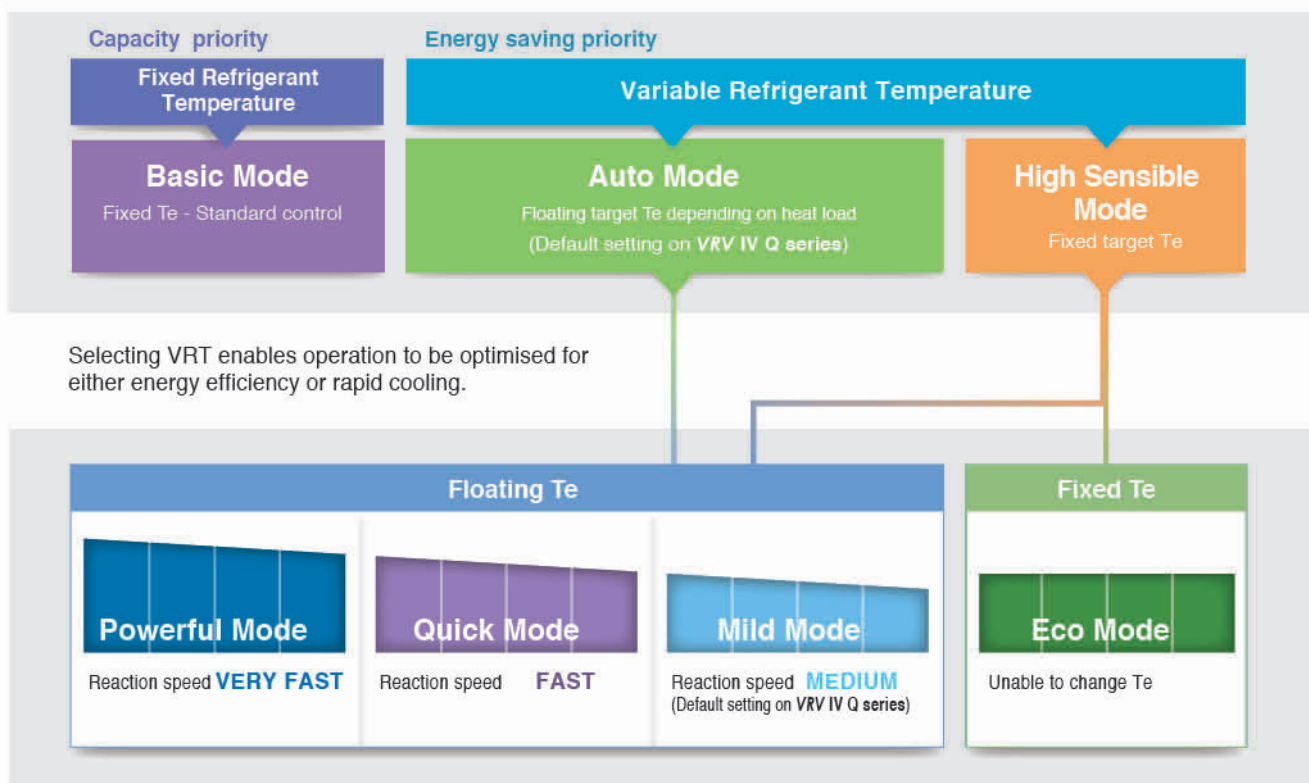
In case of fixed evaporating temperature, excessive cooling, thermo on-off loss, and other inefficiencies occur.

Automatic control adjusts evaporating temperature to heat load change.

Energy efficiency is improved without sacrificing comfort.

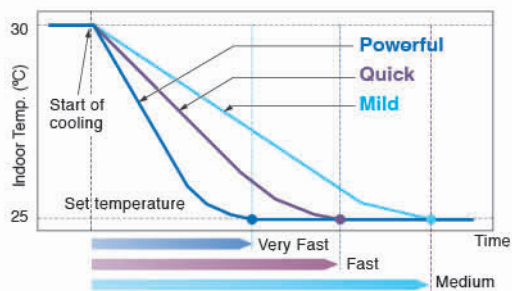
New system more energy saving

Basic mode is selected to maintain optimal comfort.
VRT is selected to save energy and prevent excessive cooling.



Selecting VRT enables operation to be optimised for either energy efficiency or rapid cooling.

VRT offers quicker cool down to shorten uncomfortable pull down time.

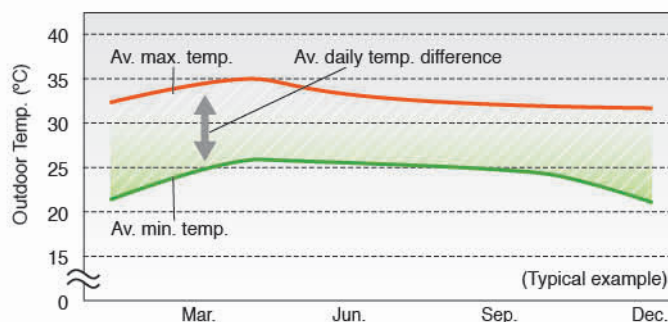


Powerful Mode	<ul style="list-style-type: none"> Can boost capacity above 100% if needed. The refrigerant temperature can go lower in cooling than the set minimum. Gives priority to very fast reaction speed. The refrigerant temperature goes down fast to keep the room setpoint stable.
Quick Mode	<ul style="list-style-type: none"> Gives priority to fast reaction speed. The refrigerant temperature goes down fast to keep the room setpoint stable.
Mild Mode	<ul style="list-style-type: none"> Gives priority to efficiency. The refrigerant temperature goes down gradually giving priority to the efficiency of the system instead of the reaction speed.

Recommended for use in these situations

- Cooling only regions having differences in daily temperature.

VRT is particularly effective at night when ambient temperatures are low.



Advanced Technologies Achieve Excellent Performance

New technology that enables use of existing piping

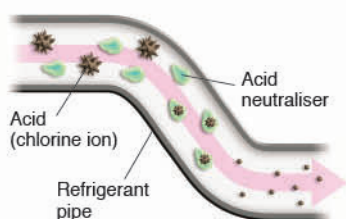
New tested contamination collection method

A new method collects contamination from existing piping, eliminating compressors and electric valves malfunction.

VRV IV Q series
Only

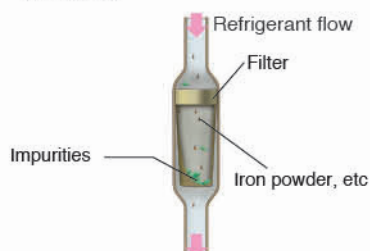
Acid

An acid neutraliser agent is added to disable acids (chlorine ions), which cause corrosion.



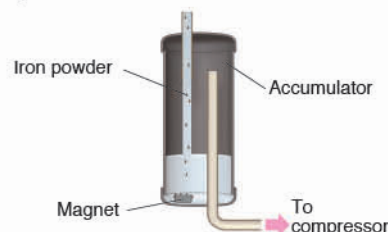
Impurities

A generously sized filter is provided inside the refrigerant circuit which traps impurities.



Iron powder

A magnet is installed inside the accumulator where liquid refrigerant accumulates. The magnet attracts iron powder to keep the system clean.



Large capacity all DC inverter compressor in compact casing

Large capacity all DC inverter compressor using high tension strength material, realise 12 HP compressor using 8 HP casing.

Development of high strength material

Gives 2.4 times tensile strength compare to conventional material

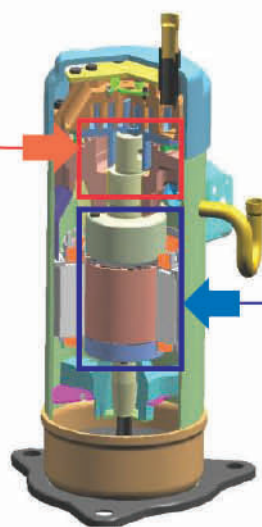
New Material: 600 MPa

Conventional Material : 250 MPa

Increase compression chamber volume by using thin spiral design.



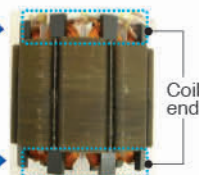
As a result of having thinned a wall - thickness of the scroll, compression chamber volume increase 50%



Small type high efficiency concentrated winding motor

Distributed winding motor
(Current 8 HP compressor)

Concentrated winding motor
(New 12 HP compressor)



Small sizing coil end using concentrated winding, reduce copper loss (winding resistance).

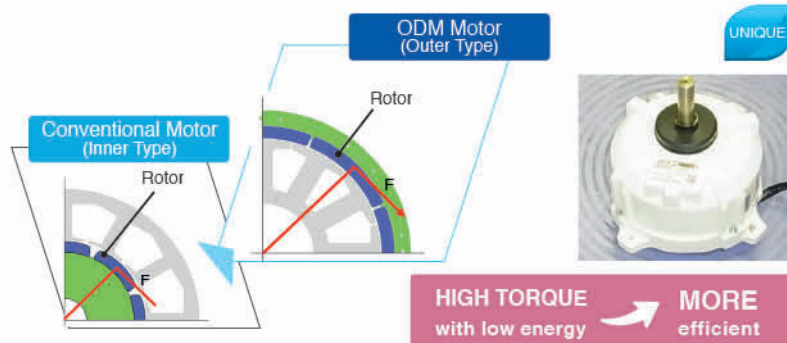
Improve motor efficiency in low rpm range (improve intermediate efficiency).

ODM Motor

Only Daikin adapted ODM motor with feature of stable rotation and volumetric efficiency

Advantages of ODM

- Thanks to large diameter of the rotor,
- ① Large torque with same electromagnetic force
 - ② Stable rotation in all range, and can be operated with small number of rotations

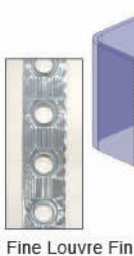


Highly integrated heat exchanger

Improve performance by increasing heat exchanger area while maintaining the same installation space.

VRV III Q series

VRV IV Q SERIES



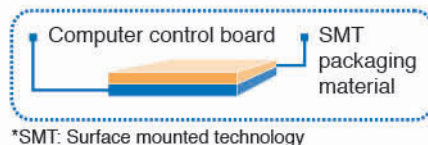
Realise highly integrated heat exchanger performance (increase row, reduce fin pitch) by reducing of airflow resistance which changes cooling tube to $\varnothing 7$.

Change fin shape from fine louvre to waffle fin. Fin pitch can be reduced fin pitch from 2.0 mm to 1.4 mm, to realise unit efficiency which increased heat exchanger area.

Various advanced control main PC board

SMT* packaging technology

- SMT packaging technology adopted by the whole computer control panel improves the anti-clutter performance.
- Protects your computer boards from the adverse effect of sandy and humid weather.



Computer control board surface adopting SMT packaging technology



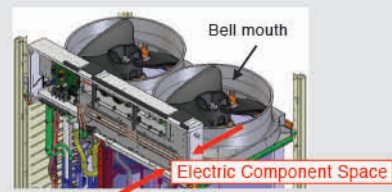
Conventional computer control board surface



Refrigerant cooling technology, ensures stability of PCB temperature

Improved inner design to increase smooth airflow

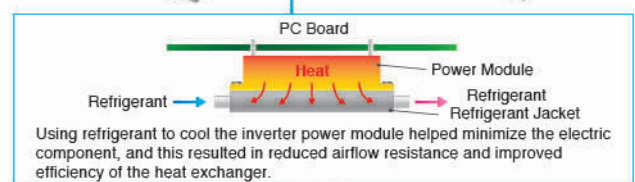
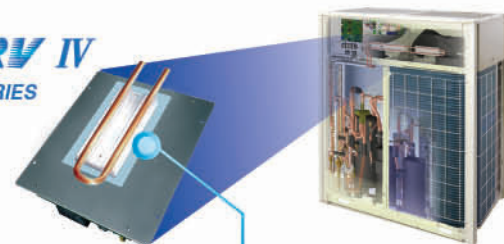
Downsize electric component, re-locate to dead space of bell mouth side to decrease airflow resistance.



VRV III Q series



VRV IV Q SERIES



Roof terrace temperature in summer is over 40°C, seriously affecting inverter cooling efficiency, resulting in decline of inverter operating speed. Finally device parts response speed is reduced.

Control board failure ratio at stable operation is reduced.

Improve reliability at high ambient temperature

It is possible to cool the inverter power module stability even at high ambient temperature. This helps to keep air-conditioning capacity and also reduces failure ratio.

Outdoor Unit Lineup

Enhanced lineup to 2 types

- With its enhanced lineup of 2 types and Standard and Space Saving types, **VRV IV** Q series outdoor units offer a high capacity up to 48 HP to meet an ever wider variety of needs.
- The single outdoor unit has only 2 different shapes and dimensions, not only simplifying the design process, but also bringing the system flexibility to a new level.
- With the outdoor unit capacity increased in increment of 2 HP, customers' needs can be precisely met.
- Outdoor units with anti-corrosion specifications (-E type on request) are designed specifically for use in areas which are subject to salt damage and atmospheric pollution.

Standard Type

●Single Outdoor Units

6, 8, 10, 12 HP



RQQ6TYM(E)
RQQ8TYM(E)
RQQ10TYM(E)
RQQ12TYM(E)

14, 16 HP



RQQ14TYM(E)
RQQ16TYM(E)

●Double Outdoor Units

18, 20, 22, 24 HP



RQQ18TNYM(E)
RQQ20TNYM(E)
RQQ22TNYM(E)
RQQ24TNYM(E)

26, 28 HP



RQQ26TNYM(E)
RQQ28TNYM(E)

30, 32 HP



RQQ30TNYM(E)
RQQ32TNYM(E)

●Triple Outdoor Units

34, 36 HP



RQQ34TNYM(E)
RQQ36TNYM(E)

38, 40 HP



RQQ38TNYM(E)
RQQ40TNYM(E)

42, 44 HP



RQQ42TNYM(E)
RQQ44TNYM(E)

46, 48 HP



RQQ46TNYM(E)
RQQ48TNYM(E)

Space Saving Type

●Single Outdoor Units

18, 20 HP



RQQ18TSYM(E)
RQQ20TSYM(E)

●Double Outdoor Units

30, 32 HP



RQQ30TSYM(E)
RQQ32TSYM(E)

34, 36, 38, 40 HP



RQQ34TSYM(E)
RQQ36TSYM(E)
RQQ38TSYM(E)
RQQ40TSYM(E)

●Triple Outdoor Units

42, 44 HP



RQQ42TSYM(E)
RQQ44TSYM(E)

46, 48 HP












RQQ46TSYM(E)
RQQ48TSYM(E)

Lineup

Mo/C New Lineup

HP	6	8	10	12	14	16	18	20	22	24	26	28	30	32	34	36	38	40	42	44	46	48
Standard Type	Mo/C	Mo/C	Mo/C	Mo/C	Mo/C	Mo/C	Mo/C	Mo/C	Mo/C	Mo/C	Mo/C	Mo/C	Mo/C	Mo/C	Mo/C	Mo/C	Mo/C	Mo/C	Mo/C	Mo/C	Mo/C	Mo/C
Space Saving Type							New Lineup	New Lineup					New Lineup	New Lineup	New Lineup	New Lineup	New Lineup	New Lineup	New Lineup	New Lineup	New Lineup	New Lineup

Variety of indoor unit

Type	Model Name		20	25	32	40	50	63	71	80	100	125	140	200	250	400	500	
		Capacity Range	0.8 HP	1 HP	1.25 HP	1.6 HP	2 HP	2.5 HP	3 HP	3.2 HP	4 HP	5 HP	6 HP	8 HP	10 HP	16 HP	20 HP	
		Capacity Index	20	25	31.25	40	50	62.5	71	80	100	125	140	200	250	400	500	
Ceiling Mounted Cassette (Round Flow with Sensing)	FXFQ-SVM			●	●	●	●	●		●	●	●						
Ceiling Mounted Cassette (Round Flow)	FXFQ-LUV1			●	●	●	●	●		●	●	●						
Ceiling Mounted Cassette (Compact Multi Flow)	FXZQ-MVE		●	●	●	●	●											
Ceiling Mounted Cassette (Double Flow)	FXCQ-MVE		●	●	●	●	●	●		●		●						
Ceiling Mounted Cassette Corner	FXKQ-MAVE			●	●	●		●										
Slim Ceiling Mounted Duct (Standard Series)	FXDQ-PBVE (with drain pump)	 (700 mm width type)	●	●	●													
	FXDQ-PBVET (without drain pump)		●	●	●													
	FXDQ-NBVE (with drain pump)	 (900/1,100 mm width type)				●	●	●										
	FXDQ-NBVET (without drain pump)					●	●	●										
Slim Ceiling Mounted Duct (Compact Series)	FXDQ-SPV1		●	●	●	●	●	●										
Middle Static Pressure Ceiling Mounted Duct	FXSQ-PVE		●	●	●	●	●	●		●	●	●	●					
Ceiling Mounted Duct	FXMQ-PVE		●	●	●	●	●	●		●	●	●	●					
	FXMQ-MAVE													●	●			
Outdoor-Air Processing Unit	FXMQ-MFV1											●		●	●			
4-Way Flow Ceiling Suspended	FXUQ-AVEB								●		●							
Ceiling Suspended	FXHQ-MAVE				●			●			●							
Wall Mounted	FXAQ-PVE		●	●	●	●	●	●										
Floor Standing	FXLQ-MAVE		●	●	●	●	●	●										
Concealed Floor Standing	FXNQ-MAVE		●	●	●	●	●	●										
Floor Standing Duct	FXVQ-NY1	 (high static pressure type)										●		●	●	●	●	
	FXVQ-NY16																●	
Heat Reclaim Ventilator with DX-Coil and Humidifier	VKM-GA(M)V1		Airflow rate 500-1000 m³/h															
Heat Reclaim Ventilator	VAM-GJVE		Airflow rate 150-2000 m³/h															

* It is possible to keep R-22 indoor units from K-series and later version. It is not possible to combine old R-22 and new R-410A indoor units in one system due to incompatibility of communication.

Indoor Unit Lineup

Daikin offers a wide range of indoor units responding to variety of needs of our customers that require air-conditioning solutions.

VRV Indoor Units

Ceiling Mounted Cassette
(Round Flow with Sensing) Type

FXFQ-SVM



Presence of people and floor temperature can be detected to provide comfort and energy savings



Ceiling Mounted Cassette
(Round Flow) Type

FXFQ-LUV1



360° airflow improves temperature distribution and offers a comfortable living environment.



Ceiling Mounted Cassette
(Compact Multi Flow) Type

FXZQ-MVE



Quiet, compact, and designed for user comfort

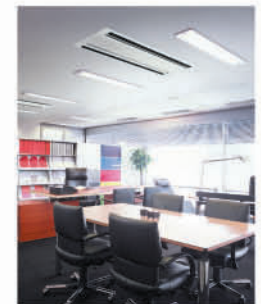


Ceiling Mounted Cassette
(Double Flow) Type

FXCQ-MVE



Thin, lightweight, and easy to install in narrow ceiling spaces



Ceiling Mounted Cassette
Corner Type

FXKQ-MAVE

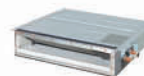


Slim design for flexible installation



Slim Ceiling Mounted Duct Type
(Standard Series)

FXDQ-PBVE(T)



FXDQ-NBVE(T)

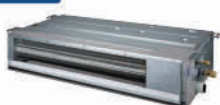


Slim design, quietness and static pressure switching



Slim Ceiling Mounted Duct Type
(Compact Series)

FXDQ-SPV1



Slim and compact design for easy and flexible installation



Middle Static Pressure Ceiling
Mounted Duct Type

FXSQ-PVE



Middle external static pressure and slim design allow flexible installations



Ceiling Mounted Duct Type

FXMQ-PVE



FXMQ-MAVE



High external static pressure allows flexible installations



Outdoor-Air Processing Unit

FXMQ-MFV1



Combine fresh air treatment and air conditioning, supplied from a single system.



4-Way Flow Ceiling Suspended Type

FXUQ-AVEB



This slim and stylish indoor unit achieves optimum air distribution, and can be installed without the need for ceiling cavity



Ceiling Suspended Type

FXHQ-MAVE



Slim body with quiet and wide airflow



Wall Mounted Type

FXAQ-PVE



Stylish flat panel design harmonised with your interior décor



Floor Standing Type

FXLQ-MAVE



Concealed Floor Standing Type

FXNQ-MAVE



Suitable for perimeter zone air conditioning



Floor Standing Duct Type

FXVQ-NY1



FXVQ-NY16

(high static pressure type)

Large airflow type for large spaces. Flexible interior design for each tenant.



Air Treatment Equipment

Heat Reclaim Ventilator with DX-Coil and Humidifier

VKM-GA(M)V1



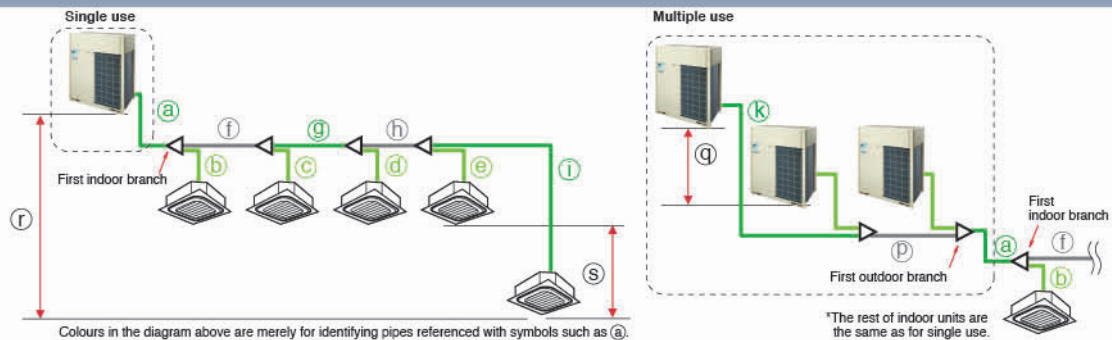
Heat Reclaim Ventilator

VAM-GJVE



Guidelines for Reuse of Existing Refrigerant Piping

Piping limits for reuse of existing piping



Maximum allowable piping length	Refrigerant piping length	Actual piping length	Example	Equivalent piping length
	Total piping length	150 m	a+f+g+h+i	175 m
	Between the first indoor branch and the farthest indoor unit	300 m	a+b+c+d+e+f+g+h+i	—
	Between the outdoor branch and the last outdoor unit	40 m	f+g+h+i	—
Maximum allowable level difference	Between the outdoor units (Multiple use)	Level Difference	Example	
	Between the indoor units	5 m	q	
	Between the outdoor units and the indoor units	15 m	s	
		50 m	r	
		40 m	r	

Reusability of existing piping for VRV IV Q series

Type of piping	Capacity	Piping size														
		Liquid						Gas								
		φ6.4	φ9.5	φ12.7	φ15.9	φ19.1	φ22.2	φ12.7	φ15.9	φ19.1	φ22.2	φ25.4	φ28.6	φ34.9	φ41.3	φ54.1
Main piping	6 HP	x	S○●		x	x	x	x	x	S○	●		x	x	x	x
	8 HP	x	S○	●		x	x	x	x	S○		●	●	x	x	x
	10 HP	x	S○	●		x	x	x	x	x	S○		●	x	x	x
	12 HP	x	x	S○	●	x	x	x	x	x	x	x	S○	x●	x	x
	14 HP	x	x	S○	●	x	x	x	x	x	x	x	S○	●	x	x
	16 HP	x	x	S○	●	x	x	x	x	x	x	x	S○	●	x	x
	18 HP	x	x	x	S○	●	x	x	x	x	x	x	S○	●	x	x
	20 HP	x	x	x	S○	●	x	x	x	x	x	x	S○	●	x	x
	22 HP	x	x	x	S○	●	x	x	x	x	x	x	S○	●	x	x
	24 HP	x	x	x	S○	●	x	x	x	x	x	x	x	S○	●	x
	26 HP	x	x	x	x	S○	●	x	x	x	x	x	x	S○	●	x
	28 HP	x	x	x	x	S○	●	x	x	x	x	x	x	S○	●	x
	30 HP	x	x	x	x	S○	●	x	x	x	x	x	x	S○	●	x
	32 HP	x	x	x	x	S○	●	x	x	x	x	x	x	S○	●	x
	34 HP	x	x	x	x	S○	●	x	x	x	x	x	x	S○	●	x
	36 HP	x	x	x	x	S○	●	x	x	x	x	x	x	x	S○	●
	38 HP	x	x	x	x	S○	●	x	x	x	x	x	x	x	S○	●
	40 HP	x	x	x	x	S○	●	x	x	x	x	x	x	x	S○	●
	42 HP	x	x	x	x	S○	●	x	x	x	x	x	x	x	S○	●
	44 HP	x	x	x	x	S○	●	x	x	x	x	x	x	x	S○	●
46 HP	x	x	x	x	S○	●	x	x	x	x	x	x	x	S○	●	
48 HP	x	x	x	x	S○	●	x	x	x	x	x	x	x	S○	●	
From REFNET to REFNET ^{*1}	< 100	x	S○●		x	x	x	x	S○●			x	x	x	x	x
	100 ≤ X < 150	x	S○●		x	x	x	x	S○	●		x	x	x	x	x
	150 ≤ X < 160	x	S○●		x	x	x	x		S○●			x	x	x	x
	160 ≤ X < 200	x	S○	●	x	x	x	x		S○		●	x	x	x	x
	200 ≤ X < 290	x	S○	●		x	x	x	x		S○	●		x	x	x
	290 ≤ X < 330	x	x	S○●		x	x	x	x	x		●	S○		x	x
	330 ≤ X < 420	x	x	S○	●	x	x	x	x	x	x	x	S○	●	x	x
	420 ≤ X < 480	x	x	S○	●●		x	x	x	x	x	x	S○	●	x	x
	480 ≤ X < 640	x	x	S○	●		x	x	x	x	x	x	S○	●	x	x
	640 ≤ X < 900	x	x	x	S○	●●		x	x	x	x	x	x	S○	●	
900 ≤ X < 920	x	x	x	S○	●	●		x	x	x	x	x	S○	●	●	
920 ≤	x	x	x	x	S○	●	●	x	x	x	x	x	x	S○	●	
From REFNET to indoor unit ^{*2}	20-40 class	S○●		x	x	x	x	S○	●		x	x	x	x	x	x
	50 class	S○	●	x	x	x	x	S○	●		x	x	x	x	x	x
	63 class	x	S○●		x	x	x	○	S○		x	x	x	x	x	x
	80 class	x	S○●		x	x	x		S○●		x	x	x	x	x	x
	100-125 class	x	S○●		x	x	x	x	S○	●			x	x	x	x
	140 class	x	S○		x	x	x	x	S○				x	x	x	x
	200 class	x	S○	●	x	x	x	x		S○		●		x	x	x
250 class	x	S○	●	x	x	x	x	x	x	S○		●	x	x	x	

● : Piping size of conventional R-22 model
 ○ : Piping size of conventional R-410A model
 S : Standard piping size of VRV IV Q series
 x : Not possible
 Possible
 Standard piping size of VRV IV Q series. However, when equivalent piping length between outdoor unit and indoor unit is 90 m or more, size of main piping must be increased.

*1 Piping between REFNETs depends on total capacity index of indoor units connected below each REFNET. It cannot exceed piping size of upstream side.
 *2 Piping from REFNET to indoor unit depends on the capacity of the connected indoor unit. It cannot exceed piping size of upstream side.

Outdoor Unit Combinations

Standard Type

HP	kW	Capacity index	Model name	Combination	Outdoor unit multi connection piping kit* ¹	Total capacity index of connectable indoor units* ³	Maximum number of connectable indoor units* ²
6	16.0	150	RQQ6T	RQQ6T	—	75 to 195	9
8	22.4	200	RQQ8T	RQQ8T	—	100 to 260	13
10	28.0	250	RQQ10T	RQQ10T	—	125 to 325	16
12	33.5	300	RQQ12T	RQQ12T	—	150 to 390	19
14	40.0	350	RQQ14T	RQQ14T	—	175 to 455	22
16	45.0	400	RQQ16T	RQQ16T	—	200 to 520	26
18	50.4	450	RQQ18TN	RQQ8T + RQQ10T	BHFP22P100	225 to 585	29
20	55.9	500	RQQ20TN	RQQ8T + RQQ12T		250 to 650	32
22	61.5	550	RQQ22TN	RQQ10T + RQQ12T		275 to 715	35
24	67.0	600	RQQ24TN	RQQ12T × 2		300 to 780	39
26	73.5	650	RQQ26TN	RQQ12T + RQQ14T		325 to 845	42
28	78.5	700	RQQ28TN	RQQ12T + RQQ16T		350 to 910	45
30	85.0	750	RQQ30TN	RQQ14T + RQQ16T		375 to 975	48
32	90.0	800	RQQ32TN	RQQ14T + RQQ18T		400 to 1,040	52
34	95.0	850	RQQ34TN	RQQ10T + RQQ12T × 2		425 to 1,105	55
36	101	900	RQQ36TN	RQQ12T × 3		450 to 1,170	58
38	106	950	RQQ38TN	RQQ8T + RQQ12T + RQQ18T	BHFP22P151	475 to 1,235	61
40	112	1,000	RQQ40TN	RQQ12T × 2 + RQQ16T		500 to 1,300	64
42	119	1,050	RQQ42TN	RQQ12T + RQQ14T + RQQ16T		525 to 1,365	
44	124	1,100	RQQ44TN	RQQ12T + RQQ16T × 2		550 to 1,430	
46	130	1,150	RQQ46TN	RQQ14T × 2 + RQQ18T		575 to 1,495	
48	135	1,200	RQQ48TN	RQQ14T + RQQ16T + RQQ18T		600 to 1,560	

Note: *¹ For multiple connection of 18 HP systems and above, the outdoor unit multi connection piping kit (separately sold) is required.

*² Total capacity index of connectable indoor units must be 50%–130% of the capacity index of the outdoor units.

*³ When outdoor-air processing units and standard indoor units are connected, the total connection capacity index of the outdoor-air processing units must not exceed 30% of the capacity index of the outdoor units. And the connection ratio must not exceed 100%.

Space Saving Type

HP	kW	Capacity index	Model name	Combination	Outdoor unit multi connection piping kit* ¹	Total capacity index of connectable indoor units* ³	Maximum number of connectable indoor units* ²
18	50.0	450	RQQ18T	RQQ18T	—	225 to 585	29
20	56.0	500	RQQ20T	RQQ20T	—	250 to 650	32
30	83.5	750	RQQ30TS	RQQ12T + RQQ18T	BHFP22P100	375 to 975	48
32	89.5	800	RQQ32TS	RQQ12T + RQQ20T		400 to 1,040	52
34	95.0	850	RQQ34TS	RQQ16T + RQQ18T		425 to 1,105	55
36	100	900	RQQ36TS	RQQ18T × 2		450 to 1,170	58
38	106	950	RQQ38TS	RQQ18T + RQQ20T		475 to 1,235	61
40	112	1,000	RQQ40TS	RQQ20T × 2		500 to 1,300	64
42	117	1,050	RQQ42TS	RQQ12T × 2 + RQQ18T	BHFP22P151	525 to 1,365	
44	123	1,100	RQQ44TS	RQQ12T × 2 + RQQ20T		550 to 1,430	
46	129	1,150	RQQ46TS	RQQ12T + RQQ16T + RQQ18T		575 to 1,495	
48	134	1,200	RQQ48TS	RQQ12T + RQQ18T × 2		600 to 1,560	

Note: *¹ For multiple connection of 30 HP and above the outdoor unit multi connection piping kit (separately sold) is required.



*² Total capacity index of connectable indoor units must be 50%–130% of the capacity index of the outdoor units.

*³ When outdoor-air processing units and standard indoor units are connected, the total connection capacity index of the outdoor-air processing units must not exceed 30% of the capacity index of the outdoor units. And the connection ratio must not exceed 100%.

Specifications

Outdoor Units

Standard Type




								
MODEL		RQQ6TYM(E)	RQQ8TYM(E)	RQQ10TYM(E)	RQQ12TYM(E)	RQQ14TYM(E)	RQQ16TYM(E)	
Combination units		—	—	—	—	—	—	
Power supply		3 phase 4-wire system, 380-415V/ 380V, 50Hz/ 60Hz						
Cooling capacity	kcal/h	13,800	19,300	24,100	28,800	34,400	38,700	
	Btu/h	54,600	76,400	95,500	114,000	136,000	154,000	
	kW	16.0	22.4	28.0	33.5	40.0	45.0	
Power consumption	kW	3.63	5.18	6.88	8.82	10.7	13.0	
Capacity control	%	20-100	20-100	16-100	15-100	11-100	10-100	
Casing colour		Ivory white (5Y7.5/1)						
Compressor	Type	Hermetically Sealed Scroll Type						
	Motor output	kW	2.4X1	3.4X1	4.1X1	5.2X1	(2.9x1)+(3.3x1)	(3.6x1)+(3.7x1)
Airflow rate	m³/min	119	157	165	178	233	233	
Dimensions (HxWxD)	mm	1,657x930x765	1,657x930x765	1,657x930x765	1,657x930x765	1,657x1,240x765	1,657x1,240x765	
Machine weight	kg	185	185	195	195	285	285	
Sound level	dB(A)	55	56	57	59	60	61	
Operation range		°CDB -5 to 49						
Refrigerant	Type	R-410A						
	Charge	kg	5.9	5.9	6.0	6.3	10.3	10.4
Piping connections	Liquid	mm	φ 9.5 (Brazing)			φ 12.7 (Brazing)		
	Gas	mm	φ 19.1 (Brazing)		φ 22.2 (Brazing)	φ 28.6 (Brazing)		

Note: 1. Models with (E) are the outdoor units with anti-corrosion specifications. Please refer to Engineering Data Book for details.

2. Specifications are based on the following conditions;

- Cooling: Indoor temp.: 27°CDB, 19°CWB, Outdoor temp.: 35°CDB, Equivalent piping length: 7.5 m, Level difference: 0 m.
- Sound level: Anechoic chamber conversion value, measured at a point 1 m in front of the unit at a height of 1.5 m.




During actual operation, these values are normally somewhat higher as a result of ambient conditions.

								
	RQQ18TNYM(E)	RQQ20TNYM(E)	RQQ22TNYM(E)	RQQ24TNYM(E)	RQQ26TNYM(E)	RQQ28TNYM(E)	RQQ30TNYM(E)	RQQ32TNYM(E)
	RQQ8TYM(E)	RQQ8TYM(E)	RQQ10TYM(E)	RQQ12TYM(E)	RQQ12TYM(E)	RQQ12TYM(E)	RQQ14TYM(E)	RQQ14TYM(E)
	RQQ10TYM(E)	RQQ12TYM(E)	RQQ12TYM(E)	RQQ12TYM(E)	RQQ14TYM(E)	RQQ16TYM(E)	RQQ16TYM(E)	RQQ18TYM(E)
	—	—	—	—	—	—	—	—
	3 phase 4-wire system, 380-415V/ 380V, 50Hz/ 60Hz							
	43,300	48,100	52,900	57,600	63,200	67,500	73,100	77,400
	172,000	191,000	210,000	229,000	251,000	268,000	290,000	307,000
	50.4	55.9	61.5	67.0	73.5	78.5	85.0	90.0
	12.1	14.0	15.7	17.6	19.5	21.8	23.7	26.1
	8-100	8-100	8-100	8-100	6-100	6-100	5-100	5-100
	Ivory white (5Y7.5/1)							
	Hermetically Sealed Scroll Type							
	(3.4X1)+ (4.1X1)	(3.4X1)+ (5.2X1)	(4.1X1)+ (5.2X1)	(5.2X1)+ (5.2X1)	(5.2X1)+ (2.9X1)+ (3.3X1)	(5.2X1)+(3.6X1)+ (3.7X1)	(2.9X1)+(3.3X1)+ (3.6X1)+(3.7X1)	(2.9X1)+(3.3X1)+ (4.4X1)+(4.0X1)
	157+165	157+178	165+178	178+178	178+233	178+233	233+233	233+233
	(1,657X930X765)+ (1,657X930X765)	(1,657X930X765)+ (1,657X930X765)	(1,657X930X765)+ (1,657X930X765)	(1,657X930X765)+ (1,657X930X765)	(1,657X930X765)+ (1,657X1,240X765)	(1,657X930X765)+ (1,657X1,240X765)	(1,657X1,240X765)+ (1,657X1,240X765)	(1,657X1,240X765)+ (1,657X1,240X765)
	185+195	185+195	195+195	195+195	195+285	195+285	285+285	285+285
	60	61	61	62	63	63	64	64
	-5 to 49							
	R-410A							
	5.9+6.0	5.9+6.3	6.0+6.3	6.3+6.3	6.3+10.3	6.3+10.4	10.3+10.4	10.3+10.5
	φ15.9 (Brazing)	φ15.9 (Brazing)	φ15.9 (Brazing)	φ15.9 (Brazing)	φ19.1 (Brazing)	φ19.1 (Brazing)	φ19.1 (Brazing)	φ19.1 (Brazing)
	φ28.6 (Brazing)	φ28.6 (Brazing)	φ28.6 (Brazing)	φ34.9 (Brazing)	φ34.9 (Brazing)	φ34.9 (Brazing)	φ34.9 (Brazing)	φ34.9 (Brazing)

Specifications

Outdoor Units

Standard Type

								
MODEL			RQQ34TNYM(E)	RQQ36TNYM(E)	RQQ38TNYM(E)	RQQ40TNYM(E)	RQQ42TNYM(E)	RQQ44TNYM(E)
Combination units			RQQ10TYM(E)	RQQ12TYM(E)	RQQ8TYM(E)	RQQ12TYM(E)	RQQ12TYM(E)	RQQ12TYM(E)
			RQQ12TYM(E)	RQQ12TYM(E)	RQQ12TYM(E)	RQQ12TYM(E)	RQQ14TYM(E)	RQQ16TYM(E)
			RQQ12TYM(E)	RQQ12TYM(E)	RQQ18TYM(E)	RQQ16TYM(E)	RQQ16TYM(E)	RQQ16TYM(E)
Power supply			3 phase 4-wire system, 380-415V/ 380V, 50Hz/ 60Hz					
Cooling capacity		kcal/h	81,700	86,900	91,200	96,300	102,000	107,000
		Btu/h	324,000	345,000	362,000	382,000	406,000	423,000
		kW	95.0	101	106	112	119	124
Power consumption		kW	24.5	26.5	29.4	30.6	32.5	34.8
Capacity control		%	5-100	5-100	4-100	4-100	4-100	4-100
Casing colour			Ivory white (5Y7.5/1)					
Compressor	Type		Hermetically Sealed Scroll Type					
	Motor output	kW	(4.1X1)+(5.2X1)+(5.2X1)	(5.2X1)+(5.2X1)+(5.2X1)	(3.4X1)+(5.2X1)+(4.4X1)+(4.0X1)	(5.2X1)+(5.2X1)+(3.6X1)+(3.7X1)	(5.2X1)+(2.9X1)+(3.3X1)+(3.6X1)+(3.7X1)	(5.2X1)+(3.6X1)+(3.7X1)+(3.6X1)+(3.7X1)
Airflow rate		m³/min	165+178+178	178+178+178	157+178+233	178+178+233	178+233+233	178+233+233
Dimensions (HxWxD)		mm	(1,657x930x765)+(1,657x930x765)+(1,657x930x765)	(1,657x930x765)+(1,657x930x765)+(1,657x930x765)	(1,657x930x765)+(1,657x930x765)+(1,657x1,240x765)	(1,657x930x765)+(1,657x930x765)+(1,657x1,240x765)	(1,657x930x765)+(1,657x1,240x765)+(1,657x1,240x765)	(1,657x930x765)+(1,657x1,240x765)+(1,657x1,240x765)
Machine weight		kg	195+195+195	195+195+195	185+195+285	195+195+285	195+285+285	195+285+285
Sound level		dB(A)	63	64	64	65	65	65
Operation range		°CDB	-5 to 49					
Refrigerant	Type		R-410A					
	Charge	kg	6.0+6.3+6.3	6.3+6.3+6.3	5.9+6.3+10.5	6.3+6.3+10.4	6.3+10.3+10.4	6.3+10.4+10.4
Piping connections	Liquid	mm	φ 19.1 (Brazing)	φ 19.1 (Brazing)	φ 19.1 (Brazing)	φ 19.1 (Brazing)	φ 19.1 (Brazing)	φ 19.1 (Brazing)
	Gas	mm	φ 34.9 (Brazing)	φ 41.3 (Brazing)	φ 41.3 (Brazing)	φ 41.3 (Brazing)	φ 41.3 (Brazing)	φ 41.3 (Brazing)

Note: 1. Models with (E) are the outdoor units with anti-corrosion specifications. Please refer to Engineering Data Book for details.

2. Specifications are based on the following conditions;

- Cooling: Indoor temp.: 27°CDB, 19°CWB, Outdoor temp.: 35°CDB, Equivalent piping length: 7.5 m, Level difference: 0 m.
- Sound level: Anechoic chamber conversion value, measured at a point 1 m in front of the unit at a height of 1.5 m.


During actual operation, these values are normally somewhat higher as a result of ambient conditions.

Space Saving Type



	RQQ46TNYM(E)	RQQ48TNYM(E)
	RQQ14TYM(E)	RQQ14TYM(E)
	RQQ14TYM(E)	RQQ16TYM(E)
	RQQ18TYM(E)	RQQ18TYM(E)
	3 phase 4-wire system, 380-415V/ 380V, 50Hz/ 60Hz	
	112,000	116,000
	444,000	461,000
	130	135
	36.8	39.1
	3-100	3-100
	Ivory white (5Y7.5/1)	
	Hermetically Sealed Scroll Type	
	(2.9x1)+(3.3x1)+ (2.9x1)+(3.3x1)+ (4.4x1)+(4.0x1)	(2.9x1)+(3.3x1)+ (3.6x1)+(3.7x1)+ (4.4x1)+(4.0x1)
	233+233+233	233+233+233
	(1,657x1,240x765)+ (1,657x1,240x765)+ (1,657x1,240x765)	(1,657x1,240x765)+ (1,657x1,240x765)+ (1,657x1,240x765)
	285+285+285	285+285+285
	66	66
	-5 to 49	
	R-410A	
	10.3+10.3+10.5	10.3+10.4+10.5
	φ19.1 (Brazeing)	φ19.1 (Brazeing)
	φ41.3 (Brazeing)	φ41.3 (Brazeing)



				
MODEL			RQQ18TYM(E)	RQQ20TYM(E)
Combination units			—	—
Power supply			3 phase 4-wire system, 380-415V/ 380V, 50Hz/ 60Hz	
Cooling capacity	kcal/h		43,000	48,200
	Btu/h		171,000	191,000
	kW		50.0	56.0
Power consumption	kW		15.4	18.0
Capacity control	%		10-100	8-100
Casing colour			Ivory white (5Y7.5/1)	
Compressor	Type		Hermetically Sealed Scroll Type	
	Motor output	kW	(4.4X1)+(4.0X1)	(4.6X1)+(5.5X1)
Airflow rate		m³/min	233	268
Dimensions (HxWxD)		mm	1,657x1,240x765	1,657x1,240x765
Machine weight		kg	285	320
Sound level		dB(A)	62	65
Operation range		°CDB	-5 to 49	
Refrigerant	Type		R-410A	
	Charge	kg	10.5	11.8
Piping connections	Liquid	mm	φ 15.9 (Brazing)	φ 15.9 (Brazing)
	Gas	mm	φ 28.6 (Brazing)	φ 28.6 (Brazing)

Note: 1. Models with (E) are the outdoor units with anti-corrosion specifications. Please refer to Engineering Data Book for details.

2. Specifications are based on the following conditions;

•Cooling: Indoor temp.: 27°CDB, 19°CWB, Outdoor temp.: 35°CDB, Equivalent piping length: 7.5 m, Level difference: 0 m.



•Sound level: Anechoic chamber conversion value, measured at a point 1 m in front of the unit at a height of 1.5 m.

During actual operation, these values are normally somewhat higher as a result of ambient conditions.

Specifications

Outdoor Units

Space Saving Type

							
MODEL			RQQ30TSYM(E)	RQQ32TSYM(E)	RQQ34TSYM(E)	RQQ36TSYM(E)	
Combination units			RQQ12TYM(E)	RQQ12TYM(E)	RQQ16TYM(E)	RQQ18TYM(E)	
			RQQ18TYM(E)	RQQ20TYM(E)	RQQ18TYM(E)	RQQ18TYM(E)	
Power supply			3 phase 4-wire system, 380-415V/ 380V, 50Hz/ 60Hz				
Cooling capacity	kcal/h		71,800	77,000	81,700	86,000	
	Btu/h		285,000	305,000	324,000	341,000	
	kW		83.5	89.5	95.0	100	
Power consumption	kW		24.2	26.8	28.4	30.8	
Capacity control	%		6-100	5-100	5-100	5-100	
Casing colour			Ivory white (5Y7.5/1)				
Compressor	Type		Hermetically Sealed Scroll Type				
	Motor output	kW	(5.2X1)+(4.4X1)+(4.0X1)	(5.2X1)+(4.6X1)+(5.5X1)	(3.6X1)+(3.7X1)+(4.4X1)+(4.0X1)	(4.4X1)+(4.0X1)+(4.4X1)+(4.0X1)	
Airflow rate	m ³ /min		178+233	178+268	233+233	233+233	
Dimensions (HxWxD)	mm		(1,657x930x765)+(1,657x1,240x765)	(1,657x930x765)+(1,657x1,240x765)	(1,657x1,240x765)+(1,657x1,240x765)	(1,657x1,240x765)+(1,657x1,240x765)	
Machine weight	kg		195+285	195+320	285+285	285+285	
Sound level	dB(A)		64	66	65	65	
Operation range	°CDB		-5 to 49				
Refrigerant	Type		R-410A				
	Charge	kg	6.3+10.5	6.3+11.8	10.4+10.5	10.5+10.5	
Piping connections	Liquid	mm	φ19.1 (Brazing)	φ19.1 (Brazing)	φ19.1 (Brazing)	φ19.1 (Brazing)	
	Gas	mm	φ34.9 (Brazing)	φ34.9 (Brazing)	φ34.9 (Brazing)	φ41.3 (Brazing)	

Note: 1. Models with (E) are the outdoor units with anti-corrosion specifications. Please refer to Engineering Data Book for details.

2. Specifications are based on the following conditions;

- Cooling: Indoor temp.: 27°CDB, 19°CWB, Outdoor temp.: 35°CDB, Equivalent piping length: 7.5 m, Level difference: 0 m.
- Sound level: Anechoic chamber conversion value, measured at a point 1 m in front of the unit at a height of 1.5 m.

During actual operation, these values are normally somewhat higher as a result of ambient conditions.



RQQ38TSYM(E)	RQQ40TSYM(E)	RQQ42TSYM(E)	RQQ44TSYM(E)	RQQ46TSYM(E)	RQQ48TSYM(E)
RQQ18TYM(E)	RQQ20TYM(E)	RQQ12TYM(E)	RQQ12TYM(E)	RQQ12TYM(E)	RQQ12TYM(E)
RQQ20TYM(E)	RQQ20TYM(E)	RQQ12TYM(E)	RQQ12TYM(E)	RQQ16TYM(E)	RQQ18TYM(E)
—	—	RQQ18TYM(E)	RQQ20TYM(E)	RQQ18TYM(E)	RQQ18TYM(E)
3 phase 4-wire system, 380-415V/ 380V, 50Hz/ 60Hz					
91,200	96,300	101,000	106,000	111,000	115,000
362,000	382,000	399,000	420,000	440,000	457,000
106	112	117	123	129	134
33.4	36.0	33.0	35.6	37.2	39.6
4-100	4-100	4-100	4-100	4-100	4-100
Ivory white (5Y7.5/1)					
Hermetically Sealed Scroll Type					
(4.4X1)+(4.0X1)+ (4.6X1)+(5.5X1)	(4.6X1)+(5.5X1)+ (4.6X1)+(5.5X1)	(5.2X1)+(5.2X1)+ (4.4X1)+(4.0X1)	(5.2X1)+(5.2X1)+ (4.6X1)+(5.5X1)	(5.2X1)+(3.6X1)+ (3.7X1)+(4.4X1)+ (4.0X1)	(5.2X1)+(4.4X1)+ (4.0X1)+(4.4X1)+ (4.0X1)
233+268	268+268	178+178+233	178+178+268	178+233+233	178+233+233
(1,657X1,240X765)+ (1,657X1,240X765)	(1,657X1,240X765)+ (1,657X1,240X765)	(1,657X930X765)+ (1,657X930X765)+ (1,657X1,240X765)	(1,657X930X765)+ (1,657X930X765)+ (1,657X1,240X765)	(1,657X930X765)+ (1,657X1,240X765)+ (1,657X1,240X765)	(1,657X930X765)+ (1,657X1,240X765)+ (1,657X1,240X765)
285+320	320+320	195+195+285	195+195+320	195+285+285	195+285+285
67	68	65	67	66	66
-5 to 49					
R-410A					
10.5+11.8	11.8+11.8	6.3+6.3+10.5	6.3+6.3+11.8	6.3+10.4+10.5	6.3+10.5+10.5
φ19.1 (Brazing)	φ19.1 (Brazing)	φ19.1 (Brazing)	φ19.1 (Brazing)	φ19.1 (Brazing)	φ19.1 (Brazing)
φ41.3 (Brazing)	φ41.3 (Brazing)	φ41.3 (Brazing)	φ41.3 (Brazing)	φ41.3 (Brazing)	φ41.3 (Brazing)

Option List

Outdoor Units

Standard Type

Optional Accessories		RQQ6TYM(E) RQQ8TYM(E) RQQ10TYM(E)	RQQ12TYM(E)	RQQ14TYM(E) RQQ16TYM(E)
Distributive piping	REFNET header	KHRP26M22H (Max. 4 branch), KHRP26M33H (Max. 8 branch)	KHRP26M22H, KHRP26M33H, KHRP26M72H (Max. 4 branch) (Max. 8 branch) (Max. 8 branch)	
	REFNET joint	KHRP26A22T KHRP26A33T	KHRP26A22T, KHRP26A33T, KHRP26A72T	

Optional Accessories		RQQ18TNYM(E) RQQ20TNYM(E)	RQQ22TNYM(E)	RQQ24TNYM(E) RQQ26TNYM(E)	RQQ28TNYM(E) RQQ30TNYM(E) RQQ32TNYM(E)
Distributive piping	REFNET header	KHRP26M22H, KHRP26M33H (Max. 4 branch) (Max. 8 branch), KHRP26M72H (Max. 8 branch)		KHRP26M22H, KHRP26M33H, (Max. 4 branch) (Max. 8 branch) KHRP26M72H, KHRP26M73H (Max. 8 branch) (Max. 8 branch)	
	REFNET joint	KHRP26A22T, KHRP26A33T, KHRP26A72T		KHRP26A22T, KHRP26A33T, KHRP26A72T, KHRP26A73T	
Pipe size reducer		-		KHRP26M73TP, KHRP26M73HP	
Outdoor unit multi connection piping kit		BHFP22P100			

Optional Accessories		RQQ34TNYM(E) RQQ36TNYM(E)	RQQ38TNYM(E) RQQ40TNYM(E)	RQQ42TNYM(E) RQQ44TNYM(E)	RQQ46TNYM(E) RQQ48TNYM(E)
Distributive piping	REFNET header	KHRP26M22H, KHRP26M33H, KHRP26M72H, KHRP26M73H (Max. 4 branch) (Max. 8 branch) (Max. 8 branch) (Max. 8 branch)			
	REFNET joint	KHRP26A22T, KHRP26A33T, KHRP26A72T, KHRP26A73T			
Pipe size reducer		KHRP26M73TP, KHRP26M73HP			
Outdoor unit multi connection piping kit		BHFP22P151			

Space Saving Type

Optional Accessories		RQQ18TYM(E) RQQ20TYM(E)
Disinbutive piping	REFNET header	KHRP26M22H, KHRP26M33H, KHRP26M72H (Max.4 branch) (Max.8 branch) (Max.8 branch)
	REFNET joint	KHRP26A22T, KHRP26A33T, KHRP26A72T

Optional Accessories		RQQ30TSYM(E) RQQ32TSYM(E)	RQQ34TSYM(E) RQQ36TSYM(E) RQQ38TSYM(E) RQQ40TSYM(E)
Disinbutive piping	REFNET header	KHRP26M22H, KHRP26M33H, KHRP26M72H, KHRP26M73H (Max.4 branch) (Max.8 branch) (Max.8 branch) (Max.8 branch)	
	REFNET joint	KHRP26A22T, KHRP26A33T, KHRP26A72T, KHRP26A73T	
Pipe size reducer		KHRP26M73TP, KHRP26M73HP	
Outdoor unit connection piping kit		BHFP22P100	

Optional Accessories		RQQ42TSYM(E) RQQ44TSYM(E)	RQQ46TSYM(E) RQQ48TSYM(E)
Disinbutive piping	REFNET header	KHRP26M22H, KHRP26M33H, KHRP26M72H, KHRP26M73H (Max.4 branch) (Max.8 branch) (Max.8 branch) (Max.8 branch)	
	REFNET joint	KHRP26A22T, KHRP26A33T, KHRP26A72T, KHRP26A73T	
Pipe size reducer		KHRP26M73TP, KHRP26M73HP	
Outdoor unit connection piping kit		BHFP22P151	

Control Systems

Building Management System

No.	Item				Model No.	Function
1	intelligent Touch Controller	Basic	Hardware	intelligent Touch Controller	DCS601C51	• Air-Conditioning management system that can be controlled by a compact all-in-one unit.
1-1		Option	Hardware	DIII-NET plus adaptor	DCS601A52	• Additional 64 groups (10 outdoor units) is possible.
1-2	Electrical box with earth terminal (4 blocks)				KJB411A	• Wall embedded switch box.
2	intelligent Touch Manager	Basic	Hardware	intelligent Touch Manager	DCM601A51	• Air-conditioning management system that can be controlled by touch screen.
2-1		Option	Hardware	iTM plus adaptor	DCM601A52	• Additional 64 groups (10 outdoor units) is possible. Max. 7 iTM plus adaptors can be connected to intelligent Touch Manager.
2-2			Software	iTM power proportional distribution	DCM002A51	• Power consumption of indoor units are calculated based on operation status of the indoor unit and outdoor unit power consumption measured by kWh metre.
2-3				iTM energy navigator	DCM008A51	• Building energy consumption is visualised. Wasted air-conditioning energy can be found out.
2-4				BACnet client	DCM009A51	• BACnet equipment can be managed by intelligent Touch Manager.
2-5				HTTP Interface	DCM007A51	• Interface for intelligent Touch Manager by HTTP
2-6			Hardware		SVMPR2	• VRV Smart Phone Control System for residence
2-7					SVMPC2	• VRV Smart Phone Remote Controller for building
2-8					SVMPS1	• Tenant Billing System with PPD
2-9		VRV Smart Phone Control System				SVMPR1
2-10	VRV Tablet Controller				SVMPC1	• VRV Tablet Controller for small size building with DTA116A51.
2-11	Di unit				DEC101A51	• 8 pairs based on a pair of ON/OFF input and abnormality input.
2-12	Dio unit				DEC102A51	• 4 pairs based on a pair of ON/OFF input and abnormality input.
3	Communication interface	*2 Interface for use in BACnet®			DMS502B51	• Interface unit to allow communications between VRV and BMS. Operation and monitoring of air-conditioning systems through BACnet® communication.
3-1		Optional DIII board			DAM411B51	• Expansion kit, installed on DMS502B51, to provide 2 more DIII-NET communication ports. Not usable independently.
3-2		Optional Di board			DAM412B51	• Expansion kit, installed on DMS502B51, to provide 16 more wattmeter pulse input points. Not usable independently.
4		*3 Interface for use in LONWORKS®			DMS504B51	• Interface unit to allow communications between VRV and BMS. Operation and monitoring of air-conditioning systems through LonWorks® communication.
5		Home Automation Interface Adaptor			DTA116A51	• Use of the Modbus protocol enables the connection of the VRV system with a variety of home automation systems from other manufacturers.
6	Contact/ analogue signal	Unification adaptor for computerised control			★DCS302A52	• Interface between the central monitoring board and central control units.

Note: *1. HTTP interface (DCM007A51) is also required.

*2. BACnet® is a registered trademark of American Society of Heating, Refrigerating and Air-Conditioning Engineers (ASHRAE).

*3. LonWorks® is a trademark of Echelon Corporation registered in the United States and other countries.

*4. Installation box for ★ adaptor must be obtained locally.

Control Systems

Individual Control Systems for VRV System

Navigation remote controller (Wired remote controller) (Option)



BRC1E62

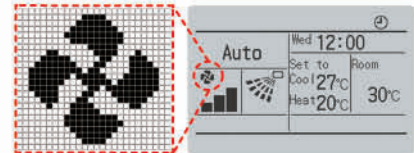
Clear display

•Dot matrix display

- A combination of fine dots enables various icons. Large text display is easy to see.

•Backlight display

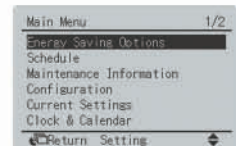
- Backlight display helps operating in dark rooms.



Simple operation

•Large buttons and arrow keys

- Large buttons and arrow keys enable easy operation. Basic setting such as fan speed and temperature can be intuitively operated. For other settings just select the function from the menu list.



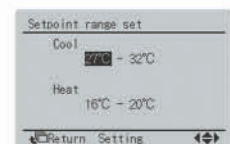
•Guide on display

- The display gives an explanation of each setting for easy operation.

Energy saving

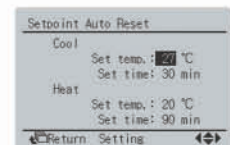
•Setpoint range set

- Saves energy by limiting the min. and max. set temperature.
- Avoids excessive cooling.
- This function is convenient when the remote controller is installed at a place where any number of people may operate it.



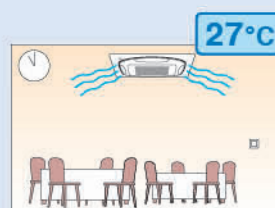
•Setpoint auto reset

- Even if the set temperature is changed, it returns to the preset temperature after a preset period of time.
- Period selectable from 30 min/60 min/90 min/120 min.



Restaurant sample

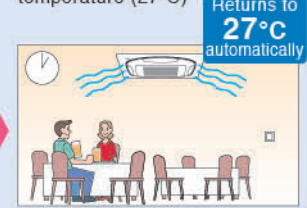
Restaurant opened
Temperature is set to 27°C



Full tables at lunchtime
Then is lowered to 24°C for crowded room



After 30 minutes*
Automatically returns to preset temperature (27°C)



*Setting possible for after 30, 60, 90, and 120 minutes.

•Off timer

- Turns off the air conditioner after a preset period of time.
- Period can be preset from 30 to 180 minutes in 10-minute increments.

Convenience

•Setback (default:OFF)

Maintains the room temperature in a specific range during unoccupied period by temporarily starting air conditioner that was turned OFF.

Ex) Setback temperature **Cooling : 35°C** Recovery differential **Cooling : -2°C**
When the room temperature goes above 35°C, the air conditioner starts operating in Cooling automatically.
When room temperature reaches 33°C, the air conditioner returns OFF.

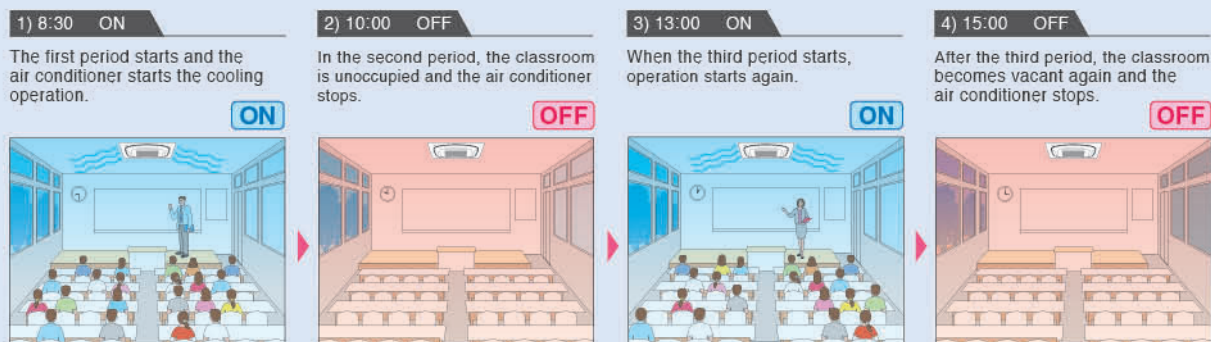
	Setback temperature	Recovery differential
Cooling	33 — 37°C	-2 — -8°C

•Weekly schedule

- 5 actions per day can be scheduled for each day of the week.
- The holiday function will disable schedule timer for the days that have been set as holiday.
- 3 independent schedules can be set. (e.g. summer, winter, mid-season)

Schedule nr 1				
Time	Act	Cool	Heat	
8:30	ON	25°C	—°C	
10:00	OFF	—°C	—°C	
13:00	ON	25°C	—°C	
15:00	OFF	—°C	—°C	
Return Setting				

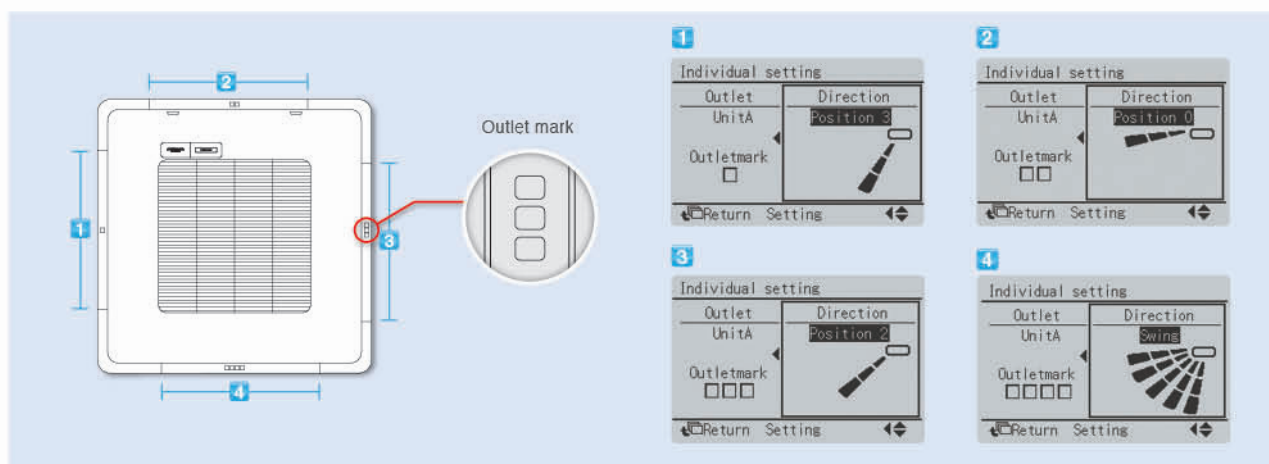
College classroom sample (a summer Monday case)



Comfort

•Individual airflow direction (*1)

Airflow direction of each of the four air outlets can be controlled individually. (Positions 0 to 4, Swing, and No individual setting are selectable.)



•Auto airflow rate (*2)

Airflow rate is automatically controlled in accordance with the difference between room temperature and set temperature.

*1 Only available for VRV 4-Way Flow Ceiling Suspended type FXUQ-A series and Ceiling Mounted Cassette (Round Flow with Sensing) type FXFQ-S series.

*2 Only available for VRV 4-Way Flow Ceiling Suspended type FXUQ-A series, Ceiling Mounted Cassette (Round Flow with Sensing) type FXFQ-S series and Middle Static Pressure Ceiling Mounted Duct type FXSQ-P series.

Control Systems

Advanced Control Systems for VRV System



One touch selection enables flexible control of equipment in a building.



DCM009A51

Various types of equipment in a building can be controlled by a single controller.

Individual air-conditioning control

The flexible control achieved by the VRV system precisely meets different air conditioning needs in each room (e.g. offices, conference rooms, hotel rooms).



Lighting control

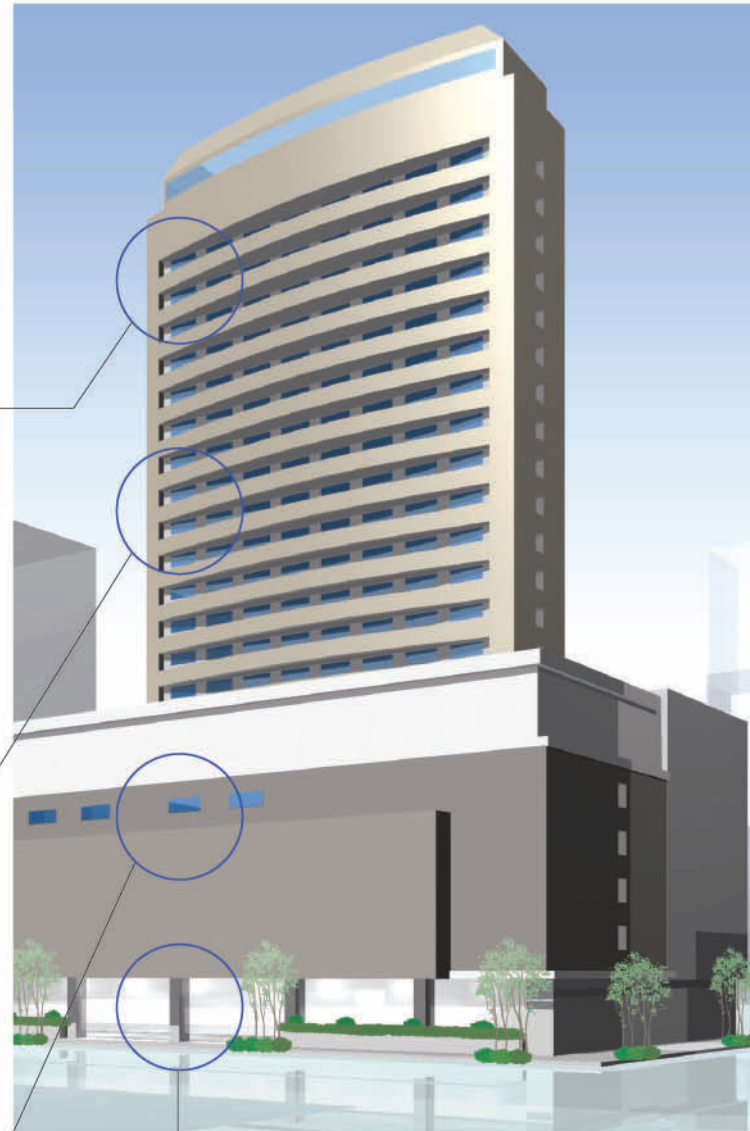
DALI-compatible

DALI-compatible LED lighting systems can be controlled and monitored. Lighting control is enhanced through an interlock function with air conditioners and other functions.



Air-conditioning control for large spaces

Air handling units can also be controlled. Large spaces, such as entrance halls and shopping malls, can be easily controlled to ensure comfort.



Building equipment control

Various types of equipment other than air conditioners, including ventilators, fans, and pumps, can also be controlled.



Pump



Fan

For Energy Saving & Comfort

intelligent Touch Manager maximises the advantages of VRV features

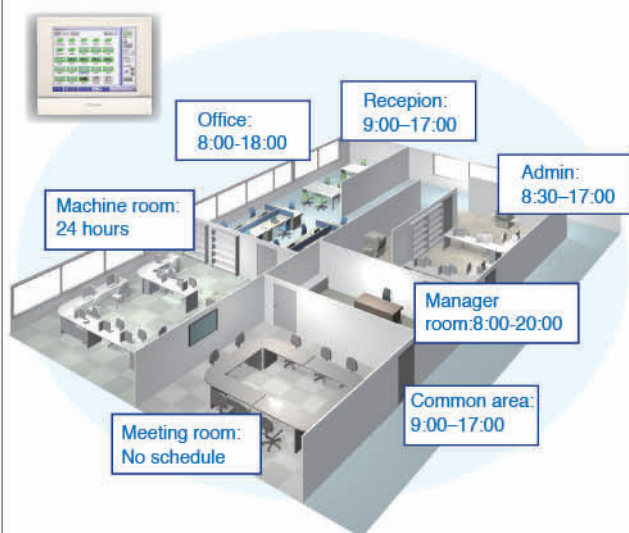
intelligent Touch Manager is an advanced multi-zone controller that provides the most cost-effective way to control and monitor the Daikin VRV system.

The 10.4" LCD touch screen is easy to use with three different screen views to include the floor plan layout view, icon view and list view and menus for system configurations.

It is also easy to use with standardized remote Web Access from your PC.

It can manage a total of 650 management points consisting of up to 512 Daikin indoor unit groups (up to 1024 indoor units) along with building equipment control / monitoring with Digital Inputs / Output (Di/Dio) , Analog Inputs / Output (Ai/Ao) and Pulse input (Pi) optional devices.

Schedule the operation time for each application.

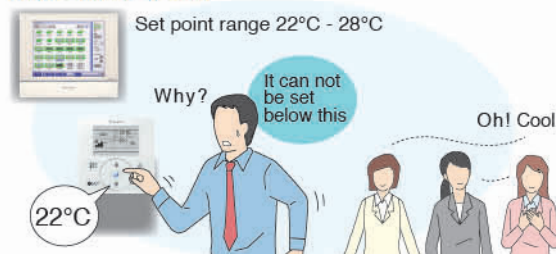


Define the setpoint range that users can change.

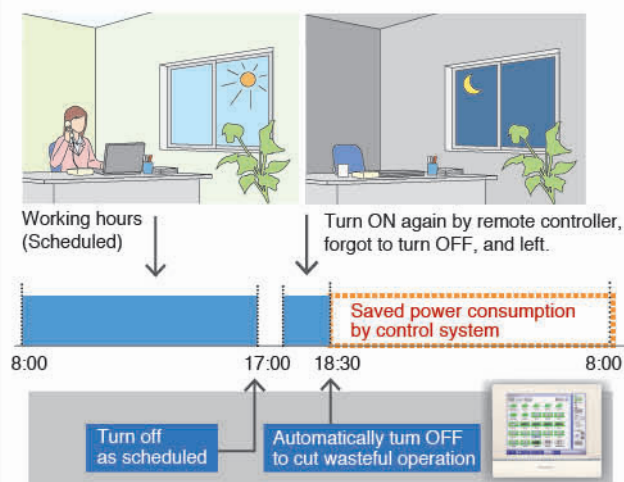
With Remote controller



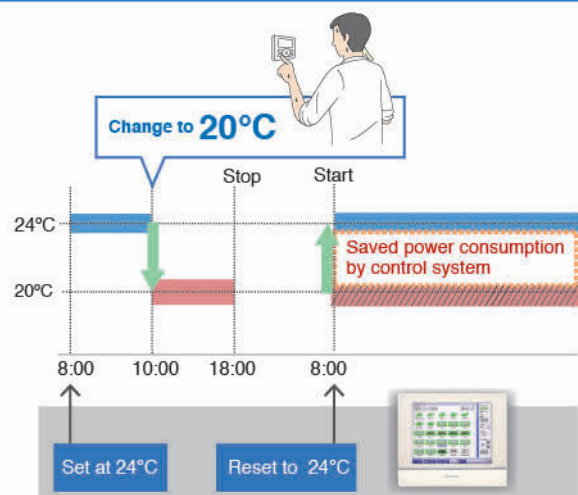
With Control System



Turn the unit OFF if a user didn't.



Reset setpoint regularly.



Control Systems

Advanced Control Systems for VRV System

In addition to switching lights on and off, advanced lighting control, such as illuminance adjustment, can be achieved

Lighting control (Option)

Connection to DALI - compatible lighting control system

Simple wiring (daisy chain) enables management of LED lighting by the *intelligent Touch Manager*.

Various air conditioning and lighting control is enabled through the interlock with occupancy sensors and illuminance sensors.

DALI-compatible

Please contact your local sales office for details.

Lighting control achieved by the *intelligent Touch Manager*

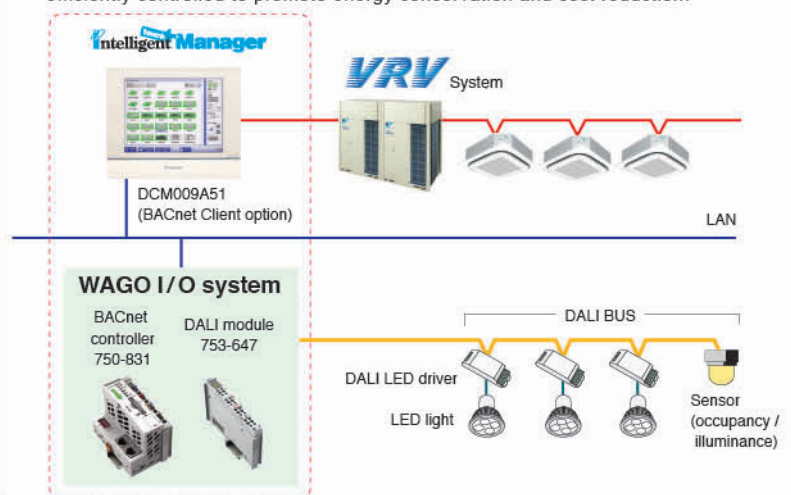
[Operation]

- Switch-on/switch-off operation
- Illuminance (1–100%) control
- Various illuminance patterns can be registered
- Registered pattern can be selected from *intelligent Touch Manager*

[Monitoring]

- Switch-on/switch-off status monitoring
- Lighting abnormality monitoring
- Illuminance monitoring
- DALI occupancy sensor monitoring
- DALI illuminance sensor monitoring

Air conditioning and lighting for which power consumption is high can be efficiently controlled to promote energy conservation and cost reduction!



[Overview of control]

- Up to 5 DALI modules can be connected to a single BACnet controller.
- Up to 64 DALI LED drivers (64 addresses) can be connected to a single DALI module.
- 64 DALI addresses can be freely assigned to up to 16 groups using a single DALI module. (Each group corresponds to a management point of the *intelligent Touch Manager*.)
- Up to 16 scenes can be set to a single DALI module.
- Up to 12 sensors (occupancy, illuminance) can be connected to a single DALI module.
- DALI BAS simplifies wiring and setting work by daisy chain wiring and automatic address setting.

Easy maintenance and energy saving by lighting control

Case1

Switch-on / switch-off and illuminance are controlled based on a schedule to cut wasteful power consumption.

- Failing to switch off lights is prevented.

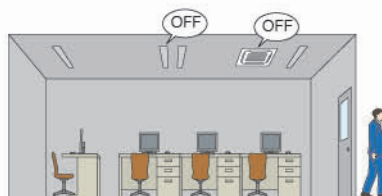


- Optimal illuminance reduces energy.

Case2

Occupancy sensors are used to eliminate both wasteful lighting and air conditioning.

When a room is unoccupied, the air conditioning stops and the lighting is switched off.



Case3

Lighting abnormalities (e.g. burned-out bulbs) can be checked on the *intelligent Touch Manager* screen.

Lighting maintenance becomes easier and quicker.



The layout screen enables quick identification of specific locations.

Tenant Management (PPD* Option)

Reporting the power consumption of VRV system for each tenant

With the PPD function, power consumption can be calculated for each indoor unit (Option)

The energy consumption is proportionally calculated for each indoor unit. The data can be used for energy management and calculation of air conditioning usage fees for respective tenants.

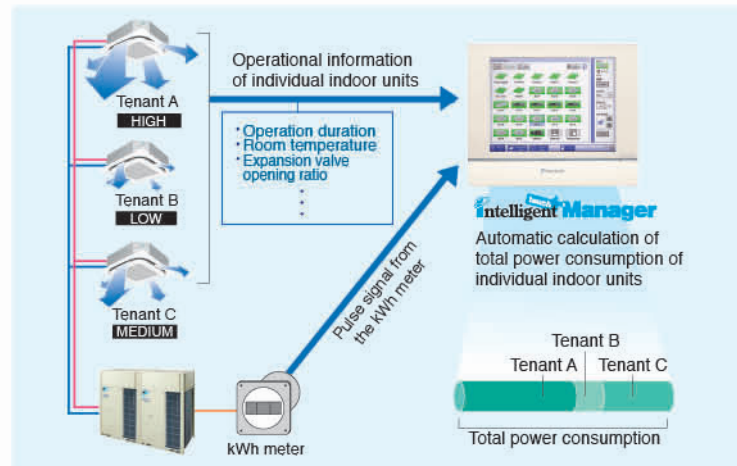
Operational information of individual indoor units are monitored, based on distribution of power consumption of outdoor units.

Daikin's PPD keeps track of power distribution for each indoor unit. It performs air conditioning billing calculations quickly and automatically.

It is easy to output PPD data.

PPD data is output in CSV format to a PC or USB memory device and can be freely processed and managed.

*PPD (Power Proportional Distribution) is Daikin's proprietary calculation method.



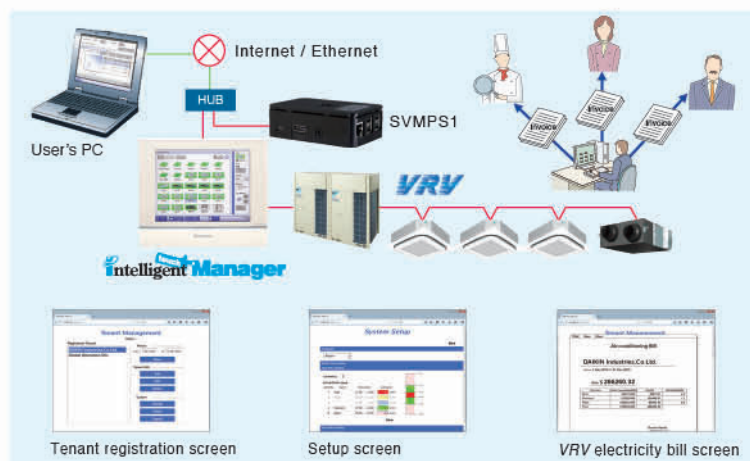
Air conditioning bills can be issued by one click

Electricity bills can be easily calculated for each tenant (Option)

The power consumption of VRV controlled by the *intelligent Touch Manager* can be easily managed for each tenant using a PC. The electricity bill settings facilitate billing work through easy calculation and issuance of VRV electricity bills.

[Main functions]

- Register tenants
- Set the electricity unit price for 5 time zones
- Calculate power consumption and electricity charge for each tenant
- Show aggregation results in the specified period for each tenant
- Output the results (Printout and CSV file)



Effective service functions offered to tenants

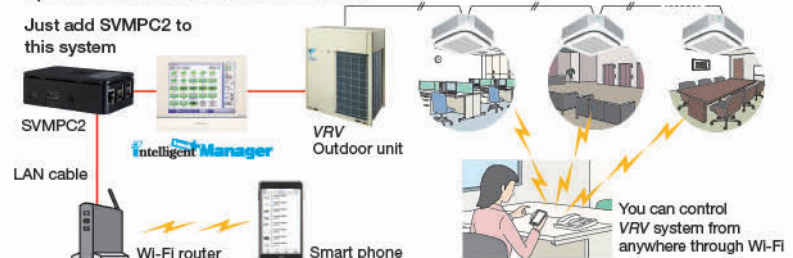
Smart phone will be a remote controller of VRV system (Option)

Users can operate and check the status of VRV system from their smart phones via Wi-Fi. It is not necessary to move where a remote controller is located with this feature. VRV system in other rooms can be operated, and their status can be checked. It is also possible to check if air conditioners in other rooms remain switched on etc., helping achieve energy saving.

For buildings VRV Smart Phone Remote Controller

Up to 512 indoor units can be controlled.

Just add SVMPC2 to this system

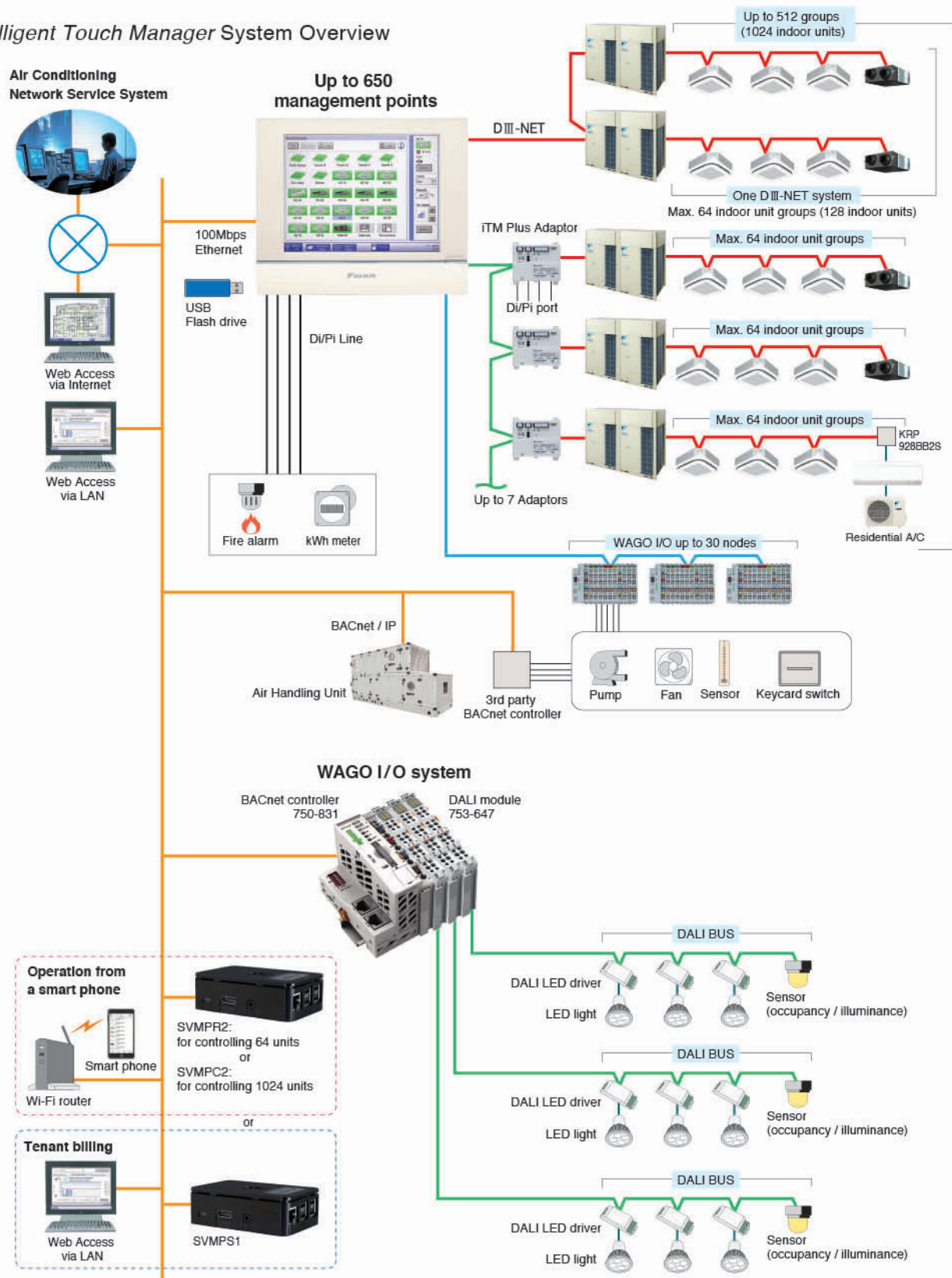


Control Systems

Advanced Control Systems for VRV System

System structure

intelligent Touch Manager System Overview



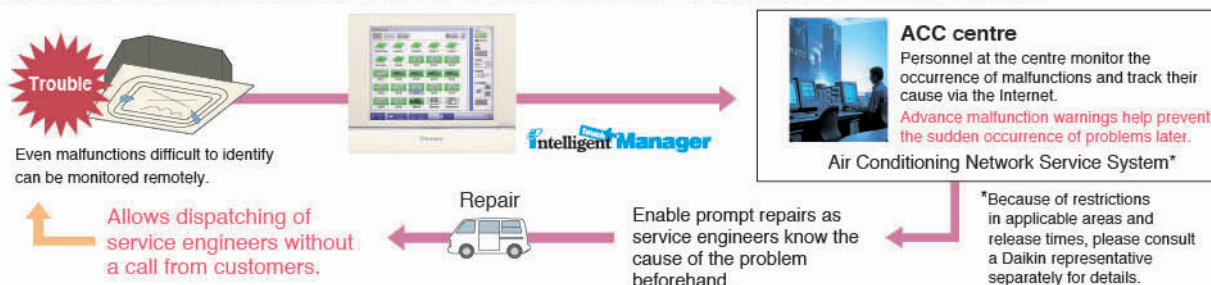
Air Conditioning Network Service System

Preventive Maintenance

The *intelligent Touch Manager* can be connected to Daikin's own Air Conditioning Network Service System for remote monitoring and verification of operation status for VRV system. By its ability to predict malfunctions, this service provides customers with additional peace of mind.

Enhanced convenience with link to the Air Conditioning Network Service System

The *intelligent Touch Manager* connects seamlessly to Daikin's 24-hour Air Conditioning Network Service System.



Daikin Offers a Variety of Control Systems

Convenient controllers that offer more freedom to administrators



DCS601C51

Intelligent Touch Controller

Ease of use and expanded control functions

The user-friendly controller features colours, multilingual function, and icons in the display for ease of understanding. A wide variety of control methods can be accommodated, permitting administrators to monitor and operate the system even when they are away from the controller.

Connect VRV system to your BMS via BACnet® or LONWORKS®

Compatible with BACnet® and LONWORKS®, the two leading open network communication protocols, Daikin offers interfaces that provide a seamless connection between VRV system and your BMS.

Dedicated interfaces make Daikin air conditioners freely compatible with open networks



DMS502B51
(Interface for use in BACnet®)

BACnet®
Seamless connection between VRV system and BACnet® open network protocol.



DMS504B51
(Interface for use in LONWORKS®)

LONWORKS®

Facilitating the network integration of VRV system and LONWORKS®

Note: 1. BACnet® is a registered trademark of American Society of Heating, Refrigerating and Air-Conditioning Engineers (ASHRAE).

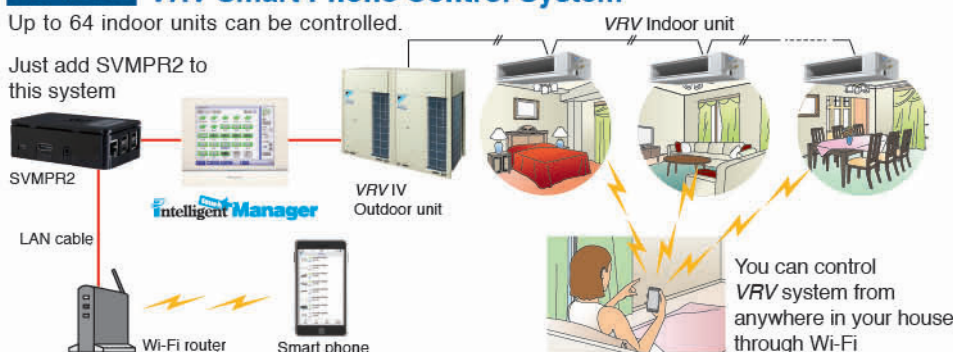
2. LONWORKS® is a trademark of Echelon Corporation registered in the United States and other countries.

Smart phone will be a remote controller of VRV system (Option)

For house VRV Smart Phone Control System

Up to 64 indoor units can be controlled.

Just add SVMPR2 to this system



Monitor



Control

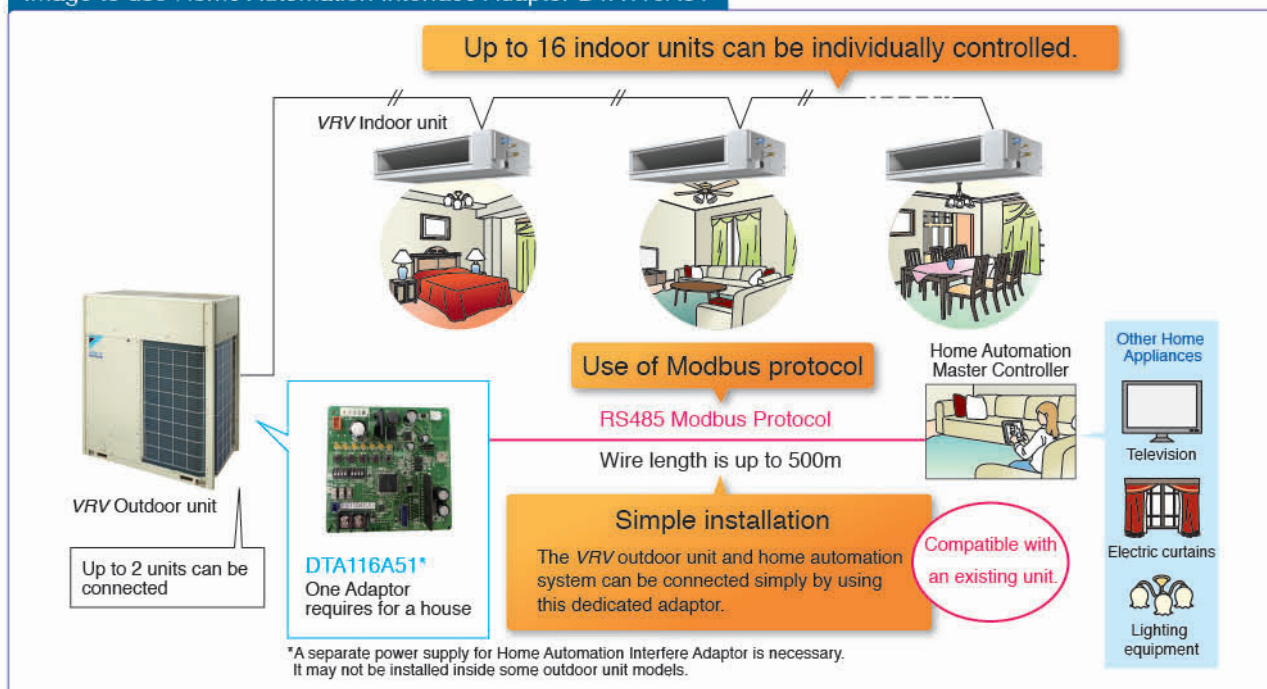
Control Systems

Advanced Control Systems for VRV System

Home Automation Interface Adaptor

The VRV system can be operated from the home automation system.

Image to use Home Automation Interface Adaptor DTA116A51



■ Functions

● Monitor

On/Off	On/Off status of indoor units
Operation mode	Cooling, Heating, Fan, Dry, Auto (depend on indoor unit capability)
Setpoint	Setpoint of indoor units
Room temperature	Suction temperature of indoor units
Fan direction	Swing, Flap direction (depend on indoor unit capability)
Fan volume	L, M, H (depend on indoor unit capability)
Forced off status	Forced off status of indoor units
Error	Malfunction, Warning with Error code
Filter sign	Filter sign of indoor units
Communication status	Communication normal/error of indoor units

● Control

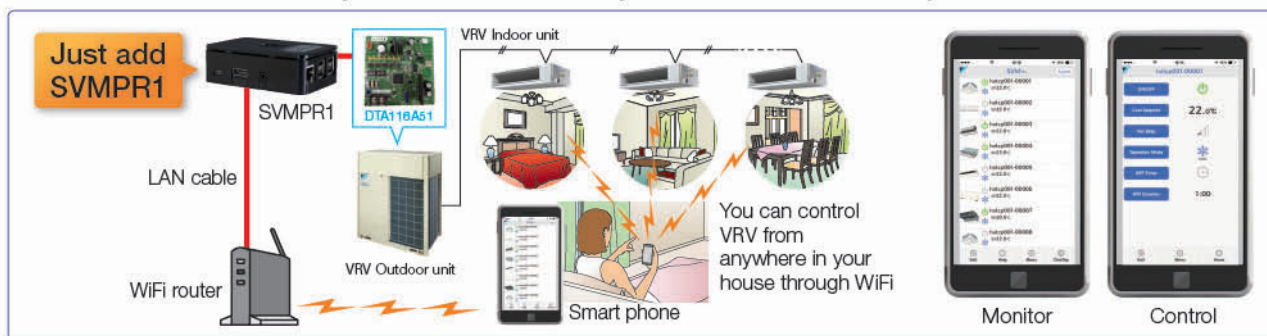
On/Off	On/Off control of indoor units
Operation mode	Cooling, Heating, Fan, Dry, Auto (depend on indoor unit capability)
Setpoint	Cooling/Heating setpoint
Fan direction	Swing, Stop, Flap direction (depend on indoor unit capability)
Fan volume	L, M, H (depend on indoor unit capability)
Filter sign reset	Reset filter sign of indoor units

● Retrieve system information

Connected indoor units	DIII-NET address of connected indoor units can be retrieved.
Indoor unit capabilities	Indoor unit capabilities such as operation mode, fan control, setpoint HV can be retrieved.

VRV Smart Phone Control System

VRV Smart Phone Control System can be realized by SVMPR1 which is a new product to utilize DTA116A51.



★ Modbus is a registered trademark of Schneider Electric S.A.

VRV Tablet Controller : SVMPC1

The SVMPC1 is easy to install, and enables monitoring and operation of VRV systems via tablets and smartphones. It is optimal for centralized management of VRV systems in small buildings or on individual floors of a building.

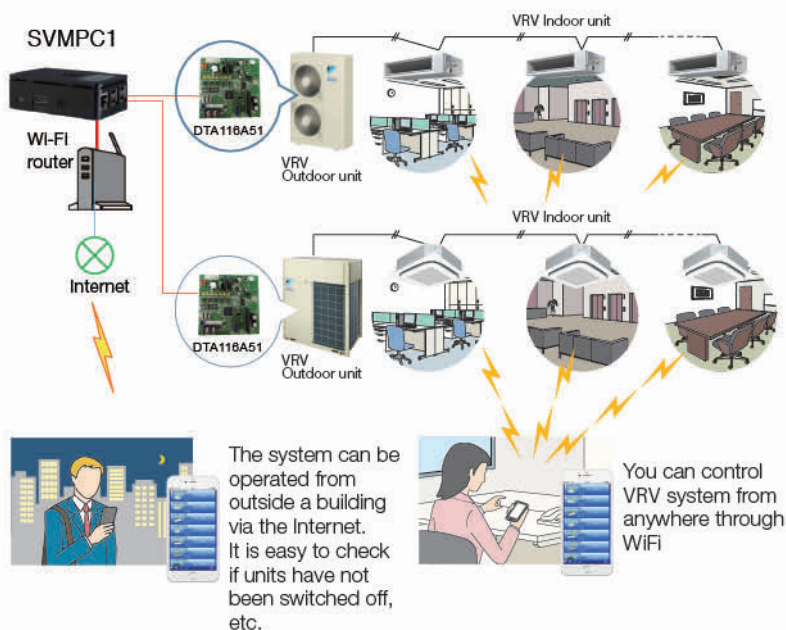
Simple and easy
but powerful enough

- SVMPC1 is easy to install. Just add DTA116A51 to outdoor unit and connect it to controller.
- Thanks to user-friendly screen, anyone can operate easily.



- SVMPC1 allows to operate VRV system from anywhere (inside and outside of an office) through the internet.
- Set point range limitation and setback function achieve energy saving and comfortable air-conditioning.
- Daily air-conditioning operation is automatically done by schedule function with annual calendar.
- Quick notification of malfunction by e-mail will be support quick maintenance.

Up to 32 indoor units can be monitored and controlled.



Functions

*: only admin user can set

Category	Function	Detail
Access security	User login	User name, password
	Device registration	Registered device (Tablet, Smartphone) can access through the internet
Main screen	Status monitoring	On/Off, Setpoint, Operation mode, Fan step, Flap, Error, Error code, Room Temperature
	Manual operation	On/Off, Setpoint, Operation mode, Fan step, Flap
Automatic control	Setpoint range limitation*	Cool setpoint min/max, Heat setpoint min/max
	Off timer*	Off timer on/off, Off timer duration (5min – 12h, every 5min)
	Setback operation*	Setback setpoint range (Cool: 24-35C, Heat: 10-20C)
	Schedule*	Action registration: Time, On/Off, Setpoint, Operation mode, Fan step, Flap, Off timer on/off, Setback setpoint Calendar setting: set by date or day of the week
System setting	Language	English, Spanish, Portuguese, Thai, Vietnam, Simplified Chinese, Traditional Chinese
	Password setting	
	User administration*	Add/Modify/Delete user, Set User name, Password, Accessible points
	Point setting*	Set point name, Select icon

Specifications

Category	Specification	Detail
Connectable units	Number of indoor units	Max 32 (with additional DTA116A51)
	Number of DTA116A51	Max 2
Connectable device	Number of Tablet/Smartphone	Max 20
	Device type	iPad, iPhone, Android tablet, Android Phone, Windows Tablet, Windows Phone, Windows PC, Mac
	Web browser	Firefox, Chrome, Safari



OFFICE

Umeda Center Building

Capacity **UP**↑

PROJECT OUTLINE

- Location: Osaka, Japan
- Construction Period: 2006-2009
- 8 days/floor
- EHP 1620 HP → VRV Q 2322HP
- 20 years in use



Awarded "SHASE Special Award -Renewal Award-"

An award since 2013 to help promote the development of renovation technology and operation management technology, that is to keep building equipment sustainable in a long term.

Members of SHASE with excellent performance are honored with this award.

*SHASE: A major organization and the only scientific society in the field of heating, air-conditioning and sanitary engineering in Japan with a history of over 80 years. There are more than 20,000 members all over the world as of 2001.

REQUIREMENTS/ISSUES

- Aging equipment
- To cope with increasing cooling load
- To minimize tenant fee loss during replacement
- Not to disturb tenant's working hours
- To organize well managed construction schedule due to a fully occupied building



DAIKIN SOLUTION

- Increased capacity from 60HP to 86HP within same installation space
- Construction done only on weekends not to disturb tenants by the noise and vibration of construction (8days per floor)
- Reuse of existing piping, automatic cleaning and charging refrigerant shortened the construction period

Installation time

8 days / floor

•Detail

Piping work: 3 people, 112 hrs

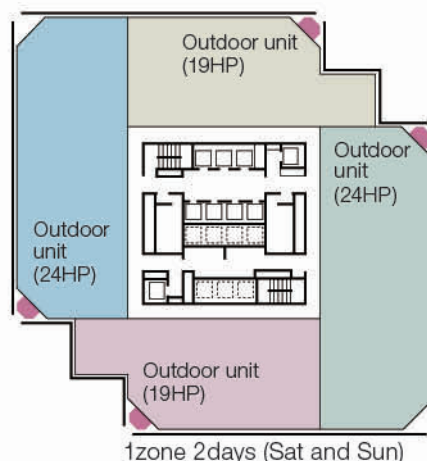
Ducting: 4 people, 144 hrs

Control: 2 people, 32 hrs

Carrying in: 4 people, 40 hrs

Administration: 2 people, 208 hrs

No interruption of
tenant's operation
on week days!



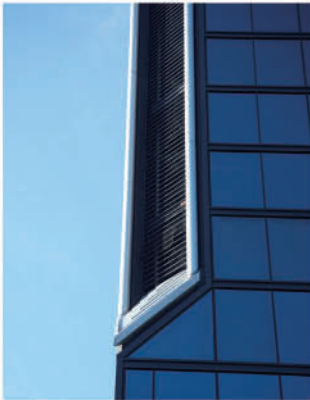


Umeda Center Building

OFFICE

Space saving

Smaller footprint,
less installation space



Outdoor units are installed in the corners of each floor. Maintenance space can be accessed from the door on the side.

The louver side is painted black to make the outdoor unit less visible from outside.

Before

5HP×3

1987



VRV G

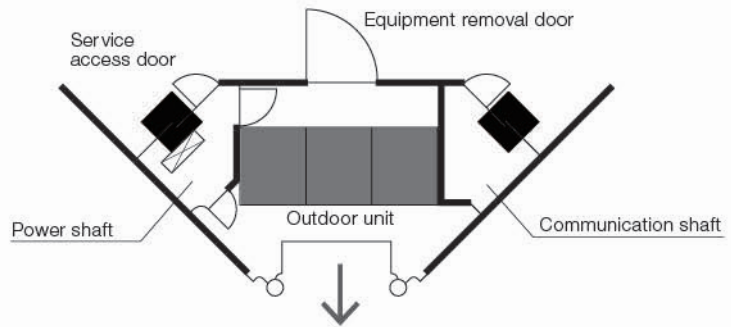
After

6HP×4

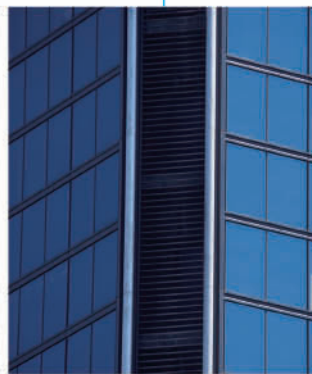
2007



VRV III-Q



•Outdoor unit facing the louver side



•Exterior of installation space



•Outdoor unit facing the indoor side

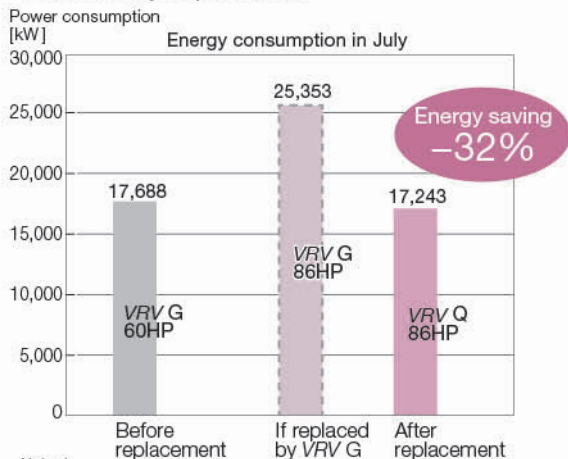
Energy saving

More capacity
less energy consumption

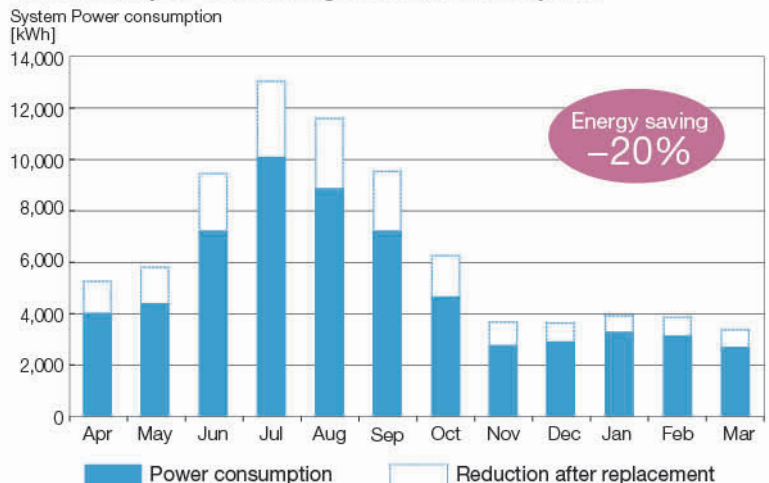


Power Consumption

•Reduction by Replacement



•Reduction by Air Conditioning Network Service System



Installation process



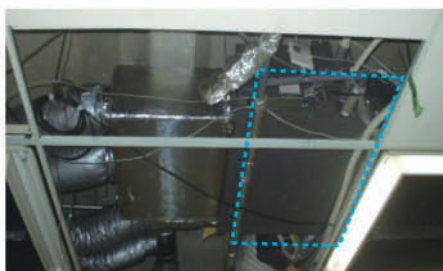
1 Protection of tenant's facilities



2 Removing existing indoor unit



3 Refrigerant recovery



4 Replaced indoor unit



5 Easy to carry in



6 Compact size



7 Outdoor unit installation



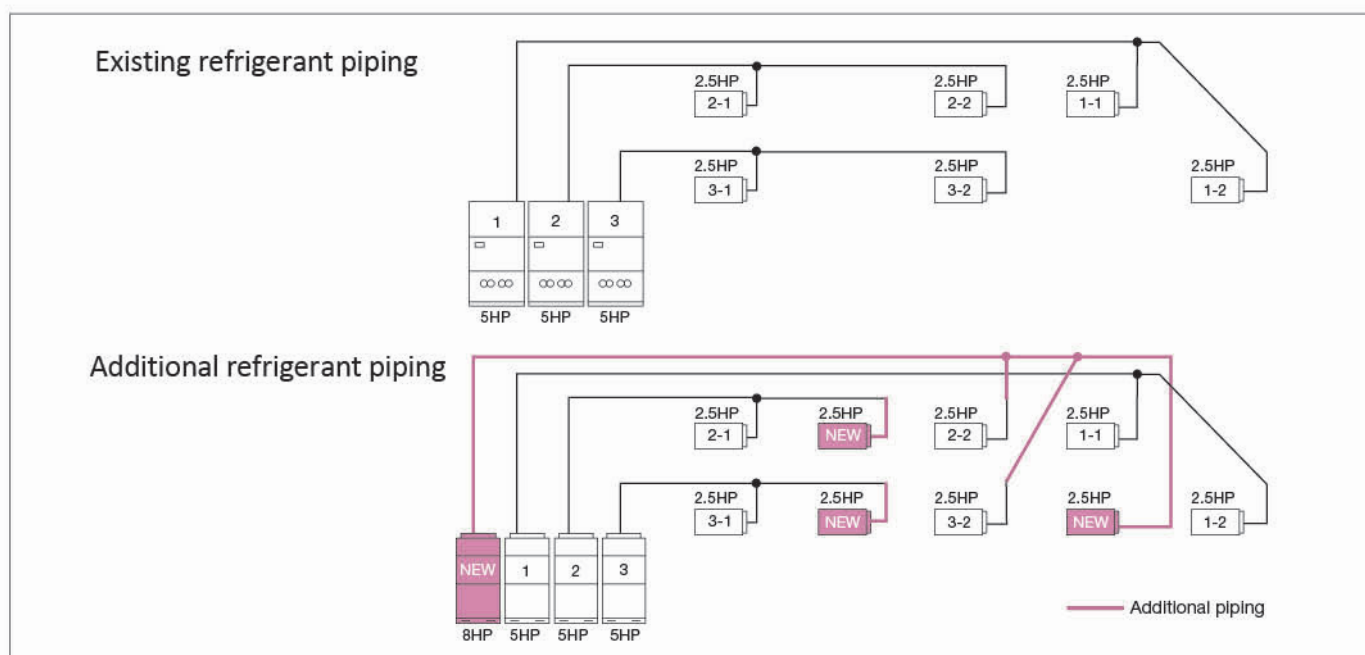
8 Refrigerant piping



9 Test run

Time/Cost saving

Reusing existing piping, ducting and drain pipes reduces the replacement time and cost. VRV IV Q series allows system capacity increases, additional new piping is required for the new system.





OFFICE

Beijing Yuanlong Yato Culture Communications Co. Ltd.

Capacity **UP**

NON DAIKIN → DAIKIN

PROJECT OUTLINE

- Location: Beijing, China
- Construction Period: 108hrs (2weekends)
- EHP 60 HP → VRV Q 80 HP

- Other manufacturer → DAIKIN
- 7years in use
- Renovation area: 1,000m²

REQUIREMENTS/ISSUES

- To reduce frequent malfunctions and lack of heating capacity
- To reduce expensive maintenance fee
- To avoid disturbance of daily operation hours
- To increase capacity



DAIKIN SOLUTION

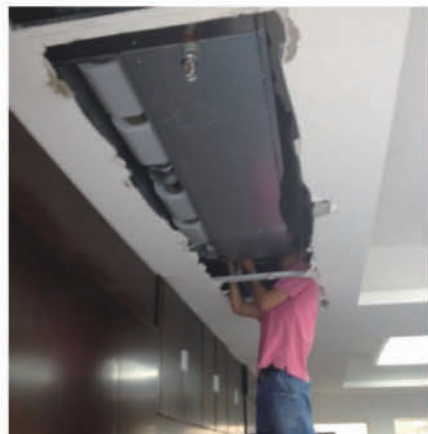
- Replaced non-DAIKIN system with VRV Q
- Construction done only on weekends
- Used existing piping to save cost
- Smaller footprint more capacity

Special Features

Before



After





Oriental Electronic Science and Technology Building

NON DAIKIN DAIKIN

PROJECT OUTLINE

- Location: Beijing, China
- Construction Period: 4 months
- Renewal: 2013
- VRV Q 178HP
- Other manufacturer → DAIKIN
- Renovation area: Approx. 600m²

Background

Oriental Electronic Science and Technology Building is a 9-story building, with a total of 20,000 square meters. After leasing the floors in 2005, tenants had added multiple brands of air conditioners. This had made the total system very complicated and thus the owner had wanted to replace the whole air conditioning system by a single manufacturer once the equipment broke down. Further, aging equipment badly needed replacement. About 1/3 of the whole building had to be renovated, including the improvement of the machine room and air conditioning in the office. Additional renovation for the rest of the building was considered in the future.

The headquarter of the owner's company, located in Hangzhou, was financially strong and wanted to use the best equipment. Since DAIKIN was a well-known reliable company in the local area, owner initially intended to upgrade with DAIKIN's VRV system. Due to a system integration company with busy working hours, closing the office for construction was a great loss. After learning more about user requirements and site visits, DAIKIN recommended VRV Q which could realize short construction period, simple installation and no affection to the user's daily office hours by night-time construction.

Owner was interested in the proposal. Initially, they doubted the feasibility of the replacement program. However, through the latest technology and making 7 to 8 site visits with proposals, DAIKIN VRV Q achieved trust from the owner.



Before
Multiple brands installed



After
VRV Q installation



OFFICE

Hommachi Fuji Building

NON DAIKIN DAIKIN

NON DAIKIN

GHP

EHP

PROJECT OUTLINE

- Location: Osaka, Japan
- Renewal: 1st phase Oct, 2014
2nd phase Apr, 2015
3rd phase Dec, 2015 (In progress)

- GHP 784 HP → VRV Q 716 HP
- Other manufacturer → DAIKIN
- 15 years in use

Background

Hommachi Fuji building is a 12-storey office building located in the heart of busy Osaka city.

Built in year 2000, GHP was adopted for the air conditioning system mainly to save electricity cost.

As the years passed by, malfunctions had increased due to the aging equipment.

This was the perfect timing for DAIKIN to make a replacement proposal as follows;

- Use existing piping
- Schedule construction only on weekends to avoid disturbance to tenants
- Offer reliable maintenance contract (Easy to obtain parts)
- Optimize outdoor unit capacity by adjusting connection ratio
- Easy control by intelligent Touch Manager

With all these factors and total cost considered, the owner decided to adopt DAIKIN's VRV Q.



Installation process



Removing old indoor unit



New indoor unit installed



Replacement from GHP to VRV Q in progress



VRV Q installation



intelligent Touch Manager



Entrance Hall



OFFICE

Shiroguchi Building

PROJECT OUTLINE

- Location: Osaka, Japan
- Construction Period: 2 weeks
- EHP 129 HP → VRV Q 119 HP
- 15 years in use

REQUIREMENTS / ISSUES

- Difficult carry-in route to the ad-tower
- Not to disturb tenants
- Decrease capacity to reduce power consumption
- Enhance stability of air conditioning system



DAIKIN SOLUTION

- The compact footprint of VRV Q enabled the outdoor units to be carried in without disassembling the ad-tower
- Construction was done mainly at night time considering operating tenants during weekends
- Indoor construction was done only at night time thanks to the reuse of existing piping and automatic pipe cleaning
- Safe installation was realized since no brazing necessary
- The flexibility of VRV Q realized the outdoor unit size reduction by 10HP while keeping the same indoor unit capacity
- A backup system was implemented in case of malfunction



Background Special Features



1 Previous day



2 Construction during night time



3 Next morning without a trace



Replacement in progress



After Replacement



OFFICE

Torre Serenissima

PROJECT OUTLINE

- Location: Verona, Italy
- Renewal: 2013
- VRV Q 39 units
- 17 years in use

Background

Torre Serenissima is the headquarters of the Brescia Padova Motorway, in Verona, northern Italy.

Why VRV Q?

"The complete replacement of the 17-year-old R22 system resulted in only half-day of missed work for employees.
(Full installation done during weekends)
The improved control of the air flow by the user significantly enhanced comfort while reducing energy consumption by 25%"

Maurizio Casarola (Property Manager)



The original VRV units that ran on R22 were replaced with VRV III-Q units running on R410A.



Thirty-nine VRV III-Q units serve 215 cassette type indoor units and 35 VAM ventilation units.



The VRV III-Q units run on R410A, ensuring compliance with the latest standards.



Installation was carried out during weekends to minimize disruption to business.



A VRV heat recovery system was installed on the top two floors which house a number of individual offices.



VRV allows independent control of climate in different areas of the building.



Jinan Qilu Hospital

HOSPITAL

PROJECT OUTLINE

- Location: Jinan, China
- Renewal: Sep, 2014
- VRV K(R22) → VRV Q 796HP

Background

Aging equipment by hospital's long-term operation required an upgrade.
To complete installation without stopping treatment was essential.
Excellent products, excellent service, professional renovation experience gained user's acceptance.



Suzhou Municipal Hospital in North District

HOSPITAL

PROJECT OUTLINE

- Location: Suzhou, China
- Renewal: 1st phase Sep, 2013
2nd phase Jun, 2014
- VRV II(R22) → VRV Q 128HP

Background

Due to equipment for laboratories, temperature requirements and stability were demanding.
Partial interior construction was required without stopping experiments.
Flexible construction and phasing further reduced the impact of the replacement.





HOTEL

The Bloomsbury Hotel

PROJECT OUTLINE

- Location: London, UK
- Construction period: 9 months
- VRV Q 56 outdoor units



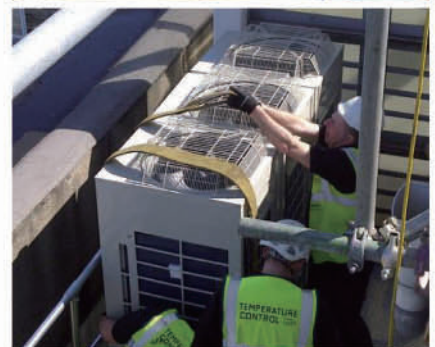
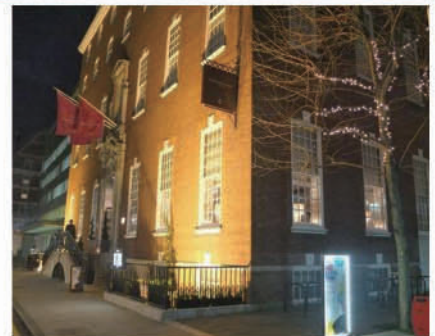
REQUIREMENTS/ISSUES

- To reduce energy usage and CO₂ emissions by 30% while improving comfort levels for guests
- To comply with UK legislation on the use of refrigerant gases
- To work in an operational hotel
- To keep the 9month program to minimize revenue loss



DAIKIN SOLUTION

- VRV Q uses R410A gas which can work at the lower pressures used by R22 systems while delivering much higher efficiencies thus allowing existing pipework to be retained. The system is 40% more efficient in heating and 25% higher in cooling than R22 refrigerant systems.
- VRV systems are modular, which means they are flexible in their application and installation can be phased, further minimizing disruption. On this project, the compact and lightweight units could also be installed without using cranes, reducing costs further and avoiding road closures.
- Although, all the outdoor and indoor units were replaced, along with BS boxes, installation costs were half of the expected cost of complete system replacement. Existing pipework could also be retained, saving time and money. The phased approach meant occupancy rates could be maintained minimizing the effect on revenue.





HOTEL

Helena Resort

PROJECT OUTLINE

- Location: Sunny Beach, Bulgaria
- Construction Period: In progress
- 1 outdoor unit: replaced
- 44 outdoor units: ready to replace
- 12 years in use



Benefits and Highlights

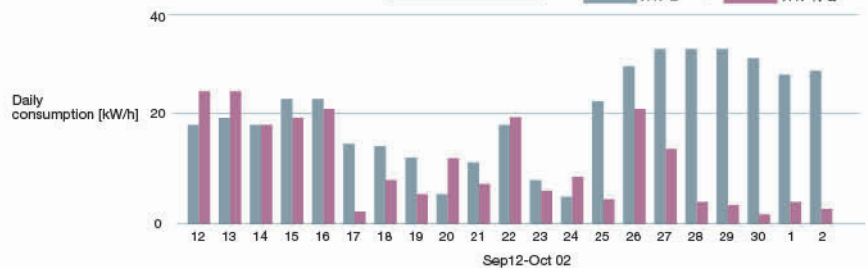
- Real measured VRF replacement system with a result of 38.9 % higher efficiency in cooling mode
- Long term relation with investor turns into new sales opportunities
- No tender !
- Creates opportunities for other projects
- Savings: VRF replacement 40 %
- The original project and the replacement project was done by the same company with high system and design knowledge



Results of 20 days from September 2014

48% DOWN

437kw/h → 226kw/h
VRV L → VRV IVQ

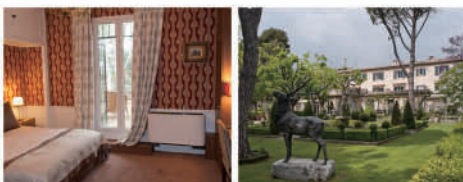


HOTEL

Hotel Le Pignonnet

PROJECT OUTLINE

- Location: Aix-en-Provence, France
- Renewal: 2011
- VRF Q 8 units



Replacement of the existing VRF system of a luxury 5 star hotel to anticipate R22 phase out while preserving interior decoration.





SCHOOL

Shanghai Jiading District Committee Party School

PROJECT OUTLINE

- Location: Shanghai, China
- Renewal: Jul, 2014
- VRV II(R22) → VRV Q 318HP

Background

Aging equipment of a government project had increased the cost for maintenance and electricity year by year.

Requirements were as follows;

- To protect interior at the fullest
- To minimize construction period
- To be flexible with construction schedule considering class time

VRV Q easily solved the problem of the installation work in pipe shafts.



OTHERS

Shanghai Qingpu District Library

PROJECT OUTLINE

- Location: Shanghai, China
- Renewal: May, 2014
- VRV II → VRV Q 350HP

Background

The outdoor unit placed by the waterfront was facing serious aging. Construction during the night enabled the replacement for a library of 365-day year-round operation without closing. There was no effect on daily business.





OTHERS

The Palace of Westminster

NON DAIKIN DAIKIN

PROJECT OUTLINE

- Location: London, UK
- Renewal: 2012
- VRV Q 3 units
- Other manufacturer → DAIKIN
- 17 years in use



Background

- Up to 50% cost reduction possible when compared with total system replacement by the reuse of existing pipe work.
- Up to 40% reduction of energy consumption possible.
- Fast and effective upgrade was achievable because VRV III-Q was designed to operate at the lower pressures required by existing R22 piping, without compromising high efficiency levels.
- Not only reduces associated CO₂ emissions but also improves energy efficiency by using R410A.

Comment from installer

"VRV III-Q offers a three pipe replacement option, which has the unique ability to reduce operating pressures of R410A down to near those of R22, without loss of performance. The system was flushed, and new refnet joints were fitted into the existing pipework, the new indoor and VRV outdoor units were installed and the system was commissioned. 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 CO₂.

Mick Langford(All Seasons Climate Control)



Warning



- Ask a qualified installer or contractor to install this product. Do not try to install the product yourself. Improper installation can result in water or refrigerant leakage, electrical shock, fire or explosion.
- Use only those parts and accessories supplied or specified by Daikin. Ask a qualified installer or contractor to install those parts and accessories. Use of unauthorised parts and accessories or improper installation of parts and accessories can result in water or refrigerant leakage, electrical shock, fire or explosion.
- Read the user's manual carefully before using this product. The user's manual provides important safety instructions and warnings. Be sure to follow these instructions and warnings.

If you have any enquiries, please contact your local importer, distributor and/or retailer.

Cautions on product corrosion

1. Air conditioners should not be installed in areas where corrosive gases, such as acid gas or alkaline gas, are produced.
2. If the outdoor unit is to be installed close to the sea shore, direct exposure to the sea breeze should be avoided. If you need to install the outdoor unit close to the sea shore, contact your local distributor.



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