



Key Features & Benefits

HIGH RELIABILITY

HIGH EFFICIENCY

COMFORT

CONVENIENCE

COMFORT
AIR SOLUTION

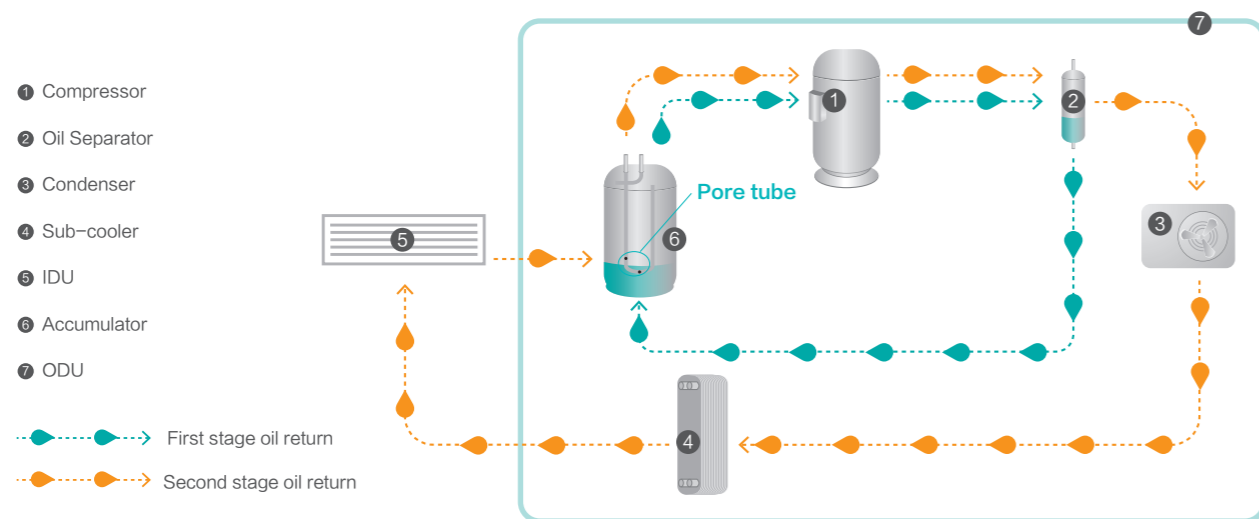
HIGH RELIABILITY

Fully Utilization of Oil

System oil cycle

The role of oil is extremely critical in maintaining the reliability and performance of compressor. When the

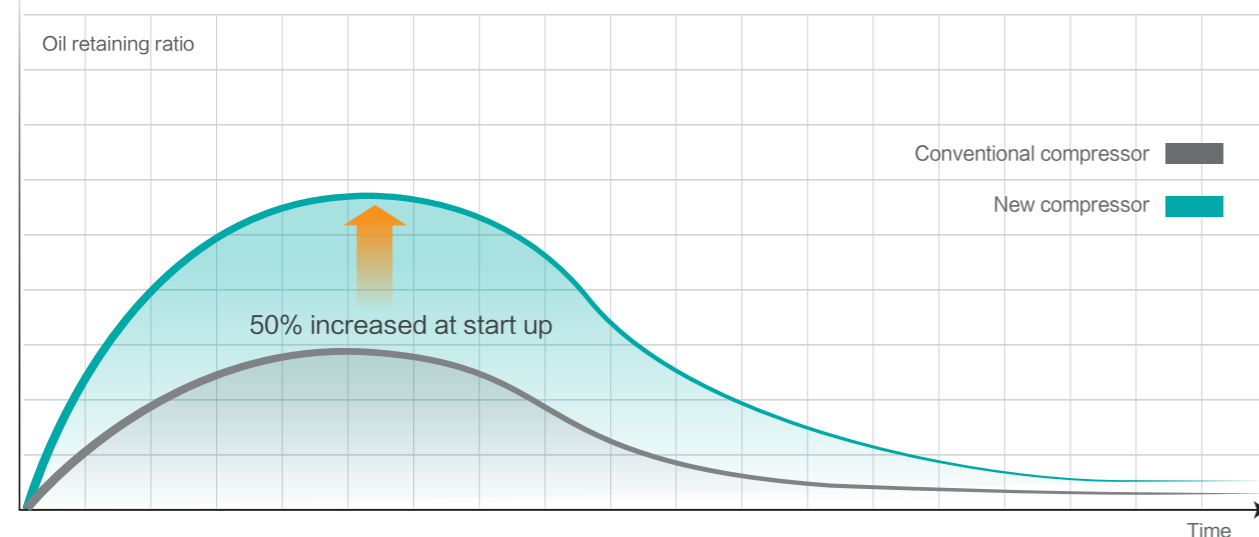
second stage oil is lesser, the compressor will have higher reliability.



Enhanced oil level retaining capability

The new compressor now has greater improvement in reliability by enhancing the oil retaining capability by 50% with an "oil cup" embedded which prevents com-

pressor bearing to fail due to lack of oil lubricating the inner rotating component.



HIGH RELIABILITY

Fully Utilization of Oil

Needless of oil balancing pipes

With effective and prominent oil return technology, perfect oil balance is achieved by the integration of the pore tube technology in the accumulator. It serves as an oil storage tank and supplies the perfect amount at the perfect time to the compressor.

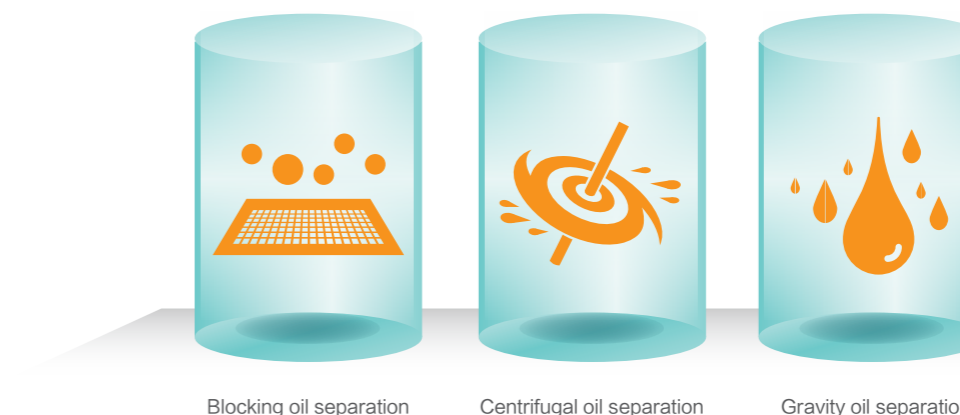
Hence oil balancing pipes creating extra cost and hassle during installment are unnecessary. Absence of oil balancing piping system, prevents system pressure and temperature fluctuations thus maintaining overall system's continuous stability.



Oil separation

First-stage oil separation is realized through efficient oil separation structure inside the compressor. Only a small amount of oil is brought out of the compressor.

During second-stage oil separation, the small amount of oil discharged from compressor is separated by a large-capacity, high-efficiency centrifugal oil separator, with efficiency over 99%.



HIGH RELIABILITY

Intelligent Operation

Double back-up protection

Hisense VRF has a standard double back-ups to keep you staying comfy indoors despite having a compressor or any one unit of a modular combination fails as

other compressors and units will proceed and step up its operation to ensure user's continuous comfort.

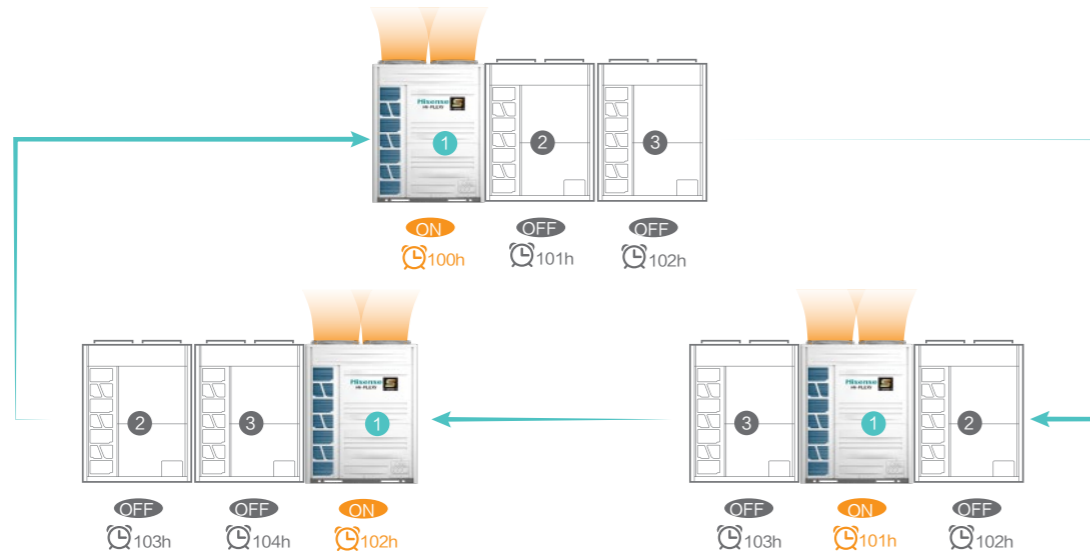


Note: If you have any needs, please contact our engineers.

Smart rotative operation

Operation duties are smartly balanced in higher capacity module combinations to prevent occurrence of individual unit overworked and hence extending

the overall operating life of the overall system.



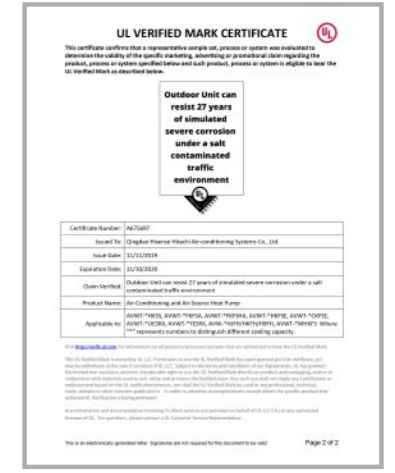
HIGH RELIABILITY

Anti-corrosion Solution

Hisense's complete corrosion-proof solution is your perfect choice when it comes to seaside and chemical factory applications, providing ultimate comfort without sacrificing life span and lowers maintenance cost

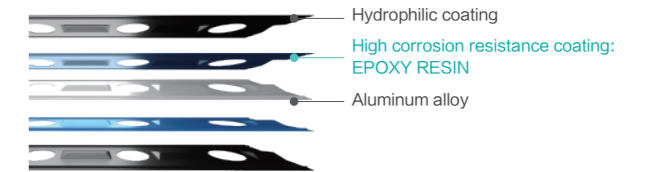
simultaneously. Besides the heat exchanger, components from top to toe are treated with effective treatments and tested according to ISO, ASTM and GB standards.

- 1 Front Panel
- 2 Heat Exchanger
- 3 Electrical Box
- 4 Fan Motor
- 5 Top Grill
- 6 Motor Bracket
- 7 Protection Net
- 8 Pressure Vessel



Hi black fin

Hisense anti-corrosive fins are coated with epoxy resin using film-forming techniques while the traditional resins are acrylic resins. The epoxy resin is 1.5 times thicker than acrylic resin, and its acid-resistant, alkali-resistant and salt-fog resistant properties is 3 times better than acrylic resin.



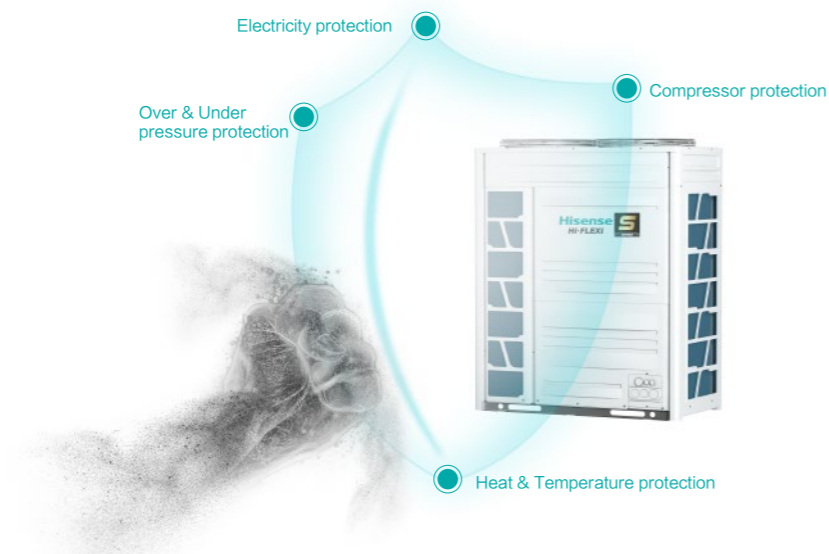
HIGH RELIABILITY

High Standard Protection

Self-protection

Taking a step further, Hisense VRF is capable of keeping themselves protected with algorithms embedded to make necessary protective decisions and measures based on different sensor readings & parameters.

Including compressor protections, heat and temperature protections, over and under pressure protections and electricity protections.



Electrical and magnetism precaution

Air-conditioning units produced by Hisense VRF requires strict electromagnetic protection. Another typical damage causes of electronic and electrical failure are sudden high external power source exerted into the electronic compositions like thunder strike during a storm.

As to overcome such inevitable natural phenomenon to cause damages, 4000V sudden high voltage tests are infused into the long list of electromagnetism quality tests in our internationally qualified test laboratories.



HIGH RELIABILITY

High Standard Protection

Safety protection

Electricity leakage are exposing humans to high safety risk. Hence electrical leakage radioactive emission, proper earthing, extreme high temperature, fire retardation and electrical insulation are strictly essential

tests to be done on Hisense VRF equipment to meet more than standards and certifications.



Extreme weather withstand ability

Weather changes are sometimes unpredictably causing air-conditioning units especially ODUs constantly operating at inconsistent environment and experiencing different challenges.

Hisense VRF air-conditioning units are put into extreme factory laboratory tests numerous times with various setting and condition parameters like intense low outdoor temperature, extreme high indoor temperature and vice versa to ensure Hisense VRF units performs at its best, rain or shine.

Reliability transportation

To make sure Hisense VRF units' capability to perform more than just coping to such conditions, strict laboratory assessments are required using simulators mimicking the real shipping conditions of upto 6000 km and longer road and sea distance.

Hence, tested to be capable to be shipping from China to Americas without damages, good as new.



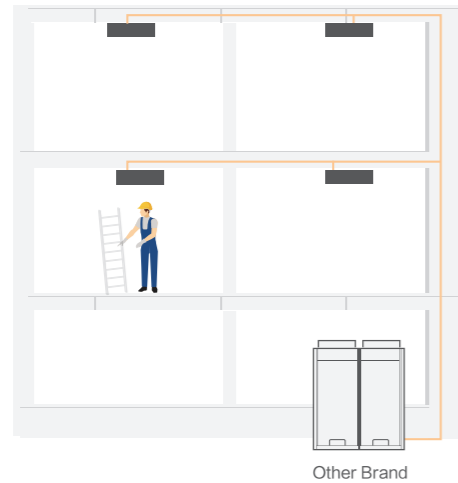
HIGH RELIABILITY

Indoor Unit Reliability

Independent maintenance

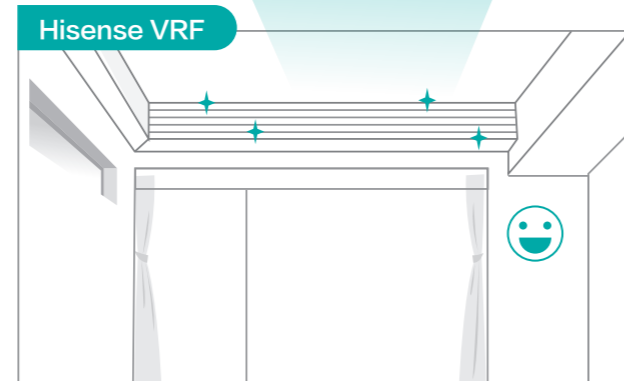
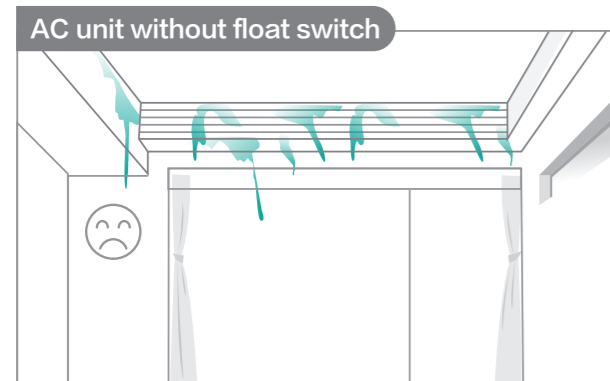
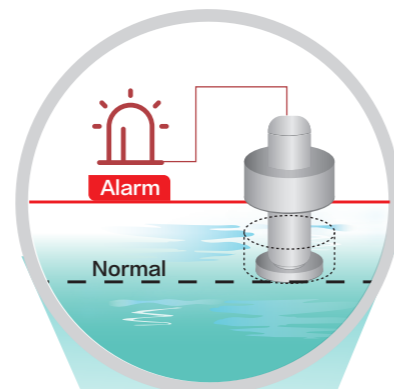
Hisense VRF is capable to isolate the malfunction unit from the others while conducting restoration and maintaining continuous operation of other units simultaneously. Especially practical for retail shops or offices

where multiple indoor units share the same system, there is a breakdown or powered cut-off during renovation of a shop does not affect shops of the same system from routine business operation.



Condensate leakage protection

Besides providing reliable air-conditioning units, we also want to keep your possessions lasting. Hence, our indoor units have build-in water-leakage float switches. Alarming warnings will be displayed on controllers when condensate reaches a certain level, and would automatically turn-off itself when reaches a threatening level. Saving your ceilings and carpets from being soaked in times when drain pipes are clogged or drain pump breakdowns.



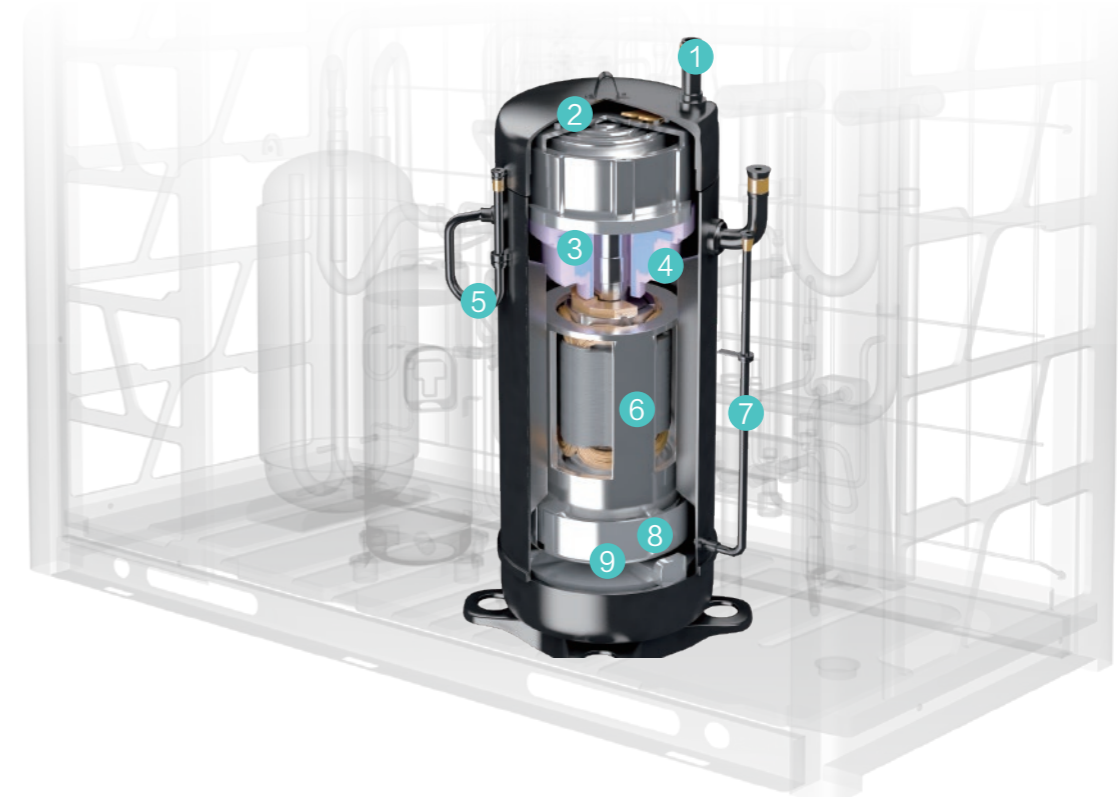
HIGH EFFICIENCY

High-pressure Chamber Scroll Compressor

New generation of enhanced vapor injection scroll compressor

Hi-FLEXi S Series adopts a new generation of the high efficiency scroll compressor with vapor injection technology. It can greatly enhance the heating performance and achieve high energy-saving efficiency.

Powerful heating is guaranteed by Hi-FLEXi S Series, especially under low temperature with heating performance increased by 25%, compared with the standard model.



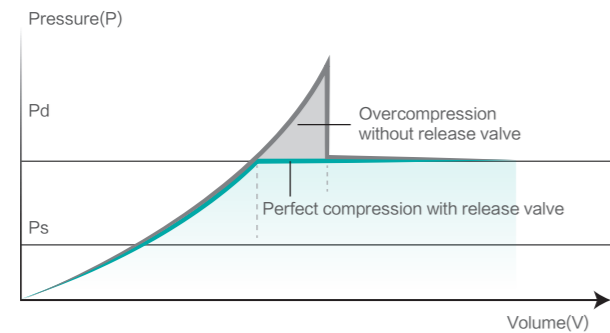
- 1 New Air Suction Structure**
Improve compressor efficiency under fast rotation speed condition, increase compressor stability under strong load mode.
- 2 Overpressure Releasing Valve**
Increase efficiency by reducing compression loss, especially for medium and low capacity conditions.
- 3 Driven-frame Structure**
High performance technology by reducing leakage loss and friction loss.
- 4 Special Exhaust System**
Minimum oil loss and saving oil within the compressor.
- 5 Vapor Injection Design**
- 6 High-efficiency Motor**
High efficiency by rare earth magnet and special designed motor.
- 7 Oil-balance Pipe**
Improve units reliability.
- 8 Oil-separation Structure**
High reliability by keeping oil in the compressor by this separation plate.
- 9 PVE Oil**
Using PVE oil ensuring a high reliable and long life.

HIGH EFFICIENCY

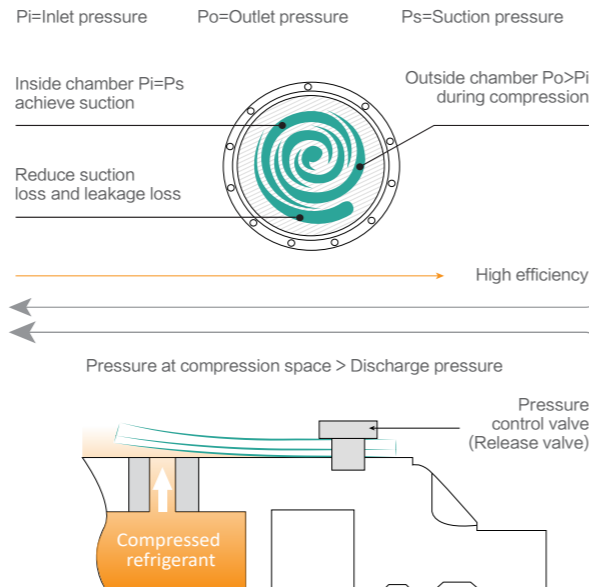
High-pressure Chamber Scroll Compressor

Efficient energy usage

Wasted power is reduced by minimizing leakage and overcompression while compressing refrigerant gas with asymmetric scroll and patented release valves.



— Conventional compressor
— Perfect compression with release valve and asymmetric scroll



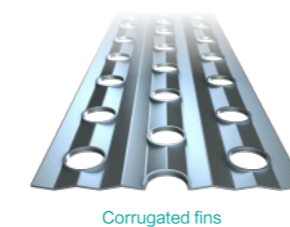
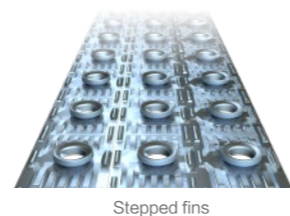
New advanced corrugated fin design

A new commitment is made on new fin design to create better efficiency and more durable heat exchanger. With this new design, larger amount of fins can be allocated into the heat exchanger, increasing 22% heat exchange surface area.

As to improve heating capability, the new design fins are 40% more tolerant to frost, stretching out indoor heating time interval and further enhancing user's coziness. Heating time interval are tested to reach 50% increment compare to previous models.

Features and Benefit

Air Flow Resistance	Decreased 20%	↓
Total Heat Transfer Area	Improved 21.4%	↑
Heating Capacity Without Frost (Test Condition 7°C DB / 6° C WB)	Improved 1-3%	↑
Heating Capacity When Frosting (Test Condition 27°C DB / 17°C WB)	Improved 8-12%	↑
Ability to Resist Frost	Improved 40%	↑
Anti-corrosion Ability		↑



HIGH EFFICIENCY

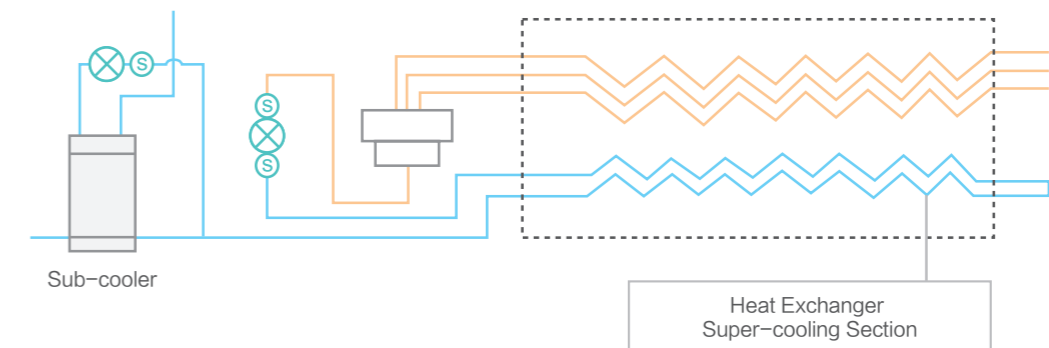
Efficient Heat Exchange

Two-stage sub-cooling technology

The cooling section of the outdoor heat exchanger is uniquely designed to be more effective than the traditional outdoor units of the multi-split air conditioner without a sub-cooling design. First-stage sub-cooling

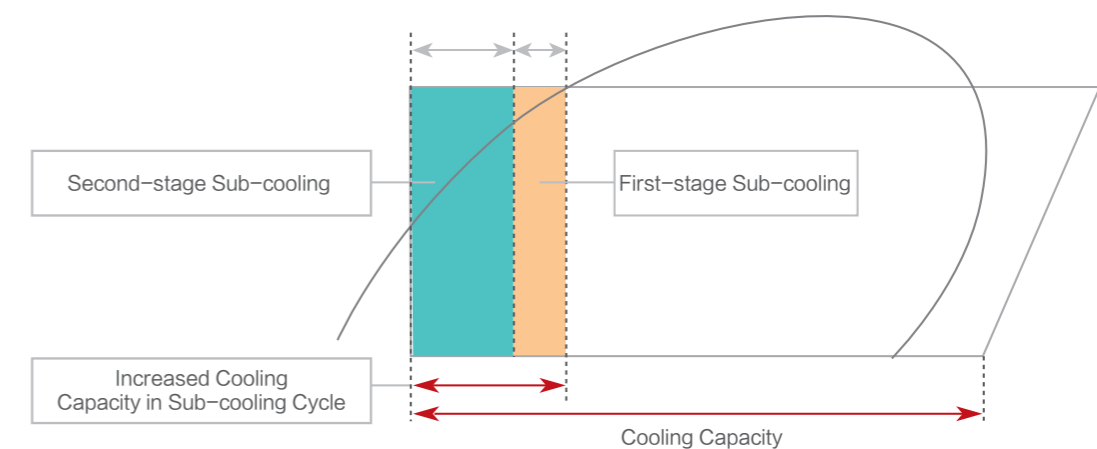
can reduce temperature by 12.5°C(54.5°F) while second-stage sub-cooling can help achieve up to 27°C (80.6°F) for efficient sub-cooling.

Two-stage Sub-cooling Cycle Diagram



- Increasing cooling capacity of the unit refrigerant
- Reducing the resistance when refrigerant flowing in pipelines
- Increasing sub-cooling degree, more accurate controlling of electronic expansion valve, more stable operation
- Increasing sub-cooling degree, increasing the length of refrigerant pipe

Two-stage Sub-cooling Pressure Enthalpy Diagram

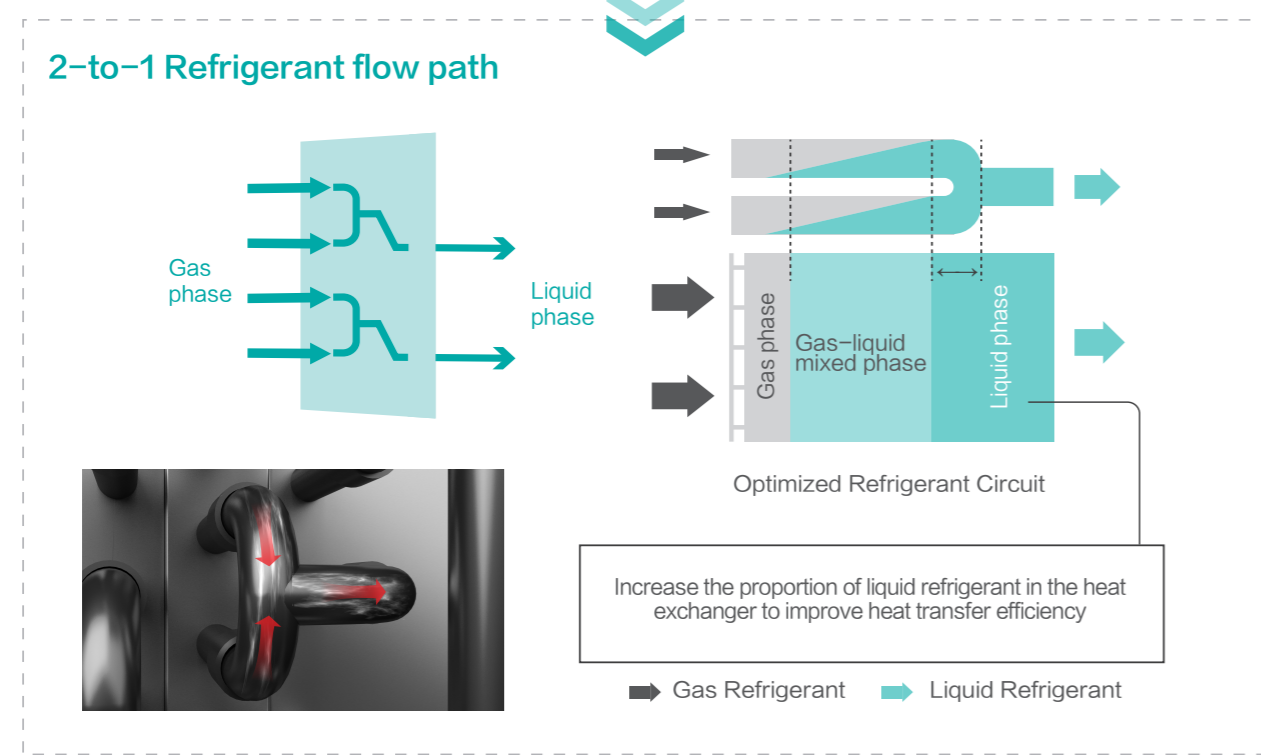
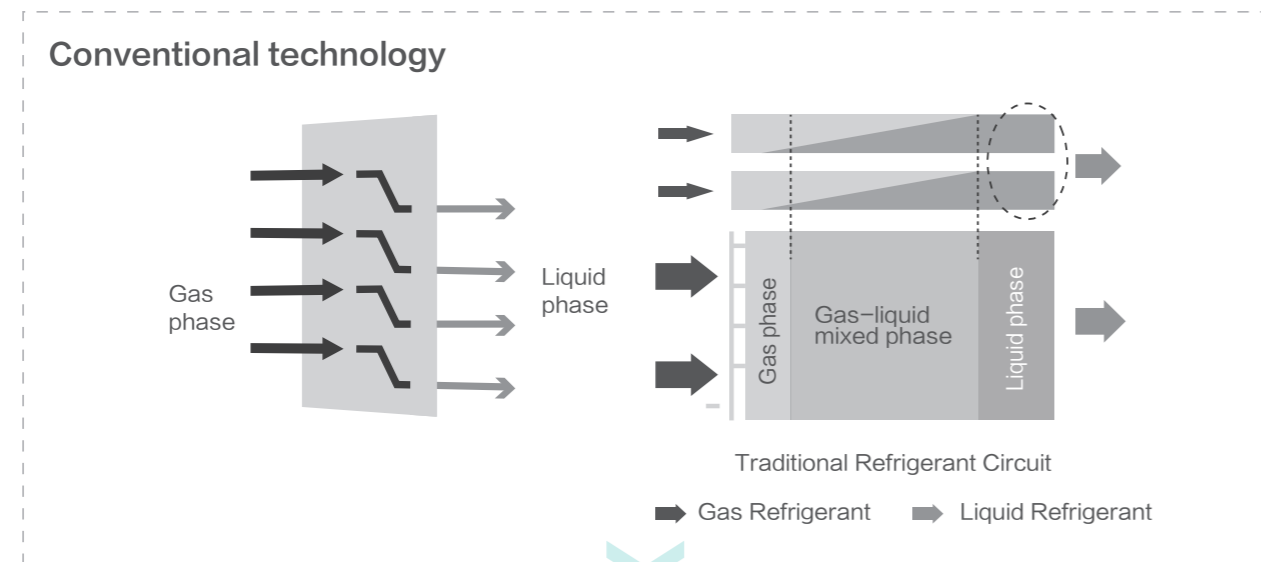


HIGH EFFICIENCY

Optimized Refrigerant Circuit

As refrigerant flows in the system, energy will be lost due to friction and other factors naturally especially when refrigerant change phase, latent heat are lost when gas turns to liquid. Whereby, as more heat is dissipated out, higher the heat exchanger efficiency is.

By making full use of heat dissipation, refrigerant flow layout is maneuvered into 2 to 1 Refrigerant Flow Path extends liquid refrigerant's occupancy and eventually the efficiency too.

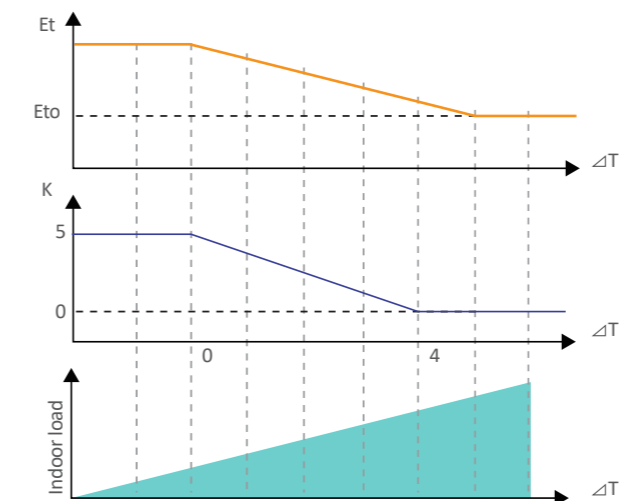


HIGH EFFICIENCY

Hisense Refrigerant Temperature Control

Features:

- 1) Evaporating temperature can be adjusted between 2°C(35.6°F) to 16°C(60.8°F) which is the widest on the market.
- 2) Rapidly cooling depends on the lower evaporating temperature.
- 3) Preventing cold draft bases on the higher evaporating temperatures.
- 4) Saving energy by increasing seasonal efficiency.



Refrigerant evaporation temperature : $E_t = E_{to} + K$

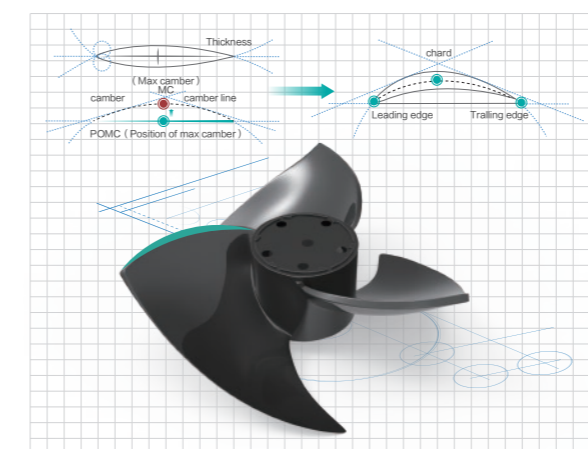
Evaporating temperature control could be adjusted based on the difference between the indoor temperature (T_{in}) and the setting temperature (T_{set}).

$\Delta T = T_{in} - T_{set}$

E_t : evaporating temperature
 E_{to} : initial value of evaporation temperature, E_{to} can be adjusted through the outdoor unit setting.
 K can be automatically adjusted according to the difference between the indoor temperature and the setting temperature ΔT .

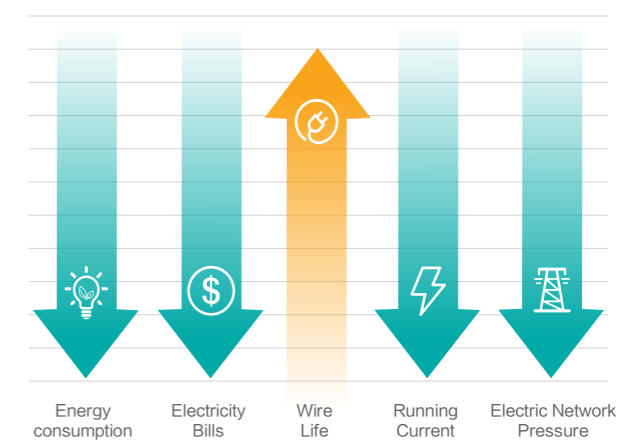
Aerodynamic Axial Fan

Fan blades are aerodynamically designed to reduce energy wastage in converting power consumed to unnecessary noise energy, reserving the energy to improve on flowrate performance and static pressure. Integration with brushless DC fan motor further improves the efficiency and noise of the propeller structure.



Demand Mode

The intelligent demand mode can adjust the air conditioning automatically according to peak-valley requirements of electricity. It achieves balance between comfort and energy-saving while meeting the power demand for daily work.



COMFORT

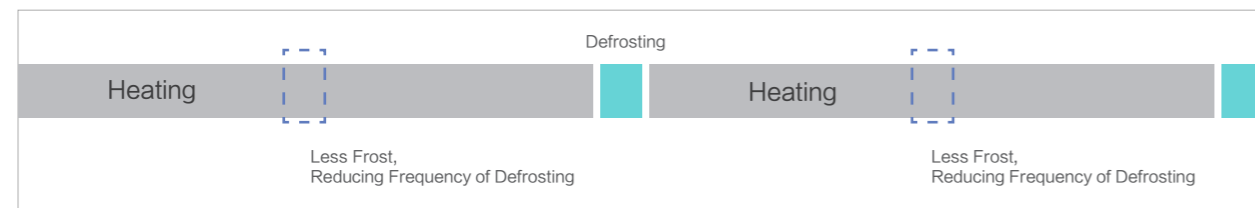
Intelligent Defrosting Program

PTT defrosting mode

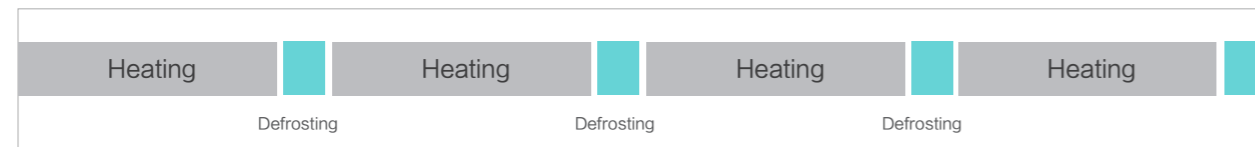
During cold freezing days where temperature is low and humid, water vapour in the air would solidify into frost. As frosts pile up on the heat exchanger of an outdoor unit, it would need to be liquified and removed.

An Intelligent Defrosting Logic could determine the perfect timing to defrost, saving unnecessary energy usage compare to conventional defrost measures, maximizing users' comfort indoors.

Hisense's Optimal Defrosting Mode



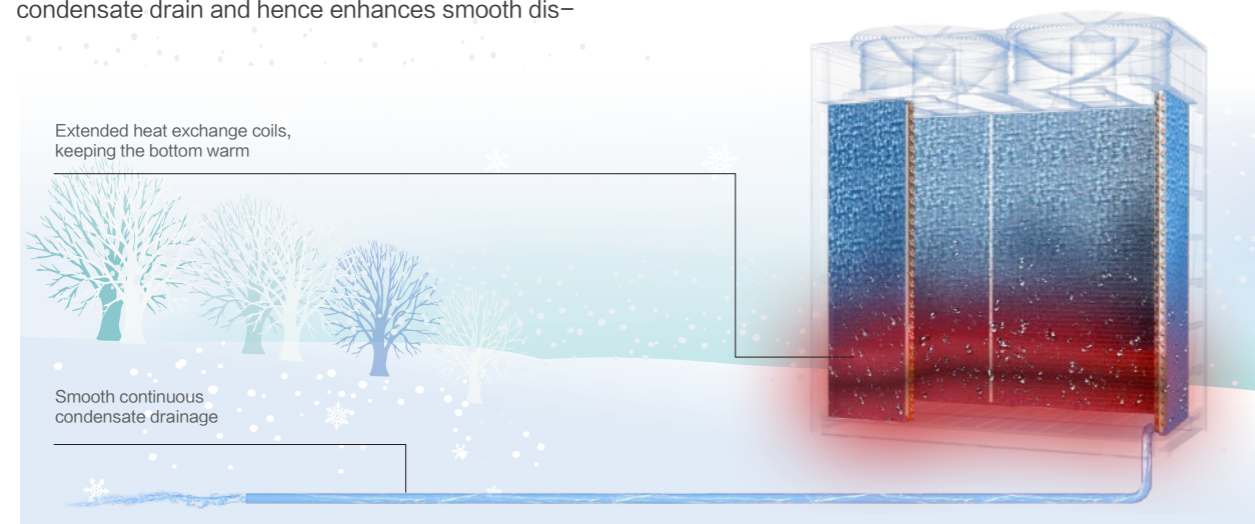
Traditional Defrosting Mode



Bottom anti-frosting structure

To ensure effective frost removal, heat exchanger circuit is extended to the bottom to make sure melted frost from the top does not solidify as it reaches to the condensate drain and hence enhances smooth dis-

charge. In the meantime, the heat also extends frost formation periods whereby prolongs defrost interval.

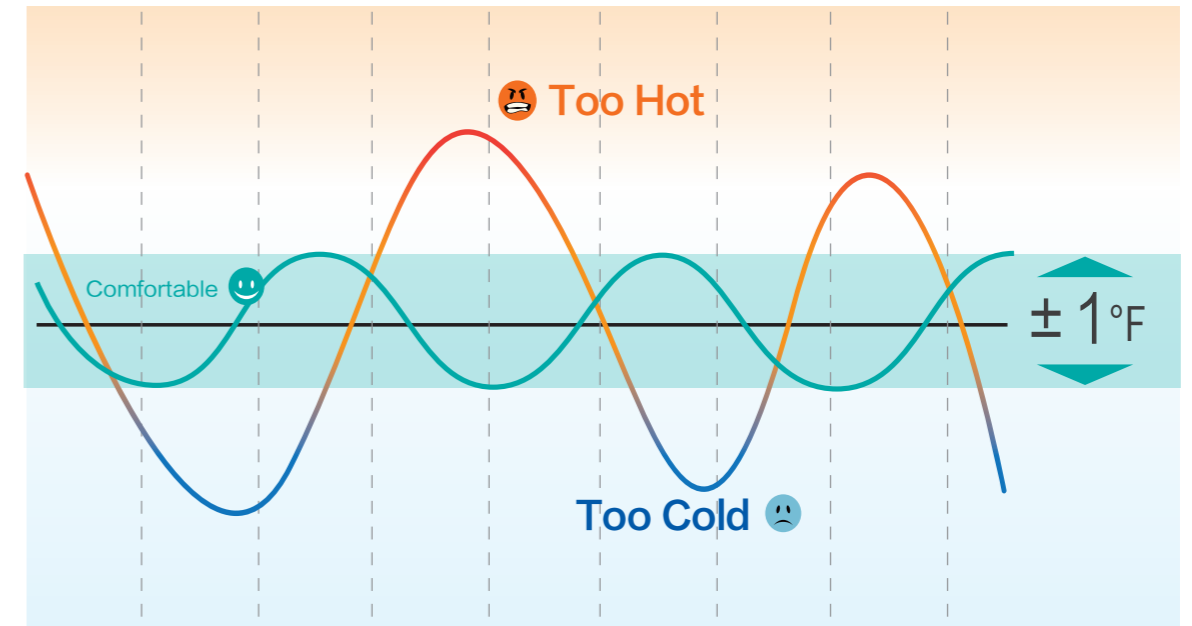


COMFORT

Precise Temperature Control

Hisense VRF provides very close tolerance of temperature in the range of 1°F, reduces temperature fluctuation and effectively maintains the desired temperature.

- Precisely judge indoor temperature:
- (1) Air return temperature sensor
 - (2) Temperature sensor on wired remote controller
 - (3) Based on the average value suitable for irregularly shaped room

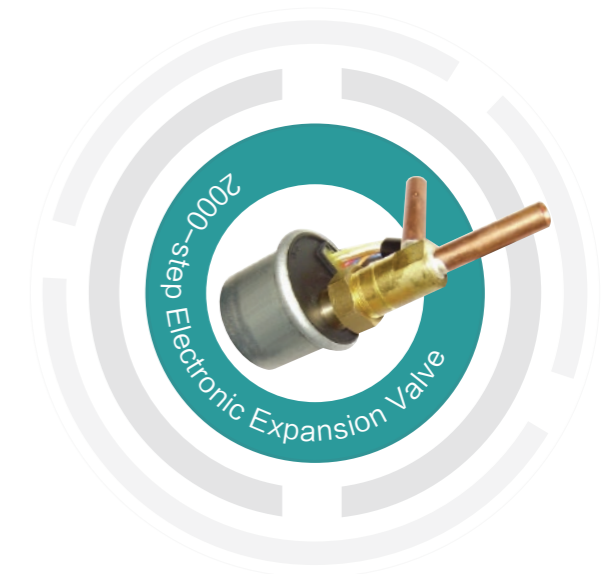


Hisense Temperature Control (teal line), Most Comfortable (teal band), Conventional Temperature Control (orange line), Setting Temperature (black line)

Precisely judge

1°F tolerance is made true by high quality and high precision 2000 steps electronic expansion valve (EEV) used to control refrigerant flow more precisely depending on the real-time room temperature feedbacks from temperature sensors on controllers and indoor units.

2000-step electronic expansion valve to ensure precise flow adjustment based on the actual load of Indoor Unit.



COMFORT

Lower Noise

Indoor units

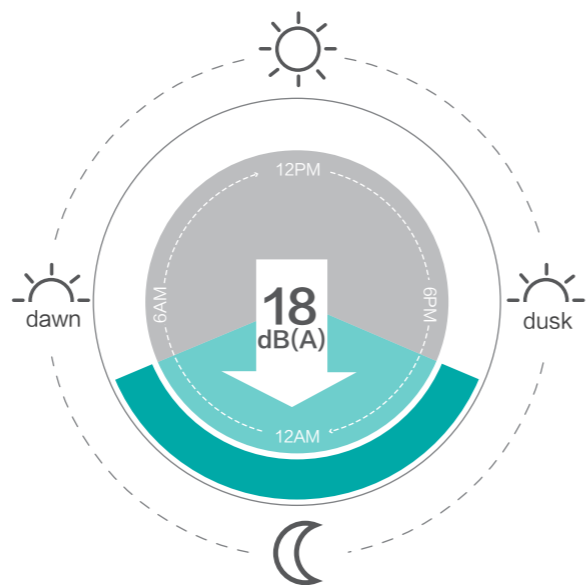
Noises are often a pain in the neck, especially when we're trying to put our mind into something. Working, studying even exercising and relaxing needs concentration. Hisense VRF offers indoor units with sound

pressure level as low as 21dB(A). Perfectly blends into library, auditoriums and hospital rooms where requires sound levels lower than 25dB(A).



Night mode

When outdoor conditions call for special low noise requirements, like in cases where outdoor units are installed in indoor equipment rooms with poor sound-proof walls or continuous night operating conditions. Fear not, we've got you covered with our night mode to reduce sound pressure levels upto 30% routinely with flexible time intervals to meet different customer needs.

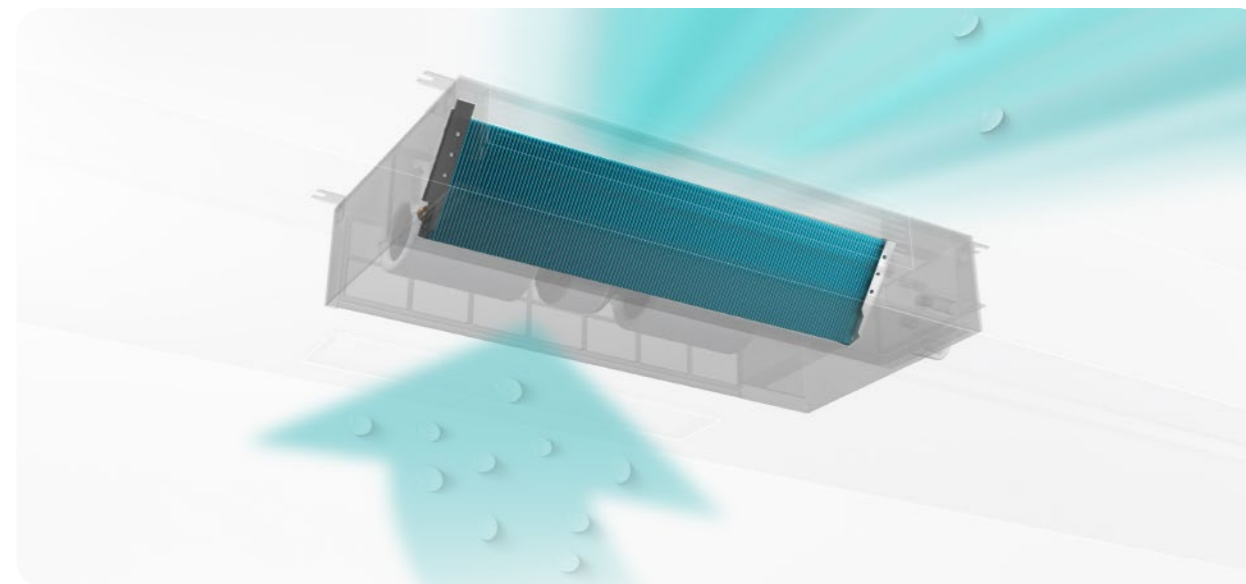


COMFORT

Dehumidification

Although all variables of the air cannot be controlled or affected completely, Hisense VRF can have a positive impact by regulating the temperature, humidity and moisture in the air. To choose humidity sensor installed in the IDU and match the appropriate con-

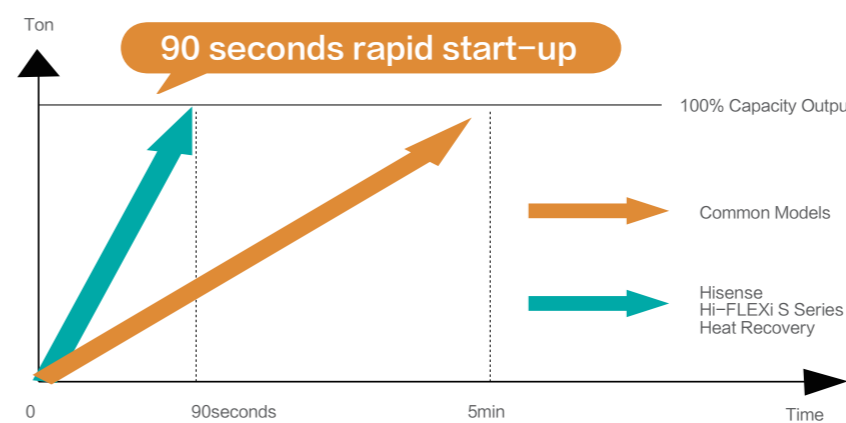
troller, it is more comfortable to adjust humidity of room and achieve dehumidification function. The humidity sensor has more precise to control the humidity that can effectively inhibit the growth of bacteria and create a comfortable or healthy environment.



90s Rapid Heating Start-up

Cold freezing days are sometimes so difficult to bare with, especially after a day out under the crisp frosty air. To keep you comfortable and cozy as fast as possible, Hisense VRF starts supplying warm air so rap-

idly with only just 90s reaching a 100% capacity output. A total of 30% improvement from our old models which requires 120s.



*Taking 34Ton as an example



COMFORT

Smarter Sensor-----Hi-Motion

What's more comfortable than having a unit that follows you to wherever corner of the room? Hisense VRF offers more than just artificial intelligent integrated AC unit. Hi-motion, unbeatable style with elegant white circular design. Dynamic and practical with detection capability upto 7m(23ft.) distance and area of 34m²(366ft.²). Boundaryless installation including wall mounted or ceiling attached to meet any space restrictions and interior designs.

Main Functions

High Precision

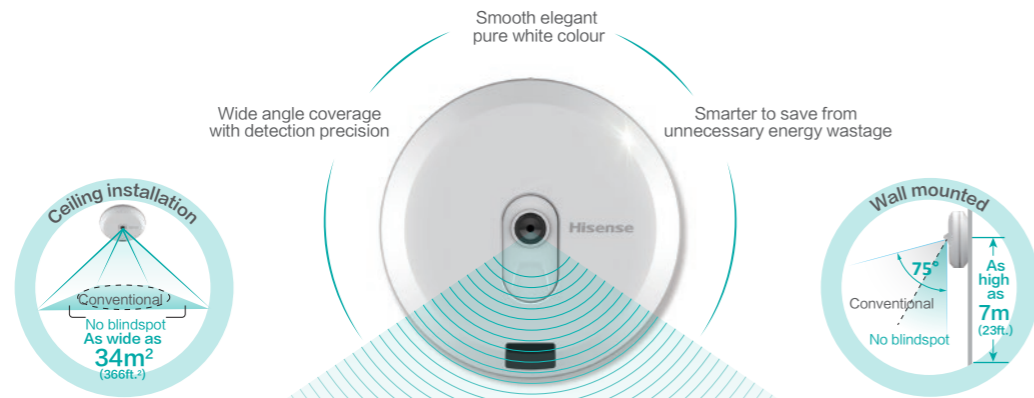
Adjust AC temperature and air flow speed precisely according to the number of users

Wide Range

Sense as much as 34m² with almost no blind area

High Energy Conservation

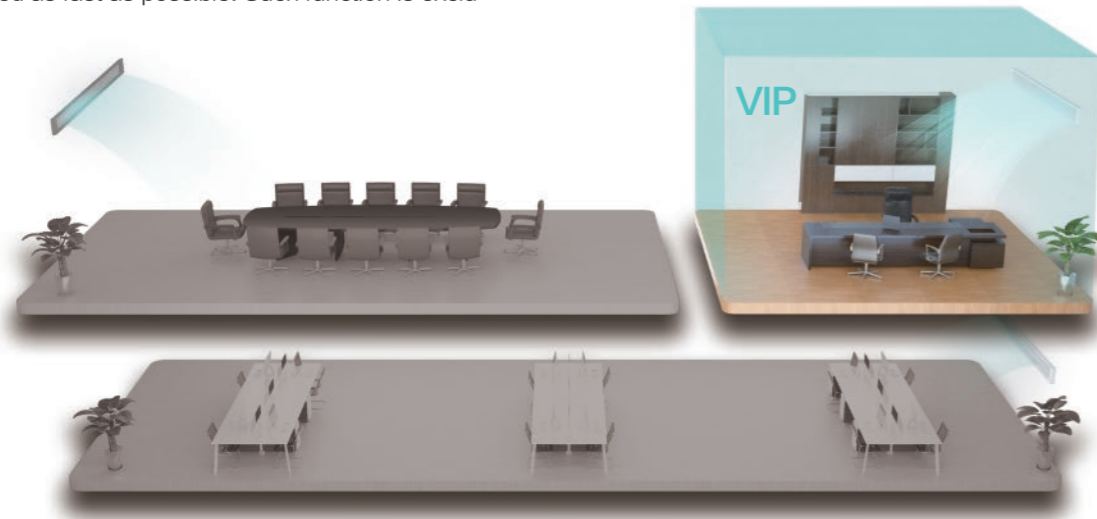
Turn off AC automatically when nobody is in the room



VIP Mode

When there's a very important person in the house and air-conditioning priorities are needed to be given to them. Hisense VRF offers VIP modes to give priorities to the specific rooms, keeping them comfortable and satisfied as fast as possible. Such function is exclu-

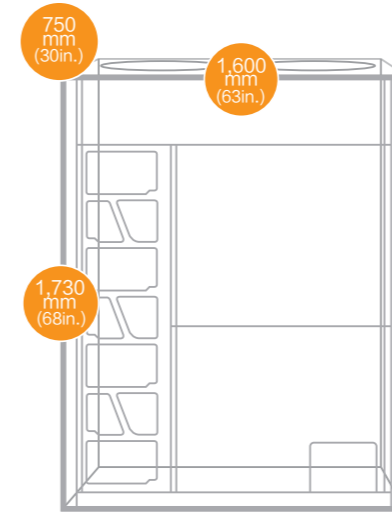
sively practical for hotel applications, where AC units in the presidential suites are often set to VIP mode. Keeping users comfortable is our top priority.



Compact and Light-weight

With larger capacity per unit, Hisense VRF outdoor units are more compact in size with the largest capacity of 16Ton single module, leading capacity of a single module in the market. Compact yet reduced overall weight makes transportation much convenient and

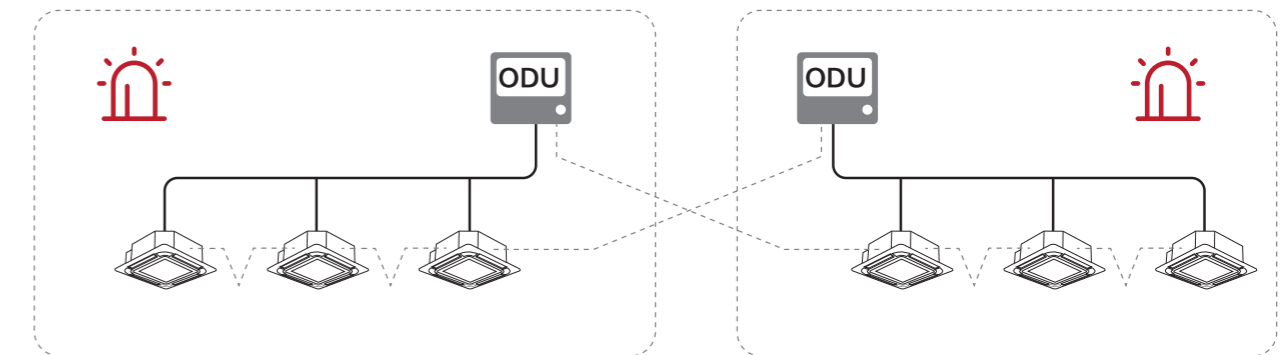
even fitting into elevators. Wise and economical solution for existing and renewal projects, installation on non-opened air spaces or phase renovations.



Convenient Communication Cable Connection

Communication cable connections between outdoor unit to indoor units might be confusing when comes to long cables from the outdoors to the indoors and vice versa. It is often incorrectly connected and caused various errors affecting the end user's comfort levels.

Despite of Hisense VRF's simple wiring connection ports, the outdoor unit itself could also check on the connections and display warnings when the connections are improper.



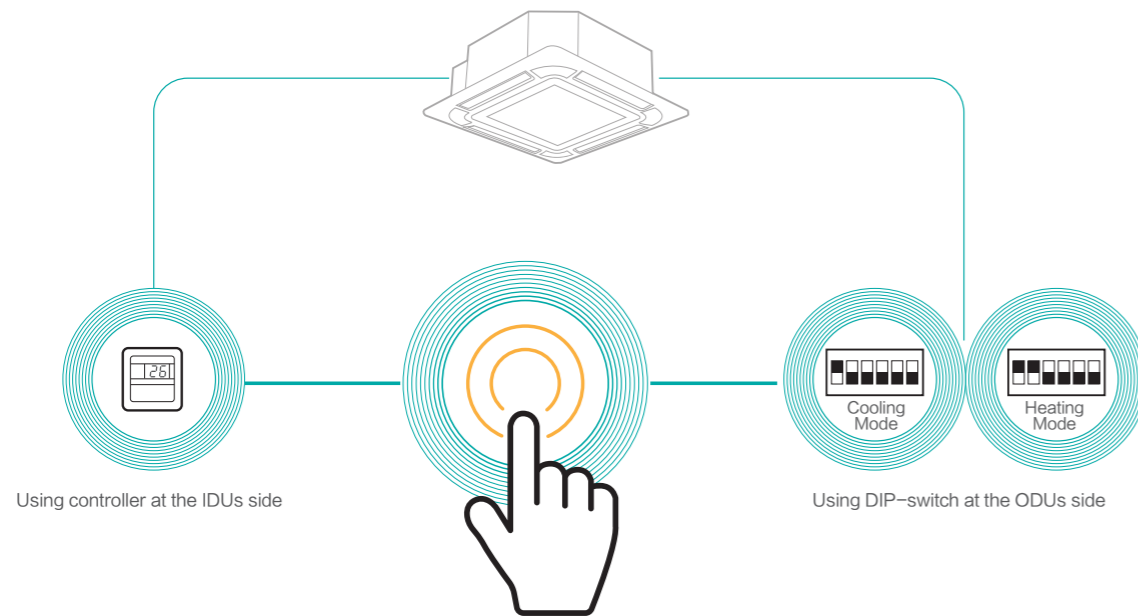
Indoor units from different systems are connected to the incorrect outdoor unit, alarm codes flashes out warning installers to make proper corrections.

FLEXIBILITY

One-touch Test Run

Test runs are one of the essential part in testing & commissioning to make sure the HVAC system in a building works steadily and safely before hand over or soft openings. To make test run as simple as possible, Hisense VRF systems are capable to conduct test

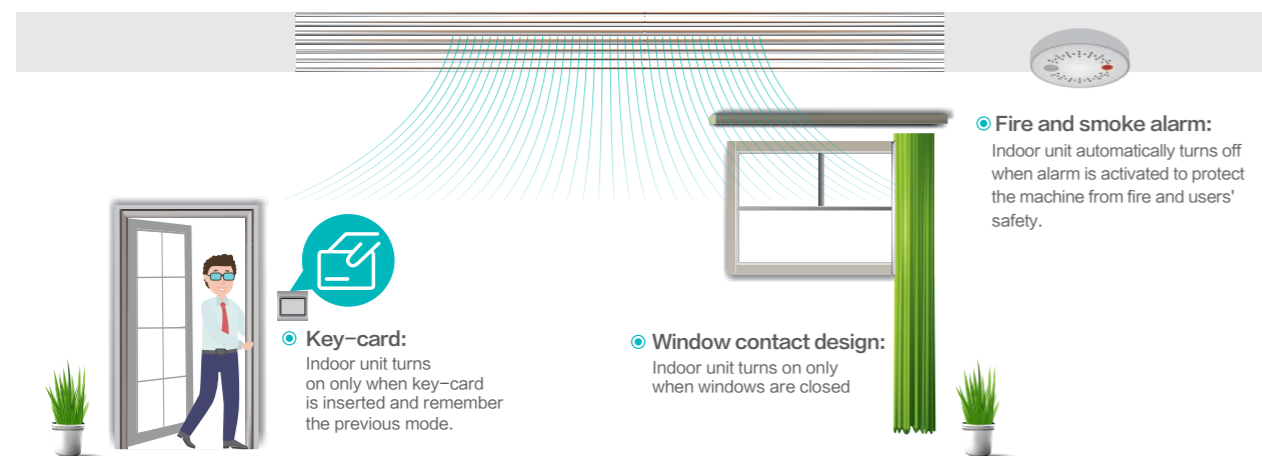
runs with just a button away wherever installers are, despite indoors or outdoors as one-touch test run functions are applicable in both outdoor and indoor units.



Indoor Unit Dry Contact Interface

In the indoor unit, ports are reserved for wider choice range of applications to turn the AC unit ON or OFF, like key-card power, window contact power and any other sensors or devices.

These functions save energy and the automatic switch setting provides convenience for users.



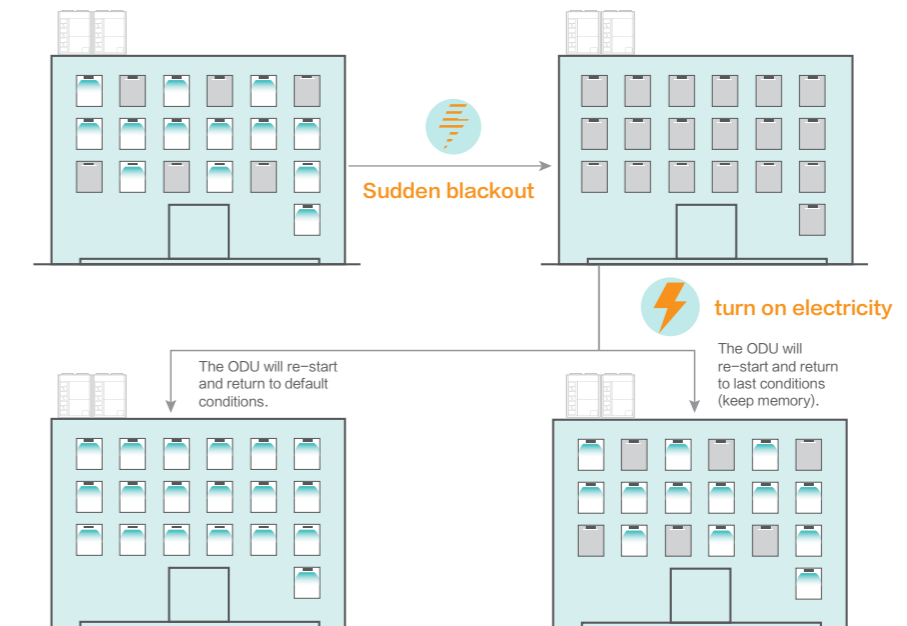
Note: this function can be achieved by the wired controller: HYXW-VA01, HYPE-J01H

FLEXIBILITY

Automatic Restart

Hisense VRF is capable to restart automatically whenever there is an involuntary power supply shortage. Customers are free to choose from restoring to the state before power failure state or restarting the

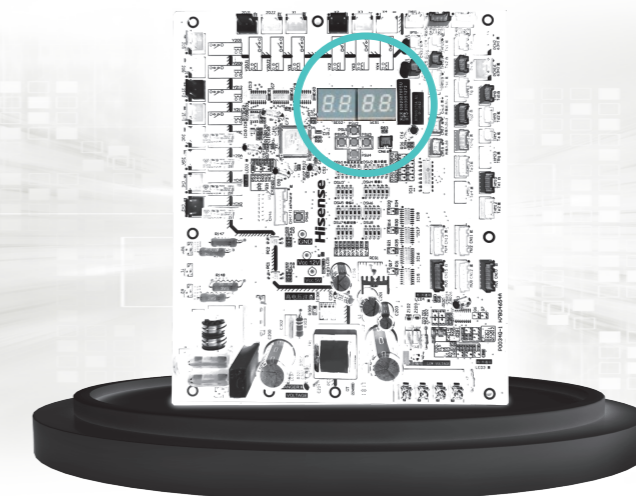
system completely. Such function comes in handy in equipment rooms whereby are constantly humanless, like server rooms.



7-segment LED on the Outdoor

The 7-segment LED on the outdoor unit makes it easy to monitor and check the details about the operating status such as refrigerant temperature, pressure,

compressor frequency, alarm code, etc., which makes both operation management and maintenance more convenient.



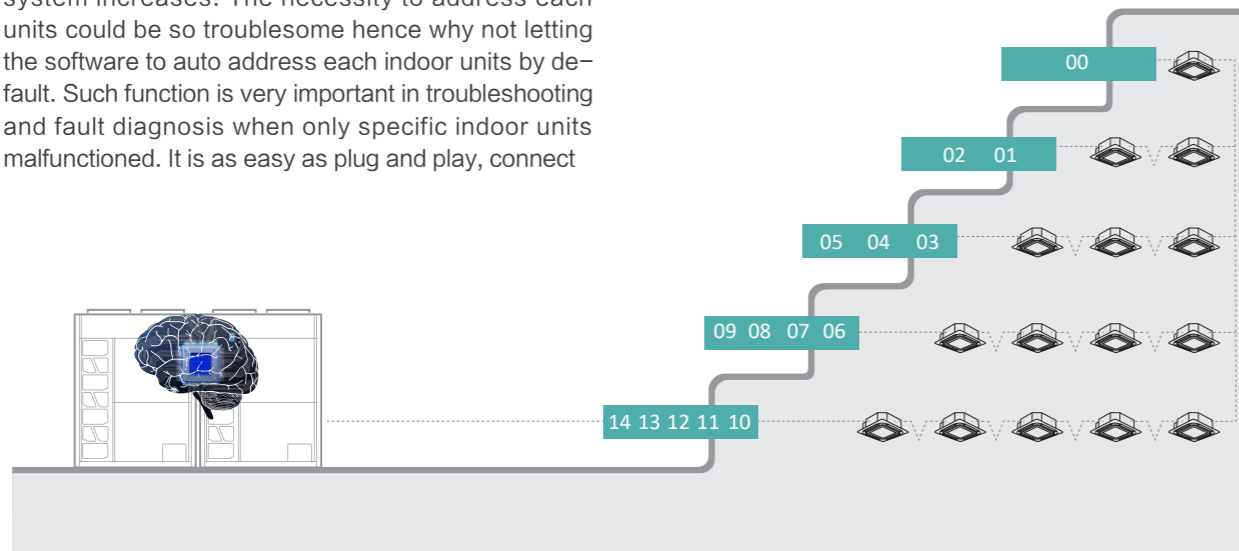
FLEXIBILITY

Service & Maintenance Simplicity

Plug and play automatic addressing

Imagine a large system with lots of indoor units, it could be tens or even hundreds as the number of system increases. The necessity to address each units could be so troublesome hence why not letting the software to auto address each indoor units by default. Such function is very important in troubleshooting and fault diagnosis when only specific indoor units malfunctioned. It is as easy as plug and play, connect

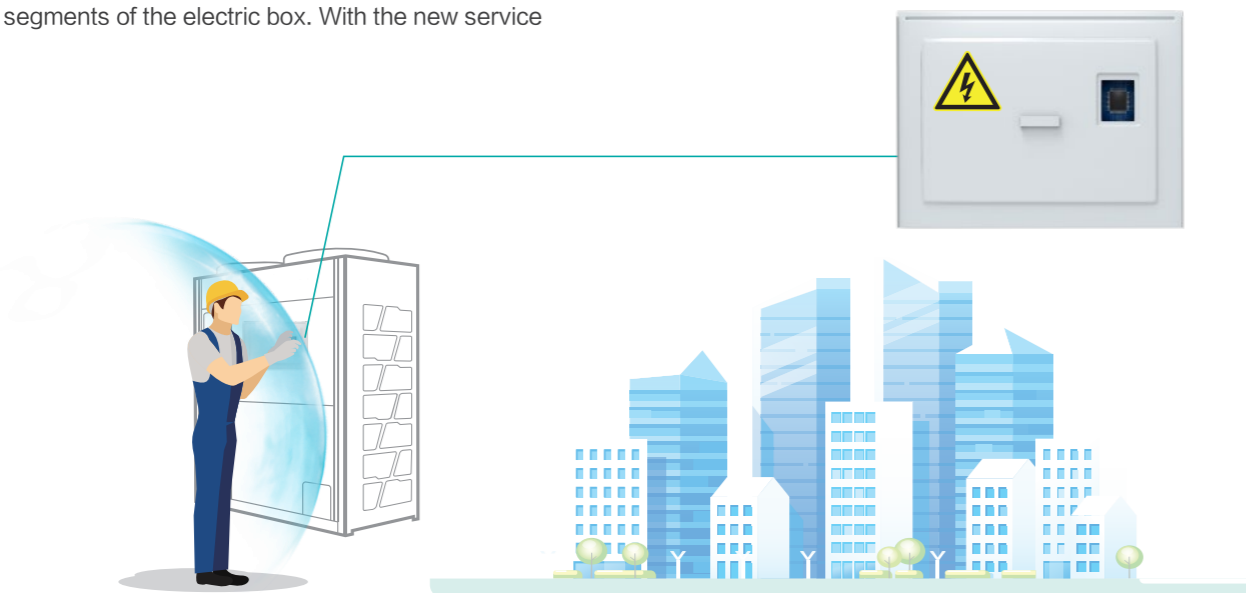
the indoor units to the outdoor units and indoor unit addresses are completely set automatically.



Safe and convenient system management

The new outdoor units are equipped with a service window on top of the electrical box protection panel for easy access to parameters checking and maintenance manipulation safely without exposing to high voltage segments of the electric box. With the new service

windows, press switch buttons, DIP-switches and the 7-segment LED operation are made safer and more convenient to operate.



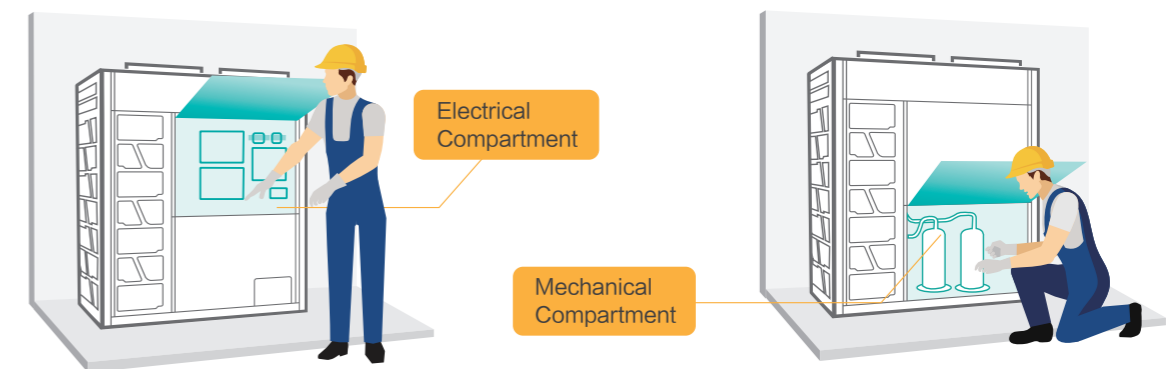
FLEXIBILITY

Service & Maintenance Simplicity

Separated mechanical & electrical compartment

The outdoor unit's mechanical and electrical compartment is now designed and optimized repositioned separately for a more organized maintenance. The electrical and electronics are placed on top of the compressors and accumulator to meet the practical

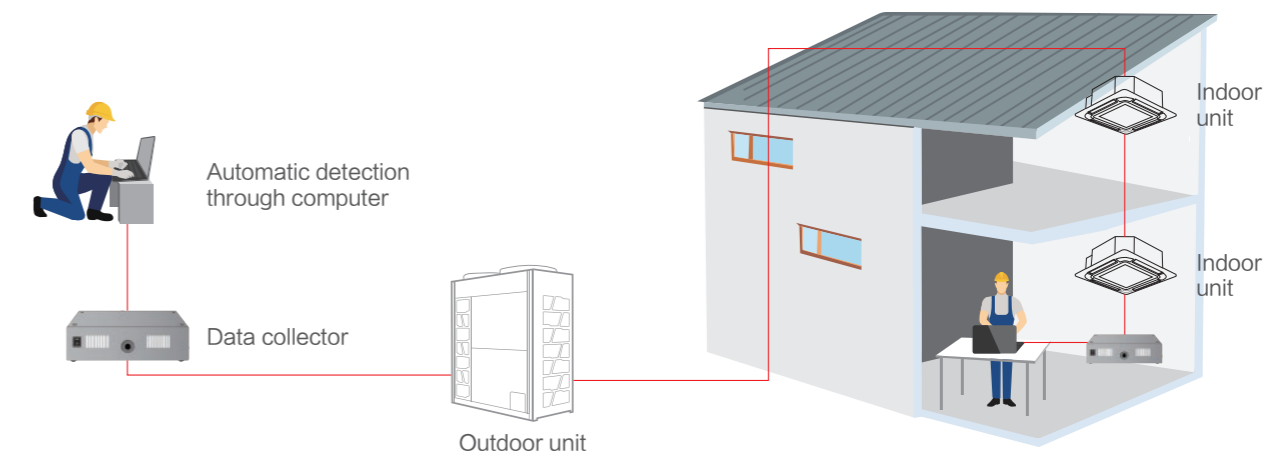
law of center of gravity, hence minimizing toppling accidents and unnecessary vibration produced during operation. Besides, it also maximizes the heat dissipation of electrical box to keep the electrical in a stable temperature by maximizing airflow passed by.



Accurate intelligent system diagnosis

Exclusive Hisense Data Collector is another plug and play service maintenance tool for system monitoring purposes. Whereby various parameters can be monitored in real-time which made troubleshooting and prevention maintenance made so much more direct and simple. The Data Collector has boundlessness

compatibility whereby any outdoor unit or indoor unit of the system can be connected with the data collector to obtain real-time readings of the whole system.



Note: the data collector is just used for maintenance.