VRV II

AIR CONDITIONING SYSTEM

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VRV

Designed for large-sized building

The VRV II is a significantly improved version of the original VRV, which revolutionized air conditioning for buildings. Some of the main upgrades are quieter operation, smaller units, sleeker design, and simpler installation and maintenance, along with a higher COP. The most advanced technologies were employed in designing the VRV II to create a system that completely fulfills the needs of our customers.

VRV

• **Variable**
– System output depending on required load
• **Refrigerant**
– Direct Expansion system
• **Volume**
– Refrigerant flow regulated by electronic expansion valve varying compressor capacity.

- **VRV** means Variable Refrigerant Volume System , where Cooling is controlled & monitored by Refrigerant Flow Volume to the Indoor Units.
- Any Type & any Capacity of Indoor Units can be connected to Single Same Outdoor Unit.
- Single Refrigerant Piping for each System Only Two Pipes per System.
- Individual Controls for Indoor Units & Centralized Zonal Control is possible.
- Less Volume of Refrigerant is required.
- Inverter Compressors with Standard Compressors provides wide range of Temperature settings option & +/- 0.5C on Set Temp is attained by this system.

- With Multiple Compressors in Outdoor Units operating in sequence, Life Cycle of compressors are extended than the average life cycle of any compressors.
- Zero Downtime of System during the failure of any compressors, since there is automatic switchover to other compressors, thereby the system doesn't stop while in operation.
- During Maintenance period, the system can continue working while there is maintenance of compressors of particular module.
- Low Power consumption due to Inverter technology, where the power is calculated as per to usage of indoor units & corresponding percentage of outdoor unit operating.
- Compactable to any BMS network
- Flexibility in system where in any additional indoor units can be connected in future to the same Outdoor Units provided there is spare capacity present in Outdoor units.
- Inverter Compressors, Variable Speed Fan Motor, DC Sine Wave Motor provides a greater durability & reliability to the system whenever there is partial load or full load.
- Less number of Outdoor Units.
- Compact Design hence Less Space Required on the roof . Ex: 24TR Condensing Unit needed only 2.9sqm footprint area.
- Higher COP for the System means less electricity is used resulting in greater energy efficiency.

- With DC Fan Motor, Efficiency improvement by 40% especially at lower speed.
- With Aero Fitting Grills & Aero Spiral Fans low noise is achieve with large airflow & new shape of fans promotes spiral discharging airflow resulting in reduced pressure loss.
- Single Wiring is required per System & looped to all the indoor Units per system.
- Copper Pipes for R410A refrigerant Gas is quiet smaller diameter compared to standard copper pipes for other refrigerant gas.
- With Power Proportional Distribution (PPD) card, power consumption of each flat can be calculated irrespective of the flats connected to same Condensing Unit.

Outdoor Unit

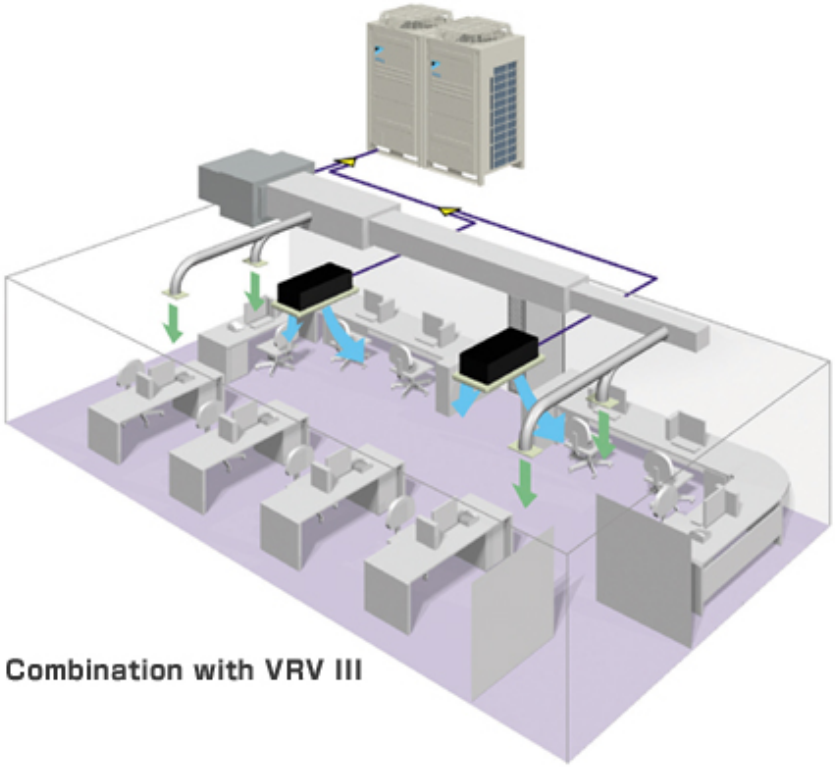
RXYQ 10M

8 RT cooling capacity

RXYQ 30M

24 RT cooling capacity

R-410A



Combination with VRV III

Topics:

– Range: till 30 HP
– Heat pump
– **32** indoor units connectable
– Compact casing

-Space saving Out door dimension (1.6m*1.25m* 0.75m)

Indoor types

From (0.7 RT to 4.1 RT)

Ceiling Mounted Cassette (Round Flow) Type

FXFQ25P / FXFQ32P / FXFQ40P / FXFQ50P / FXFQ63P / FXFQ80P / FXFQ100P / FXFQ125P

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

- The industry's first* Round Flow Ceiling Mounted Cassette type offers 360° airflow with improved temperature distribution.
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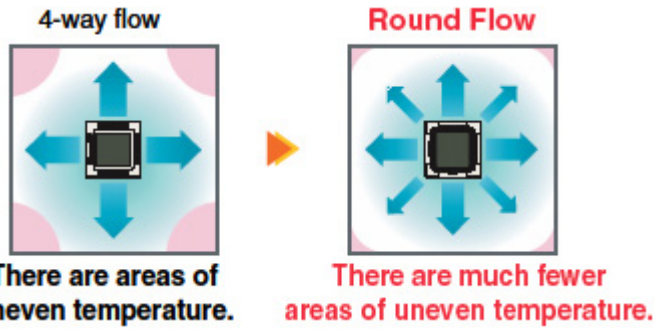
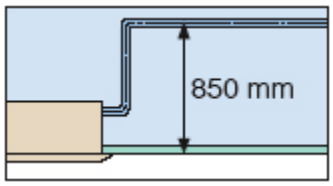
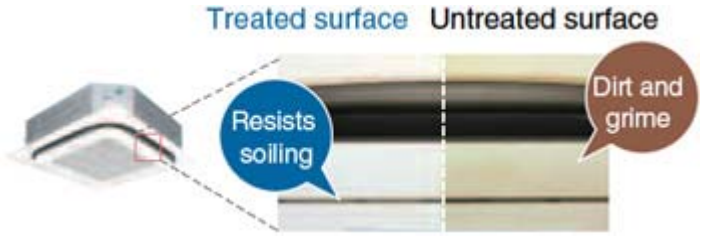


- All models are lighter than the conventional ones. Ex: Models FXFQ25P-50P are 4.5 kg lighter (reduced from 24 kg to 19.5 kg).
- Drain pump is equipped as standard accessory, and the lift height has been improved from 750 mm to 850 mm.



- A modern sophisticated decoration panel has been applied, with a panel surface that has been treated with a dirt-repellant coating.



- Control of the airflow rate has been improved from 2-step to 3-step control.
- Low operation sound level
- A new antibacterial treatment that uses silver ions has been applied to the drain pan, preventing the growth of slime, mould and bacteria that cause blockages and odours.
- The horizontal louvers prevent dew condensation. Their non-flocking surfaces, which repel dirt, are easy to clean.
- The air filter has an anti-mould and antibacterial treatment that prevents the growth of mould generated from dust or moisture that may adhere to the filter.

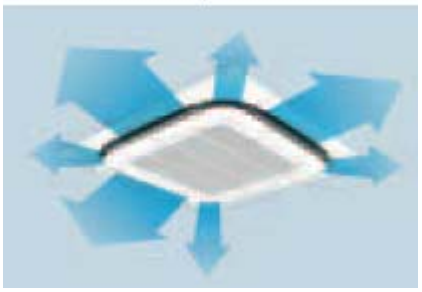
Example of airflow patterns

360° airflow is available, as well as 2- to 4-way flows, so you can choose the most suitable airflow pattern depending on location or room layout.

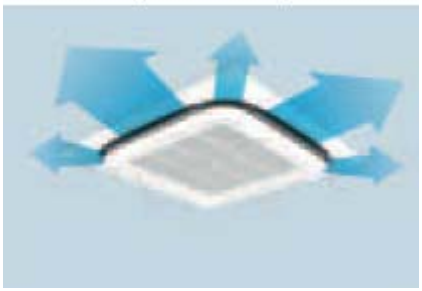
All-round flow

4-way flow

3-way flow



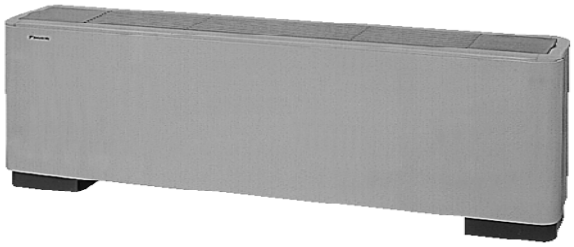
L-shaped 2-way flow



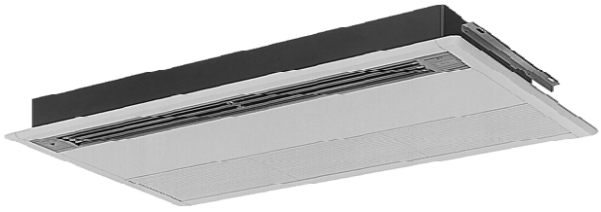
Wall Mounted Type

Ceiling Mounted Cassette Type (Multi Flow)

Floor Standing Type



Ceiling Mounted Cassette Corner Type



What are the advantages of a VRV system over central air conditioning system ?

Individual Control

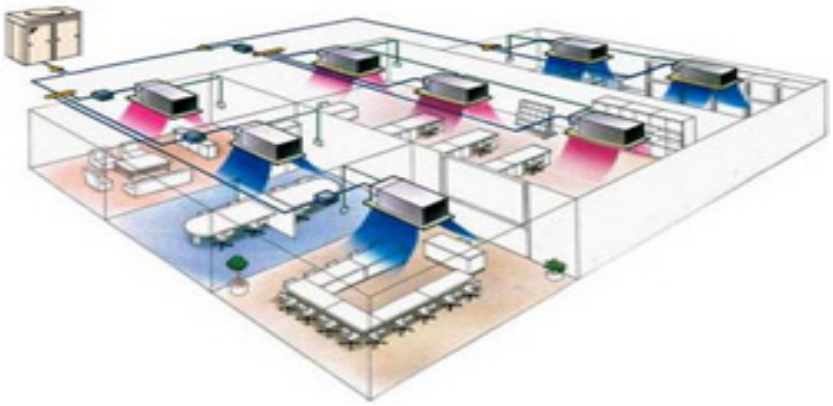
Conventional systems air condition a building as a whole, whereas the VRV system air conditions each room individually. Hence it is ideal for the constantly changing occupancy of a typical building. Even further, precise level control is possible that reacts to the exact conditions in each room. Individual control promotes a far more economical and efficient system.

Other advantages

- **Saves Energy**
- **Conserves space**
- **Offers a wide selection of models**
- **Operates over a broad temperature**
- **provides superior design flexibility**
- **Enhances ease of use**
- **Delivers ultimate reliability**
- **Simplifies installation**

How does the VRV system benefits property owners?

1. Comfortable and economical
2. Adapts easily to any floor plan.
3. Short installation time
4. Central control system.
5. Efficient space utilization
6. High reliability.
7. Low operating sound of height



What are the advantages for consultant and design offices?

1. Offers are made selection of models
2. Long piping design
3. Can be installed for each floor
4. Air refreshing treatment
5. Light weight outdoor units
6. Wide range of control system
7. Short design times

What are the advantages for user?

- precise room temperature control
- auto swing
- LCD remoter controller
- low operating sound design
- auto restart function

Benefits for owners

With Daikin's proprietary inverter technology and cutting- edge control technology for refrigerant, the VRV III air conditioning system operates with outstanding efficiency. This contributes to high energy savings that are top class in the industry, which greatly reduces your running costs and facilitates far better building management.

Benefits for Installers

Daikin offers a compact design for VRV III outdoor units by further optimizing equipment functions , exceeding the norm for air conditioning systems. Compact units facilitate installation in limited areas, such as rooftops, and take up less effective space. Easier installation work realizes fast completion with time to spare.

Benefit for Users

To provide a comfortable air environment, Daikin offers air treatment systems beyond mere air conditioning. As well as bringing air to a comfortable temperature, the air quality can be treated with ventilation, humidification, and other processes. Ease of use is realized through advanced, centralized control systems.

Benefits for consultants and Design offices

Daikin's VRV systems include indoor and outdoor units available in a wide range of models for various building sizes and installation conditions. Long refrigerant piping lengths and other features put few restrictions on design for great flexibility in meeting the needs of the building.

VRV II- is a compilation of cutting- edge technologies derived from a Customer First policy
Daikin has put comprehensive cutting- edge technologies into the VRV II, derived fro, its Customer First Policy and 20 years of experience with the VRV System. Resulting in *quieter* operation, *smaller* units, *sleeker* designs, and *simpler* installation and maintenance, with higher COP.

Wireless Remote Control (BRC4C/BRC7C/BRC7E)

- Up to 16 indoor units can be controlled simultaneously

Operation Buttons:

- ON/OFF
- Operating mode selection
- Temperature setting
- Fan speed control
- Air flow direction (for indoor unit FXFQ and FXAQ models only)
- Timer mode on/off
- Timer mode start/stop
- Inspection/test indication
-

Centralized Remote Control (DCS302C71)

- Maximum 64 groups (up to 128 indoor units) can be controlled simultaneously or individually
- One secondary controller in a separate location can be used instead of each primary controller
- Malfunction code display
- Up to 6,560 ft. wiring length (including all connections)

IMPORTANT POINTS IN VRV DESIGNING

1. Check Heat Load Data & zone the Building/Villa.
2. Meet the TMBH or CFM specifications , as per to requirement.
3. Select Outdoor Units based on zone Area.
4. Re-check the capacities selected with specified data and re-select the units if required.
5. Maintain 40m Maximum between 1st Ref-net Joint & Last Indoor Unit.
6. Always connect bigger capacity indoor units first where ever possible , thereby pipe sizes can be optimized.
7. Always select Low Static where ever applicable; Built-in Type units can also be an alternative before selecting High Static Ducted units. – Based on CFM specified.
8. I-Manager can be selected if there are more than 64 Indoor Units & KW consumption billing is required**.**

Basic Principles of Piping Works

1-Make sure there is NO MOISTURE in the copper pipe

2- Make sure there is NO DIRT or foreign particles in the copper pipe

3- Make sure the refrigerant gas does not LEAK OUT.

4-DRY by vacuum drying

5-CLEAN (Nitrogen Replacement, Flushing)

6-TIGHT (Brazing ,Air Tight Test)