DAIKIN

DAIKIN's Way Forward in reducing Green House Gas Emissions & Sustainability

DAIKIN –Environmental Vision 2050

We will reduce the greenhouse gas emissions generated throughout the entire lifecycle of our products.

Furthermore, we are committed to creating solutions that link society and customers as we work with stakeholders to reduce greenhouse gas emissions to net zero.

Using IoT and AI, and open innovation attempts, we will meet the world's needs for air solutions by providing safe and healthy air environments while at the same time contributing to solving global environmental problems.

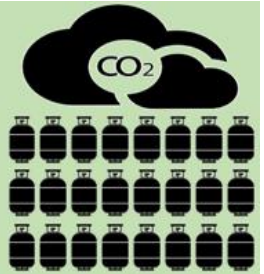
DAIKIN - Environment conscious

83%

of Daikin Residential AC units for fiscal 2020 are environmental conscious

Equivalent to reducing the greenhouse gas (CO_2) emissions by

54 Million tons



Equivalent to the CO_2 absorbed by

6.1 Billion

Cedar trees

Equivalent to the CO_2 emitted by

44 Million

private cars

DAIKIN - Global development system for AC business

The Leader in Core Technologies

Daikin – an ***innovation leader***, is laying the foundation for next-generation technology with ***three cutting-edge core technologies***

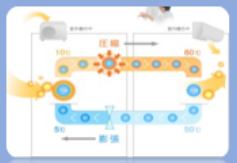
1 Inverter

Inverters improve **energy savings and comfort** by finely regulating from 0 to 100% motor rotation speed of the compressor, the heart of an air conditioner

2 Heat Pump

Heat pumps utilize the basic principle of air conditioning in which heat is removed from outdoor air, and air or water is **warmed or cooled**. Energy efficiency is higher than other methods

3 Refrigerant Control

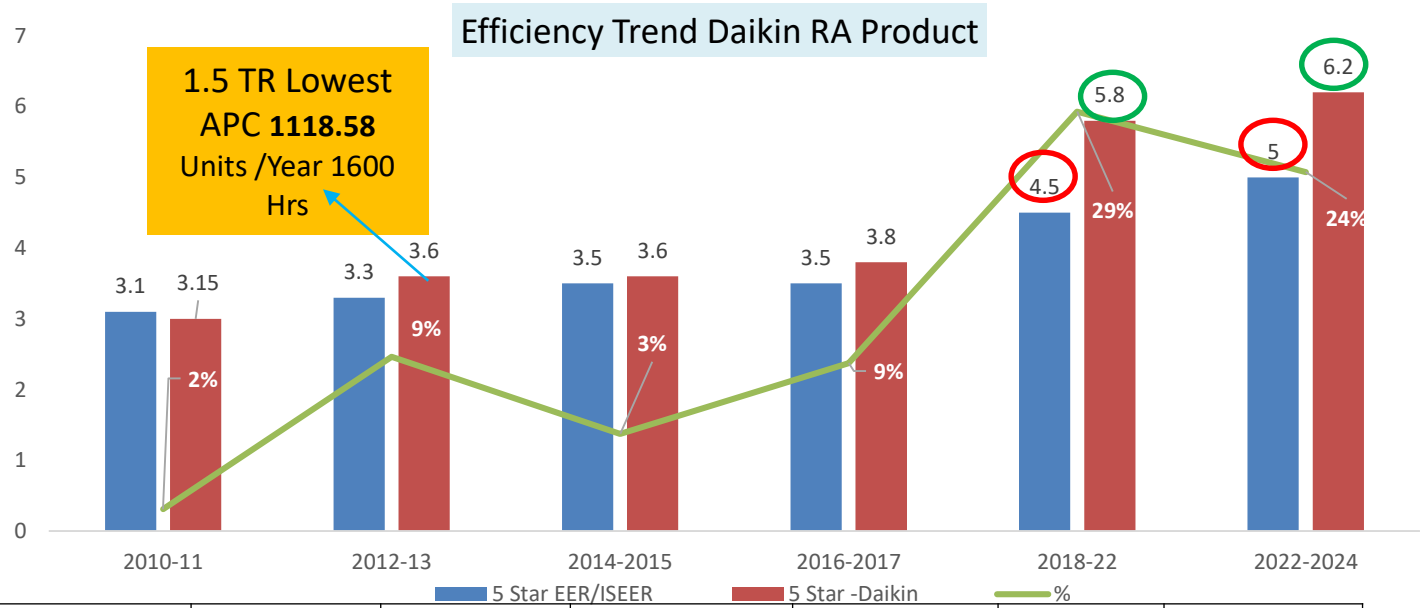


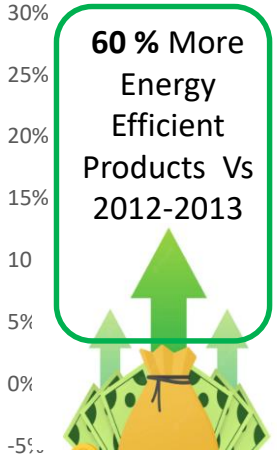
Refrigerant control delivers heat-carrying refrigerant at the **necessary amount, temperature, and timing** in a multi-split outdoor unit, which initiates operation for multiple indoor units

DAIKIN

Daikin RA-Product Energy Efficiency Upgradation & Energy Saving Trend 2010~2024

1.5 TR-5 Star Lowest APC **667.36 Units /Year 1600 Hrs**





YEAR	2010-11	2012-13	2014-2015	2016-2017	2018-22	2022-2024
5-Star EER/ISEER as per Min BEE Requirement	3.1	3.3	3.5	3.5	4.5	5
5 Star -Daikin	3.15	3.6	3.6	3.8	5.8	6.2
%	2%	9%	3%	9%	29%	24%

DAIKIN

Global Cooling Prize Award (GCP)

Daikin Entry

Holistic approach that look at equipment lifecycle to optimize efficiency and low environment impact

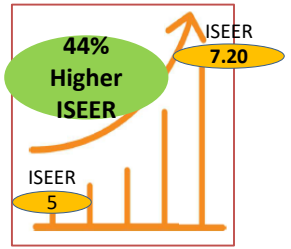
- **Multi split (Connect 2 IDU to 1 ODU):** Optimize refrigerant flow via refrigerant control technology to precisely modulate the IDU Capacity.
- **Evaporative cooling method:** Implement control technology to automate water spray under the high ambient condition. Heat of vaporization shall be used to lower the temperature of ODU intake air.
- **Low GWP HFO-1234ze(E)** has been proposed for this system.

Award Ceremony:

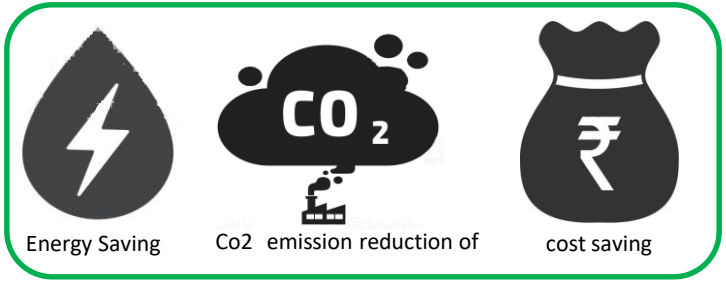
Daikin & Nikken Sekki won the GCP Prize on 29th April 2021

Sir Richard Branson congratulates the winners: Team Daikin (left) and Team Gree

Achieved ISEER-7.20 in GCP



ISEER-5 Min-5 Star as per BEE till Dec-2024



DAIKIN

Technology Description (GCP)

Daikin in partnership with Nikken Sekkei, were **selected as a Winner in the Global Cooling Prize**.

The cooling system adopts the following two innovative methods to achieve higher efficiency and lower climate impact:

- **First,** a multi-split method is used to connect two indoor units with one outdoor unit. This method helps optimize refrigerant flow rate for each of the two indoor units depending on ever-changing cooling load and uses refrigerant control technology to closely modulate the capacity.
- **Second,** evaporative cooling improves the system's efficiency by using the heat of vaporization to lower the temperature of the air that the outdoor unit takes in. The system uses control technology that measures the outdoor temperature with sensors and applies the control system to automatically spray water when under high ambient temperature conditions where cooling load seems particularly high.

As part of Daikin's research and development initiative, the use of low-GWP (global warming potential) refrigerant HFO-1234ze(E) is proposed based on the criteria of the Global Cooling Prize.

As per Daikin's current refrigerant policy, R-32 is considered to be the most balanced refrigerant, and Daikin will continue to proactively promote it. Daikin believes that reducing the environmental impact of room air conditioners can only be achieved by disseminating equipment with the best possible efficiency and low environmental impact throughout the life cycle of all equipment all over the world.

In line with Daikin's Environmental Vision 2050, which aims for carbon neutrality by 2050, Daikin continues to work on the quest for new refrigerants and equipment taking into account safety, energy efficiency, climate change, and affordability. This proposal is part of that research initiative.

DAIKIN

Prize Engagement and Global Diversity(GCP)

Prize Money

UP TO
$3 Million
IN TOTAL
PRIZE MONEY

AWARDING
$200,000
TO EACH
FINALIST TEAM

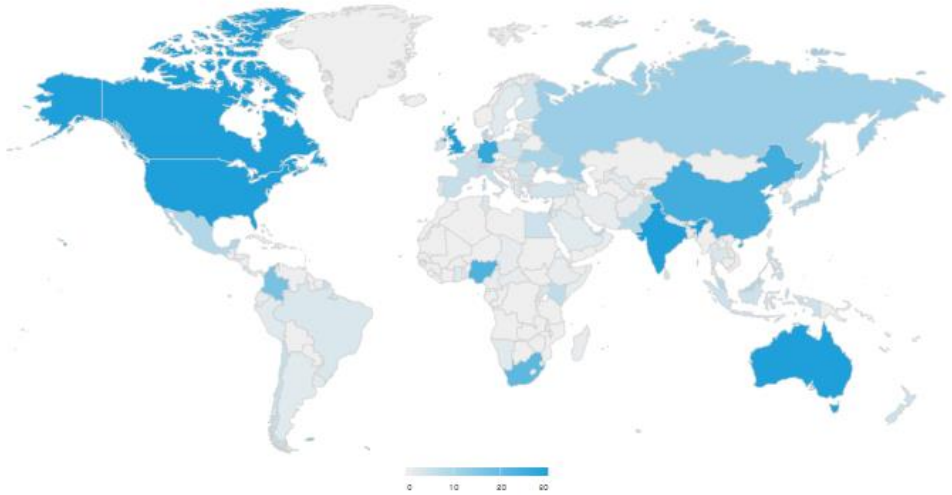
UP TO
$1 Million
TO THE
GRAND WINNER

Prize Engagement and Global Diversity

2100+
Registrations
from 96 Countries

445
Intent to Apply Submissions
from 56 Countries

139
Detailed Technical Applications
from 31 Countries



Note: The map above is only for graphical representation and is in no way an exact depiction of the political boundaries of any of the countries.

DAIKIN

Quality Control Order(QCO)

First Brand to get the License of QCO for Room AC Products Manufactured in Neemrana, Rajasthan

OUR *All Range of Residential Air Conditioners Products are Now "BIS"Certified.

The Department of Industrial Policy and Promotion (DIPP), Ministry of Commerce and Industry has mandated the Quality Control Order (QCO) for the AC & its related parts as per IS 1391 (Part 2): 2018

.

All Critical Components of ACs are now equipped with ISI mark

*FTHT-Series application is in process

मानकः पथप्रदर्शकः

BIS CERTIFIED

Benefits for Customer

The main aim of the QCO is to ensure Best Quality critical components , which is tested and approved by BIS and follow Indian Standards (IS) for local as well as imported parts related to air conditioners products which are under scope of Quality Control Order

DAIKIN

Technologically Superior & 'Value for Money' Product

TECHNOLOGCALLY SUPERIOR	DAIKIN HERITAGE	COMFORT	HEALTH	SAFETY	SMART LOOKS
• *Patented Swing* Compressor Technology • Reluctance DC motor • *Variable Speed Inverter AC(Fully Automatic)* • *Dew Clean Technology* • *Highest ISEER & High Ambient Working* • *Intelligent Eye* • *Automatic Error Code* • *Wi-Fi* Enabled *smart AC with voice command* • *Inner grooved* Copper Condenser & Evaporator • *Winner of Global Cooling Prize*	• ***World's Leading Air Conditioning Company from Japan*** • ***97 Years*** of customers trust • **Innovators -** Leader in Inverter technology - Energy saving and Comfort; R – 32; VRV	• *COANDA* Airflow • *Smell proof* operation • *Good sleep OFF* timer • *ON/OFF* timer • *Temperature Display* • ***True-Feel*** • Power Chill • Longer *Air throw* • *Quiet Operation* • *Econo Mode* • *Higher Moisture Removal* • *Backlit Operation* • *3-D Air Flow*	• *Patented Streamer discharge technology* • ***Eco friendly Refrigerant R-32*** • *Advance* ***PM 1 & PM 2.5*** *filters* • *Anti Microbial Filter* • *TAD Filter*	• **Stabilizer Inside** • Stabilizer Free • *Super PCB* • *Power supply at ODU* • *Anti -Corrosion Treatment* • *Quality Control Order (QCO)*	• Elegant & pleasing *double louvers* • *Triple Display* • **Slim & Compact *IDU & ODU*** • *Matte & Glossy* finish • *Curved & edge* designs

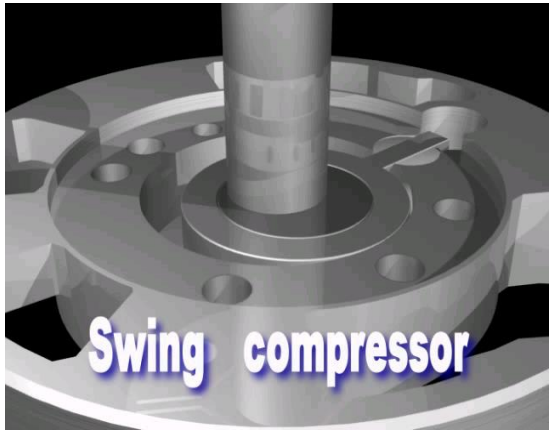
- *Daikin is **world's leading** Air-conditioning Company from Japan*
- *An Air-conditioning **specialist**, Daikin is the only air-conditioning company in the world which makes its **own Air Conditioners ,compressors and own refrigerant R-32***

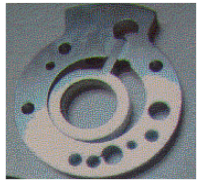
DAIKIN

Unique Technology which contributes in energy efficiency

Patented Swing Compressor

Energy-savings with improvement in compression efficiency





Adopted cylinder structure - less liable to heat transfer loss and deformation during operation

Swing compressor is a *modified* advance type of Rotary Compressor:

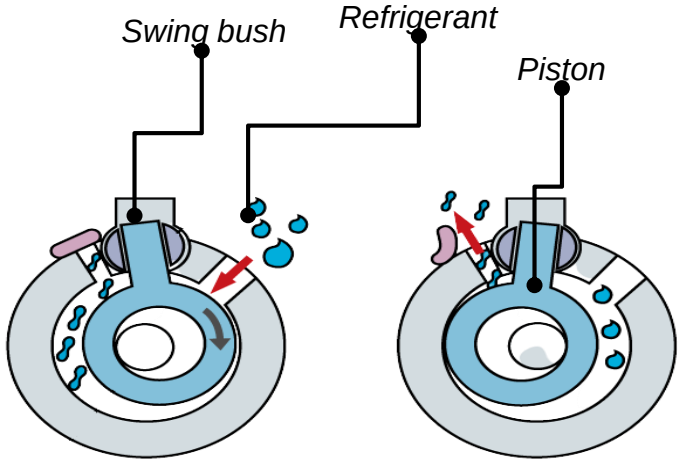
- It *saves electricity* for lower pressure return during compression
- *Quiet* and *efficient* for low friction and vibration (better than rotary compressor)
- *Patented* by Daikin - no other AC manufacturer can use the same

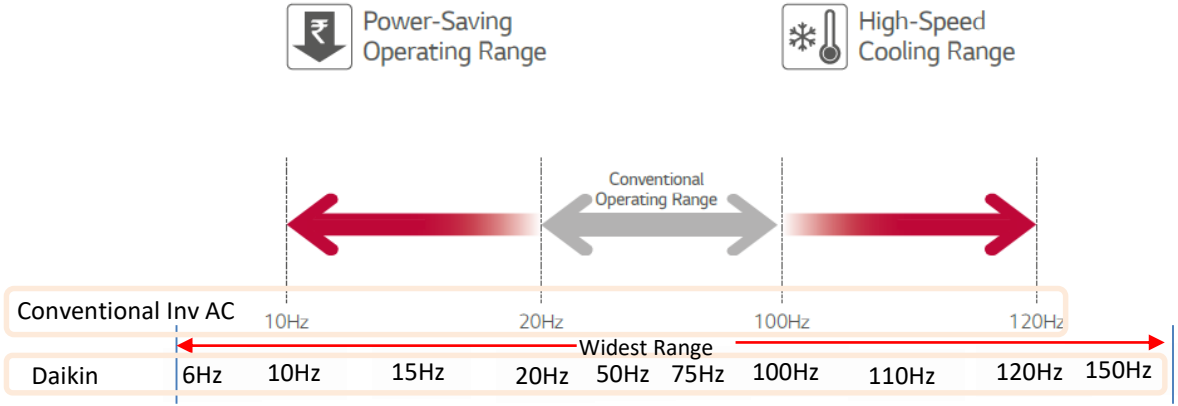
DAIKIN

Variable Speed Inverter AC (Automatic)

Daikin Inverter is true inverter AC, Daikin DC inverter models are equipped with the reluctance DC motor for compressor.

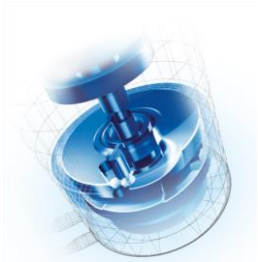
- The **reluctance DC motor uses two different types of torque, neodymium magnet and reluctance torque**. This motor saves energy by generating more power with a smaller electric current than AC or conventional DC motors.
- Swing Compressor Technology have Variable Speed automatic compressors with **wider rotational frequency range**, these wide frequency range ensures faster cooling and more efficiency. It constantly adjusts the compressor's speed to maintain desired levels of temperature and assured energy savings – both power and electricity bills.





Benefit

- Faster Cooling
- Fully Automatic no Manual operation
- Optimum Cooling & Maximum User Comfort



Patented Swing Compressor

- **5 in 1 Cooling**
- **Expandable AC**
- **Convertible AC**
- **Adjustable AC**

= **Daikin's Variable Speed Inverter AC (Automatic)**

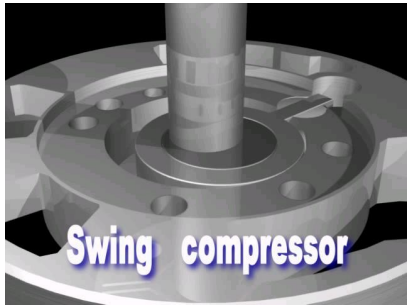
C-1 frequency range -- 12~150 Hz
C-2 Frequency range-- 6~130 Hz

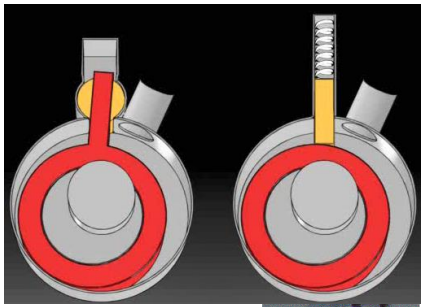
DAIKIN

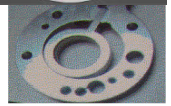
Critical Components & Refrigerants which contributes in energy efficiency

1 Swing Compressor

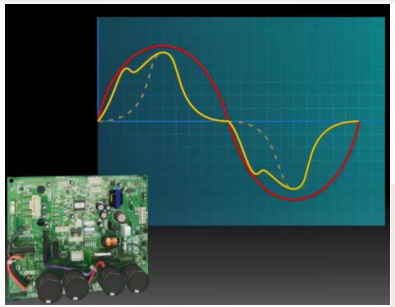
Daikin Patented Swing Compressor Technology which ensures less noise, less wear and tear and above all **high energy efficiency**.



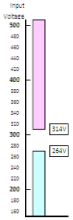




2 Super PCB



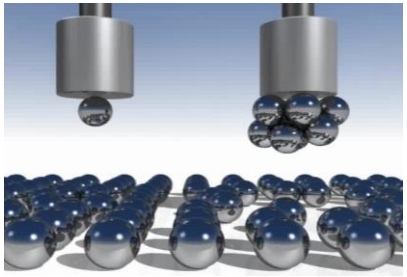
700 Volt

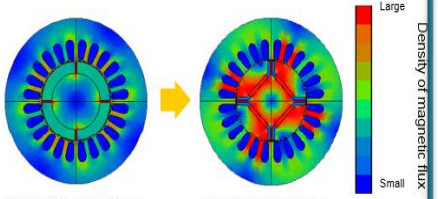


Super PCB design to ensure safety of the electrical parts and smooth inverter operation leads to energy saving too .

3 Neodymium Magnet

Daikin uses rare earth magnet “Neodymium Magnet” which is 10 times stronger than Ferrite Magnet what others using,

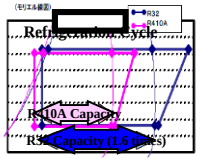


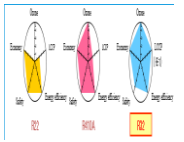


4 R-32 Advantage

Daikin patented R-32 Refrigerant which is a single refrigerant gives Daikin machines a unique edge over others-

- ✓ R-32 is Environment-Friendly(Zero ODP)
- ✓ 1/3RD Global Warming Potential
- ✓ 75% less carbon dioxide emissions
- ✓ Better Life cycle climate performance
- ✓ 15.3% more cooling as compared to R410A
- ✓ 30% refrigerant charging volume as compared to R410A & R22
- ✓ **5% more power savings compared to R-410A**
- ✓ Better Performance at higher temperature a





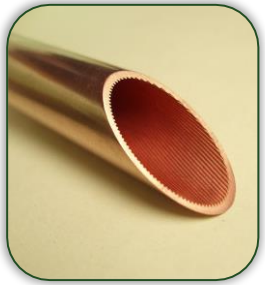
Critical Components enhances Energy Efficiency

5 Inner grooved copper pipe

Daikin uses inner grooved copper pipe in condenser & evaporator

Plain copper pipe

Inner Grooved copper pipe



Inner grooved copper pipe helps in:

1. **Larger surface area** and hence better heat transfer
2. **Oscillatory movement**, of refrigerant increasing its travel time in the pipe
3. Making the AC design **sturdy** for increased **durability**
4. Achieving **High ISEER or COP** for better heat dissipation
5. Installing more number of ACs in the same space because of **smaller foot print**

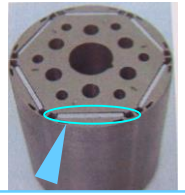
6 IDU & ODU DC Motor -improvement in Motor Efficiency

Reluctance DC Motor

Rotor part

Current

New



Neodymium magnet

Neodymium magnet: *Changed to 6 pieces from earlier 4 pieces - Rotation of motor gets more smooth.*

Stator part

Current

Distributed roll

New

Concentrated roll

Heat transfer coil:
Distributed roll

Concentrated roll
The heat loss is reduced

Unique Technology & Feature Ensures consistent performance

Dew Clean Technology

Operation

- **Condensed water** volume is used to clean the evaporator
- Condensed water drains out the ***dust particles, bacteria & mold*** after cleaning the evaporator

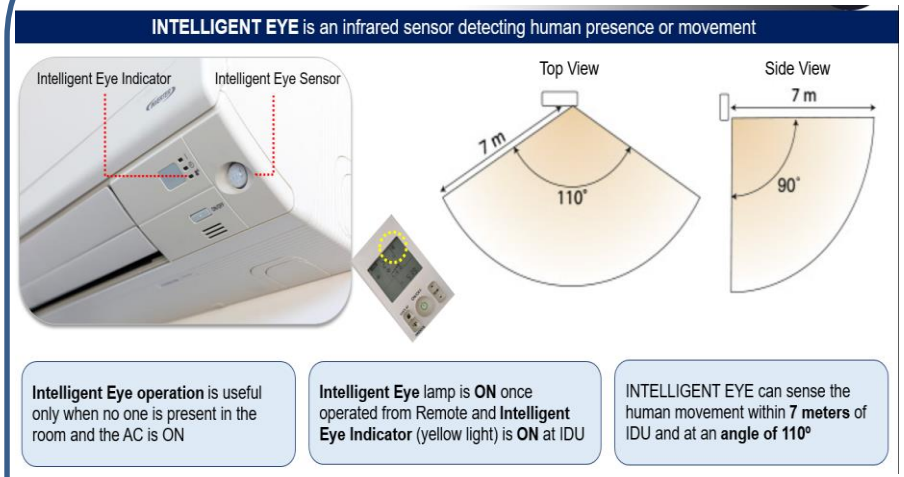
On completion of **Dew Clean Function**, unit automatically switches to **drying operation** to dry the evaporator

Moisture removal **Approx. 840ml/h** Vs **Approx. 50ml/h**

Benefits

- ✓ Better Cleaning of Heat Exchanger ensures better airflow throughout the year.
- ✓ Airflow remains the same even after a long duration of use.
- ✓ **Consistence performance** of Air conditioners

Intelligent Eye –an Energy Saving feature



Benefits

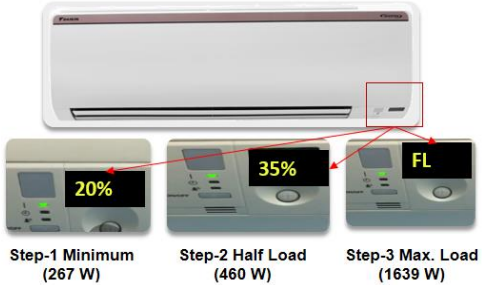
- ✓ Reduce Wastage of Cooling and Energy Saving

DAIKIN

Unique Technology & Feature Ensures consistent performance

Triple Display Function

Complete monitoring & control in the hands of consumer



Step-1 Minimum (267 W) | Step-2 Half Load (460 W) | Step-3 Max. Load (1639 W)

No Display is default setting

*Each Press of Display Button on Remote will enable and show **Power Consumption Display, Indoor Temperature Display and Set Temperature Display** respectively*

Benefits

- ✓ Ensure check & Tracking of **Estimated Power Consumption in %**
- ✓ Ensure Monitoring of AC uses based on inside and ambient load condition.

Good Sleep Off Timer-Saves Energy

To prevent excessive cooling in the room during sleep and to **maintain a comfortable room temperature** during night, one can set a **'Temperature Shift value'** as per his/her comfort

Set temperature increases by **0.5°C** every **30 mins** until the total temperature increase reaches the specified **'Shift Value'**

Benefits

- ✓ Reduce Wastage of Cooling and Energy Saving
- ✓ Uninterrupted Sleep during sleeping time
- ✓ As per BEE every 1°C Temperature setting will ensure approx. **6% Of Energy Saving**

DAIKIN

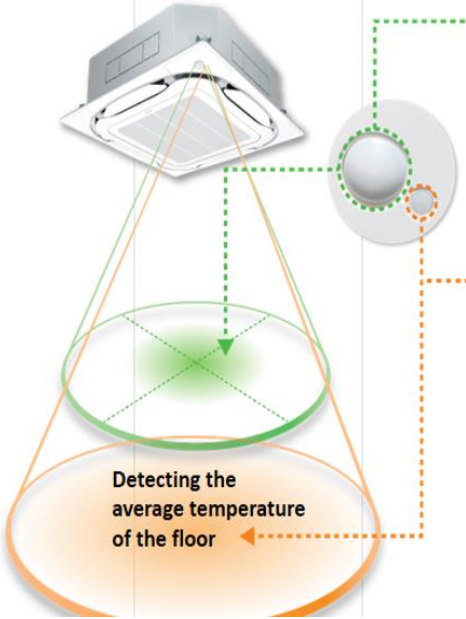
Unique Technology & Feature Ensures consistent performance

SENSING TECHNOLOGY

Dual sensors and individual airflow direction control automatically provide optimal control of airflow.
The temperature near the person is automatically calculated by detecting the temperature of the floor and presence of people.

Benefits

- ✓ Reduce Wastage of Cooling and Energy Saving.
- ✓ Over Cooling can be prevented
- ✓ Saves Energy based on the location of people and floor temperature.
- ✓ flaps are controlled to deliver **optimal airflow** when the room is unoccupied
- ✓ The system **automatically saves** energy by detecting whether or not the room is occupied



Infrared presence sensor

The sensor detects the presence of people in each of the 4 areas.

Ceiling height	2.7m	3.5m	4.0m
Detection range (diameter)*3	approx. 8.5m	approx. 11.5m	approx. 13.5m

*3. The infrared presence sensor detects 80cm above the floor.

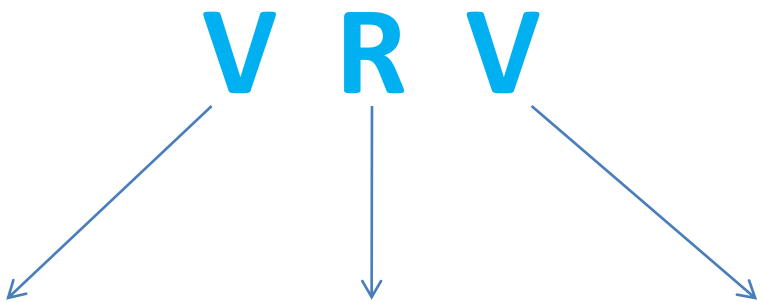
Infrared floor sensor

The sensor detects the floor temperature and automatically adjusts operation of the indoor unit to reduce the temperature difference between the ceiling and the floor.

Ceiling height	2.7m	3.5m	4.0m
Detection range (diameter)*4	approx. 11m	approx. 14m	approx. 16m

*4. The infrared floor sensor detects at the floor surface.

What is VRV ?



40 Years

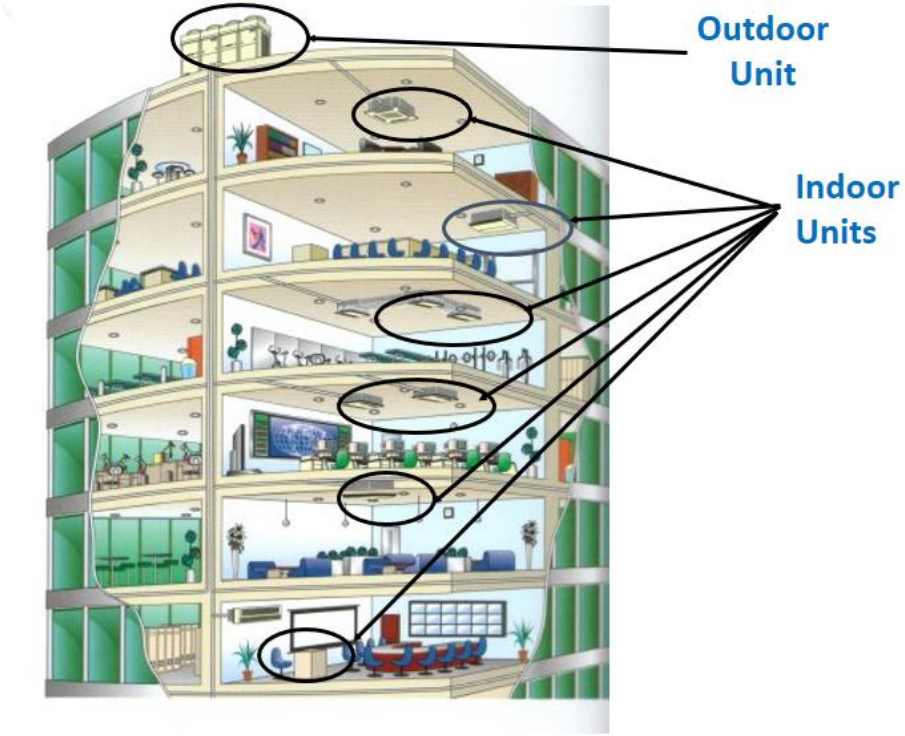
VRV

Since 1982

VRV : Variable Refrigerant Volume

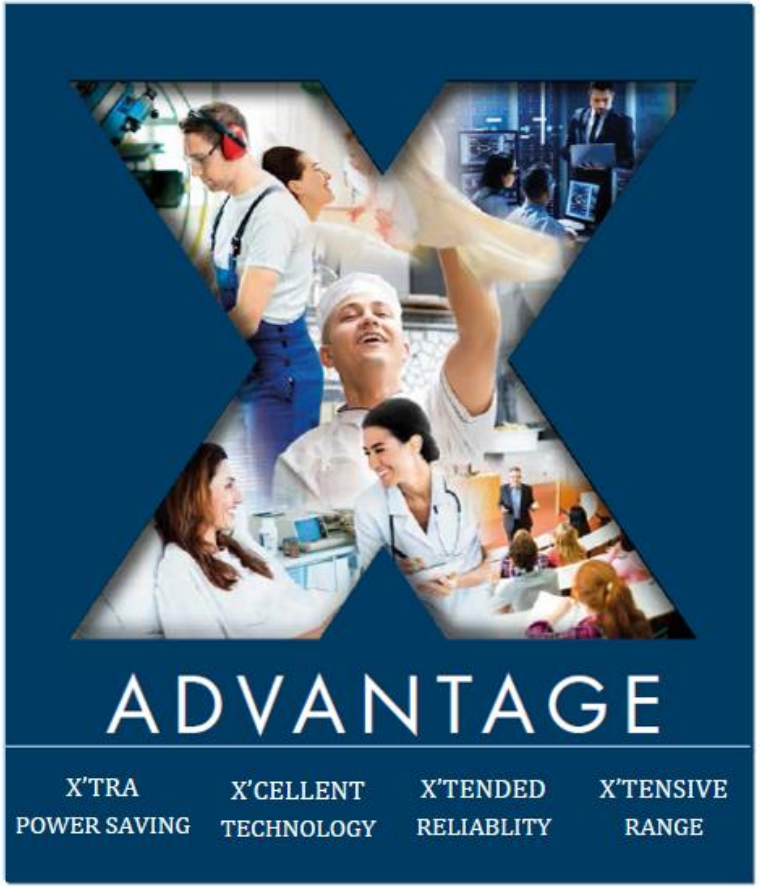
- Refrigerant volume varies based on load requirement by inverter technology.
- “VRV” is **patent of Daikin**, no other competitor can use “VRV” word.
- Other manufacturer uses VRF (Variable Refrigerant Flow), some manufacturer has patent for same technology but different name.
- VRV is a system in which single ODU can be connected on multiple IDU’s.

Why VRV ?



1. **Design Flexibility** (Type / Capacity / Piping Lengths)
2. **Flexibility in Choosing IDU's** : Multiple type of IDU's
3. **Flexibility of IDU Control :** Centrally / Group / Individually
4. Space Saving
5. Precise Room Temperature Control ($\pm$ 0.5^0C)
6. Energy Saving through Inverter Technology
7. Easy maintenance & operation
8. Environment Friendly System (R410A)

Introducing Next Generation VRV X



VRV X

Energy Savings : Centralized Control System

Precise energy management through REIRI

Improve operational cost & efficiency, while reducing the management cost

On-the-go

Easy access, monitor & control the VRV and connected devices anytime, from anywhere with Reiri Mobile App

Prevent unnecessary energy waste

- **Turn on & off** all HVAC & connected devices when necessary
- **Schedule program** to operate designated management points and different areas
- **Setback** to keep indoor temperature within setpoint and limit energy consumption during absence
- **Interlock** more management points of one area, with condition and automate next action

Visualizing energy consumption to increase energy saving

Easily identify which energy consumed area that need to be **improved**

DAIKIN

Comprehensive range of Reiri

ReiriOffice

Flagship Model

ReiriOffice Touch
DCPF04

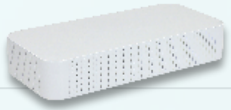
Expanded features

ReiriOffice
DCPF01

ReiriOffice Multi-site
DCPF10

ReiriOffice Plus
DCPF05

ReiriHome



ReiriHome
DCPH01

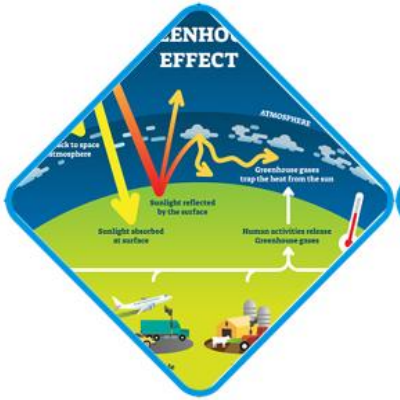
ReirHome Lite
DCPH02

ReiriHotel

ReiriHotel
DCPL01

ReiriResort
DCPR01

DAIKIN



DAIKIN

Thank-you for your participation…