



**TVR 7G**  
DC INVERTER

**COOLING India**  
8-96HP (Combinable series)  
8-32HP (Individual series)

**TRANE**  
TECHNOLOGIES



Trane – by Trane Technologies (NYSE: TT), a global climate innovator – creates comfortable, energy efficient indoor environments through a broad portfolio of heating, ventilating and air conditioning systems and controls, services, parts and supply. For more information, please visit [trane.com](http://trane.com) or [tranetechnologies.com](http://tranetechnologies.com).

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## Benefits of TRANE VRF

### For End-users

- Healthy Operation
- Cost Saving Operation
- Comfortable Environment



### For Consultants

- Diversified Solutions
- Professional Tool and Support
- Design Flexibility



### For Building Owners

- Energy Saving Management
- Reliable Operation
- Backup Solution



### For Construction Companies

- Green Solutions
- Space Saving Design
- Intelligent Management





## Application Solutions

### Office Complexes

#### Enjoy comfort while working

TRANE VRF provides solutions for office buildings of all sizes and its smart control solutions streamline the management of VRF. It offers a wide variety of indoor units that are suitable for all designs.



### Hotels & Shopping Malls

#### Increase your business, not your bills

The high efficiency and reliability of TRANE VRF make it ideal for commercial applications. Intelligent control solutions like hotel key cards and touch screen controller make management easy.



### Residential Apartments

#### One for every home

A compact size and high efficiency make TRANE VRF suitable for all residential homes.



### Hospitals/ Schools/ Airports

#### Meeting all expectations

The innovative design and variety of indoor unit options make TRANE VRF suitable for all kinds of applications. The newly designed puro-air kit is perfect for modern hospitals.







**OUTDOOR UNITS**  
**7G Cooling**





# Outdoor Unit Lineup

7G Cooling (Combinable series)

|  |   |   |
|--|---|---|
| Single Unit  | 8-22HP  | 24-32HP   |
|  |  |  |
| Combined Unit  | 34-64HP   |   |
|  |  |   |
|  | 66-96HP   |   |
|  |   |   |

# Outdoor Unit Functions

| Functions  |   |   | 7G Cooling |
|--|---|---|------------|
| ●: equipped as standard; ○: customization option |   |   |            |
| Innovative Technologies                          | TVRlink                                   | TRANE original communication bus chip greatly simplifies installation and saves installation costs  | ●          |
|  | S-Box                                     | IP55 fully sealed electric control box realizes resisting all protects against intrusion and damage to the electric control box                         | ●          |
|  | SenseMesh                                 | 17 sensors monitor the state of each part of the refrigerant pipeline throughout the whole process  | ●          |
|  | TRANE ETA 2.0                             | Triple variable control maximizes comfort and energy efficiency   | ●          |
|  | Comfort+                                  | Provides comfort and healthy air supply   | ●          |
|  | Analyze+                                  | Intelligent diagnostic technology makes maintenance easier and more efficient   | ●          |
| High Efficiency                                  | Full DC inverter technology               | All electrical components of outdoor and indoor units use DC power supply, improving electrical efficiency and saving energy                            | ●          |
|  | Enhanced Vapor Injection (EVI) compressor | Increases refrigerant circulation and improves cooling capacity   | ●          |
|  | Micro-channel refrigerant subcooling      | The refrigerant system can achieve 15°C refrigerant subcooling, which can further improve the refrigerant heat transfer efficiency while reducing noise | ●          |
|  | Low standby power consumption             | The standby power consumption is as low as 3.5W   | ●          |
|  | 60-step energy management                 | The system can be set from 40% to 100% capacity output in 1% increments   | ●          |
| High Reliability                                 | Duty cycling (unit)                       | Equalizes the running time of the outdoor units in a multiple-unit system, significantly extending unit lifespan (available for combined units)         | ●          |
|  | Duty cycling (compressor)                 | Equalizes the running time of the compressor in each unit, significantly extending compressor lifespan (available for units with two compressors)       | ●          |
|  | Backup operation (unit)                   | If one unit fails, the other units provide backup so that the system can continue operating (available for combined units)                              | ●          |
|  | Backup operation (compressor)             | If one compressor fails, the other compressor provides backup so that the system can continue operating (available for units with two compressors)      | ●          |
|  | Backup operation (fan motor)              | If one fan motor fails, the other fan motor provides backup so that the system can continue operating (available for unit units two fan motors)         | ●          |
|  | Backup operation (sensor)                 | If one sensor fails, the virtual sensor provides backup so that the system can continue operating   | ●          |

## Outdoor Unit Functions

| Functions  |                                       |   | VC MAX  |
|--|---------------------------------------|---|---|
| ●: equipped as standard; ○: customization option |                                       |   |   |
| High Reliability                                 | Precise oil control                   | Ensures all outdoor compressor oil is at a safe level, eliminating compressor oil shortages   | ●   |
|  | Heavy anti-corrosion protection       | Can be customized with heavy anti-corrosion treatment for surface protection against corrosive air, acid rain and saline air (for installations in coastal regions) to extend overall useful life | ○   |
|  | UL anti-corrosion certificate         | It has been certified by UL that our VRF outdoor unit can withstand 27 years of simulated severe corrosion under a salt contaminated traffic environment  | ○   |
|  | Micro-channel refrigerant cooling PCB | 10 times higher than ordinary refrigerant pipe cooling efficiency   | ●   |
|  | Auto dust-clean function              | Blows away accumulated dust on the outdoor unit, guaranteeing stable unit operations in a dusty environment   | ●   |
|  | Alarm output                          | In the event of system malfunction, remotely output error information and remind maintenance personnel to conduct maintenance   | ○   |
|  | Fire alarm input                      | In the event of fire, receive fire information in time and stop the system immediately to avoid serious problems  | ●   |
|  | Enhanced Comfort                      | Silent mode   | 15-step silent mode selections provide more freedom and convenience to match the needs of customers |
| 0.1 °C control precision                         |                                       | Control precision of the sensor can reach 0.1°C, ensuring less fluctuations in room temperature   | ●   |
| Wide Application Range                           | Wide capacity range                   | Meets all customer requirements from small to large buildings   | 8-32HP (single)<br>34-96HP (combined)   |
|  | Wide range of indoor units            | Provides 12 types and more than 100 models of VRF indoor units to meet the needs of different application scenarios   | ●   |
|  | Wide operation range                  | Operates stably under extreme conditions  | -15-55°C  |
|  | Long piping capability                | Benefits for the system design, installation flexibility, as well as the less installation cost   | ●   |
|  | Auto addressing (ODU-IDU)             | Distributes addresses to indoor units automatically, simplifying the installation   | ●   |

## Outdoor Unit Functions

| Functions  |   |   | VC MAX  |
|--|---|---|---|
| ●: equipped as standard; ○: customization option |   |   |   |
| Easy Installation And Service                    | Auto addressing (ODU-ODU)   | Distributes addresses to slave outdoor units automatically, further simplifying the installation (available for combined units)   | ●   |
|  | Automatic refrigerant charging  | Makes installation and service easier and more efficient  | ○   |
|  | Automatic refrigerant recycling   | Refrigerant can be recycled to ODUs or IDUs and normal ODUs, making the maintenance easier and more efficient   | ●   |
|  | Bluetooth module  | It can be used for fault information storage, operation parameter enquiry, system parameter setting, quick after-sales PCB replacement, programme upgrade for indoor and outdoor units, etc., simplifying installation and maintenance. | ○   |
|  | Digit display   | 4 digit 7-segment display can be intuitive for parameter setting, parameter checks and error checks   | ●   |
|  | High external static pressure   | Up to 120Pa ESP allows easy handling in a variety of installation environments  | 0-20Pa ●<br>20-120Pa ○                          |
|  | Arbitrary topology of communication wire  | Supports any communication topology, greatly simplifies installation and reduces installation cost  | ●   |
|  | 2-core non-polarity communication wiring between the indoor and outdoor units                     | Simplifies installation and reduces wiring failures   | ●   |
|  | Long communication wiring   | Communication wiring up to 2000m makes installation more flexible   | ●   |
|  | Wide combination ratio  | Combination ration can be extended to 50%-200% under certain conditions which can meet different project requirements   | 50-130% ●<br>50-200% (for single unit system) ○ |
|  | Supports manual and automatic oil return  | Improves maintenance efficiency   | ●   |
|  | Easy software program upgrade*  | The software program can be upgraded via on-site USB and burning, or remotely via the web   | ●   |
|  | Flexible controller connection  | Central controller and BMS gateway can connect to the ODU at the same time, and the central controller can connect to the ODU or IDU  | ●   |
|  | Refrigerant amount diagnosis  | The unit can diagnose excessive or insufficient amounts of refrigerant, and prompt maintenance personnel to check the system in time to avoid serious malfunction   | ●   |
| Easy system commissioning and checking*          | System commissioning and checking can easily be completed on-site or remotely via the web         | ●   |   |
| Intelligent maintenance tool                     | Intelligent bluetooth after-sales kit can simplify maintenance and improve maintenance efficiency | ○   |   |

\*Note: The web function needs to be realized through the data cloud gateway, and the data cloud gateway needs to be purchased separately.

# INNOVATIVE TECHNOLOGIES

TVRLink

S-Box

SenseMesh

ARTC 2.0

Comfort+

Analyze+





TRANE's original communication bus chip greatly simplifies installation and saves installation costs.

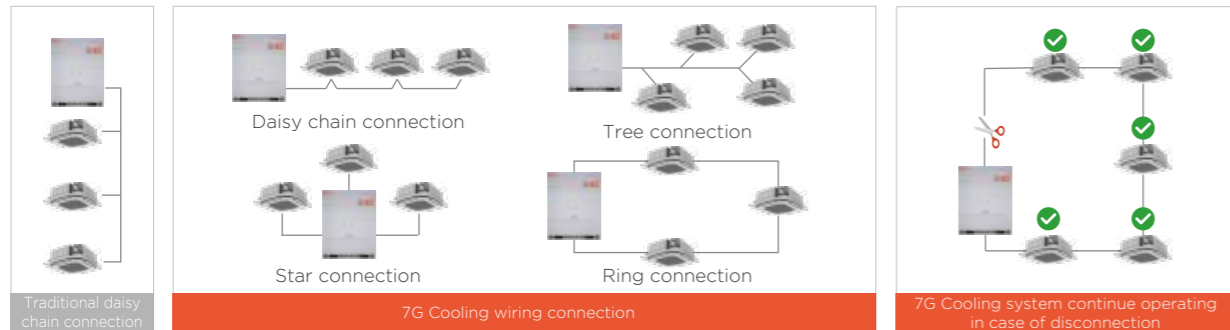


- Benefits**
-  Flexible installation
  -  Low installation cost
  -  High reliability
  -  Stable operation

TVRlink communication technology supports any wiring pattern rather than just daisy chain connection, reducing installation costs and the possibility of an incorrect connection. It has stronger anti-interference ability, achieving a communication distance of up to 2000m.

**Arbitrary Topology Communication**

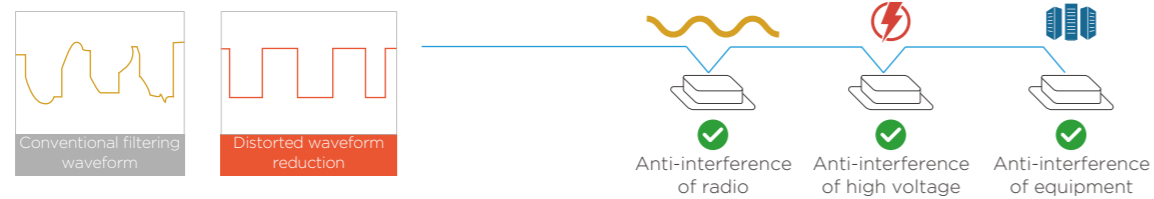
In addition to the traditional daisy chain connection, the communication wire supports tree connection, star connection, ring connection and so on. The wiring is flexible, which greatly reduces installation costs and has no possibility of wrong connection on site.



\*In ring connection, the communication wire must be connected polarized (M1 port to M1 port and M2 port to M2 port).

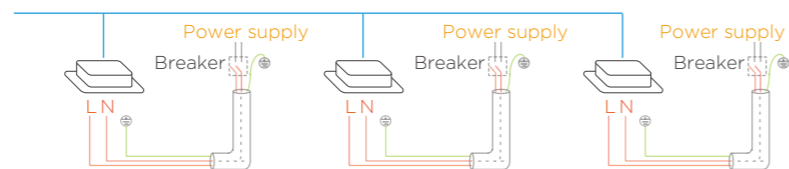
**Super Anti-interference Capability**

Special waveform restoration technology enhances anti-interference performance for more stable communication.

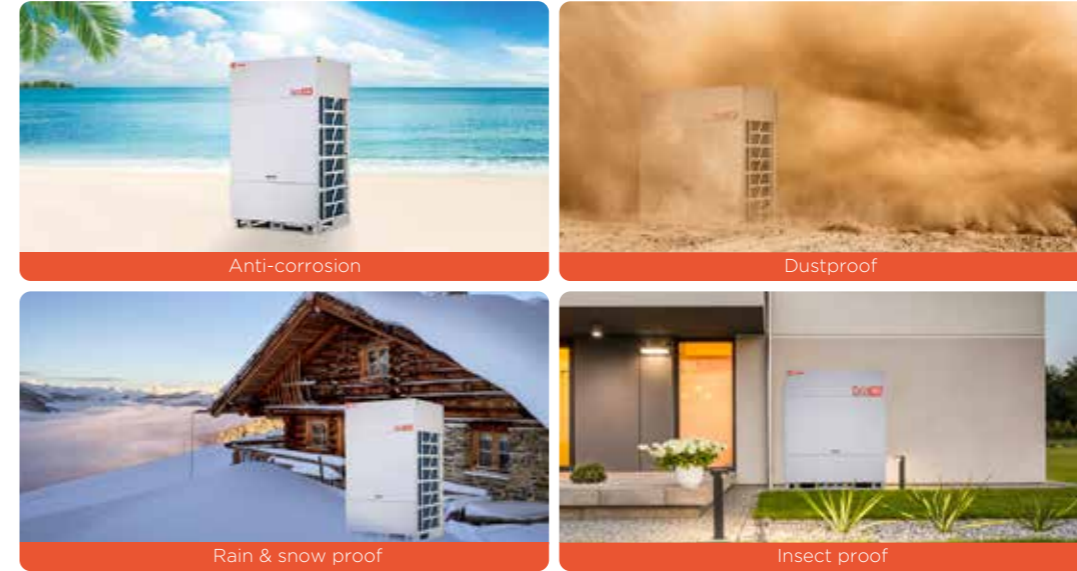


**Flexible Power Supply for Indoor Units**

HyerLink's unique communication method allows the indoor units to be powered not only by a uniform power supply, but also by individual and zone power supplies, making it particularly suitable for each shop in a large complex building, which can independently power on and off its own indoor units.



IP55 fully enclosed electric control box provides all-round protection for internal electronic components, greatly improving system **RELIABILITY**.



- Benefits**
-  High reliability
  -  Stable operation
- IP (INGRESS PROTECTION)
- IP 55**
- Dustproof grade code**  
Prevent entry foreign objects and dust
  - Waterproof grade code**  
Prevent water spray in all directions

Fully enclosed electronic components are isolated from the external environment to protect against corrosion, sand, humidity, snowstorms and other harsh conditions, and prevent small animals and insects from entering the chamber. This protects internal electronic devices and improves the overall environmental tolerance.

**All Microchannel Refrigerant Cooling**

All electronic components including inverter module, filter module and power module are cooled by specially designed microchannel refrigerant to ensure that the electronic components work in the best temperature range.



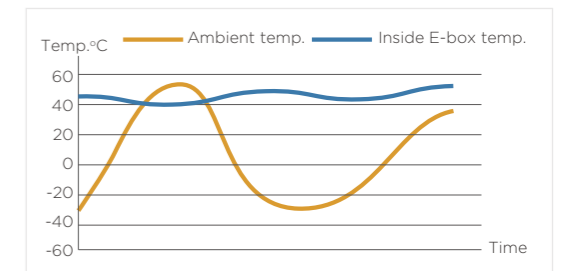
**Built-in Circulating Fan**

The built-in circulating fan accelerates the air flow inside the chamber, and the heat exchange is more sufficient to ensure the consistent ambient temperature inside the chamber.



**5 High Precision Temperature Sensors**

5 high precision temperature sensors are used to accurately monitor the operation state of electronic control under various conditions to ensure that the internal temperature of the chamber is always kept within a stable range.





The status of the refrigerant can be determined throughout the process, ensuring high **RELIABILITY** and **COMFORT**.



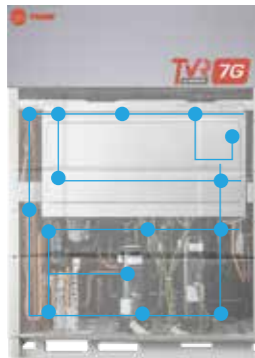
**Benefits**

- High reliability
- Stable operation
- Enhanced comfort

Up to 17 sensors are distributed throughout the refrigerant system, and the status of the refrigerant can be determined throughout the process, ensuring stable operation. At the same time, combined with the digital twin technology of the refrigerant system, a virtual sensor can be created in the event of a physical sensor failure, so that the system does not shut down in the event of a sensor failure, ensuring comfort.

**Complete Sensors**

The VC MAS Series VRF is equipped with up to 17 condition monitoring sensors, combined with built-in data models of compressors, heat exchangers and throttling components, which can analyze the operation data in real time and monitor the refrigerant condition of the system.



**Refrigerant Amount Diagnosis**

Thanks to the complete sensors, the refrigerant running state is clearly visible, so as to accurately diagnose the amount of refrigerant.



**Virtual Sensor Backup**

In the event of a sensor failure, other sensors can automatically simulate a virtual backup sensor, so that the VRF system can continue to operate without stopping.



ARTC is the abbreviation of TRANE Evaporating Temperature Alteration. Further upgraded ARTC technology to maximize **ENERGY SAVING**.



**Benefits**

- Energy saving
- Enhanced comfort
- Fast cooling

**Built-in professional operation and maintenance algorithm, so that the annual operation energy efficiency of each set of systems is increased by more than 28%.**



**Variable Refrigerant Flow**

**STEP 1: Architectural space feature recognition**

The indoor unit automatically recognizes the size of the building space and the effectiveness of the insulation according to the rate of temperature drop.



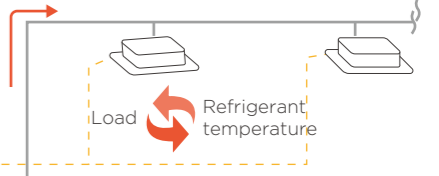
Automatic calculation of the building load and the required refrigerant quantity based on the sensor parameters.



**Variable Refrigerant Temperature**

**STEP 2: System refrigerant temperature determination**

The system automatically matches the evaporating temperature to the room load to maximize comfort and energy efficiency.



Automatic matching of the corresponding refrigerant temperature to the load.



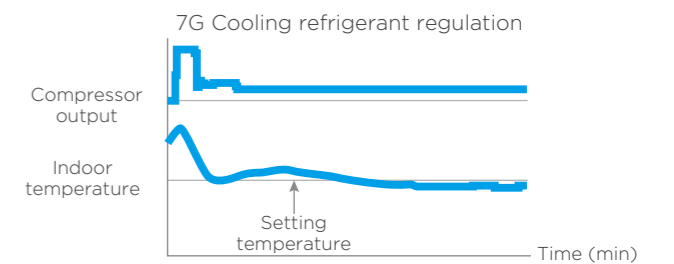
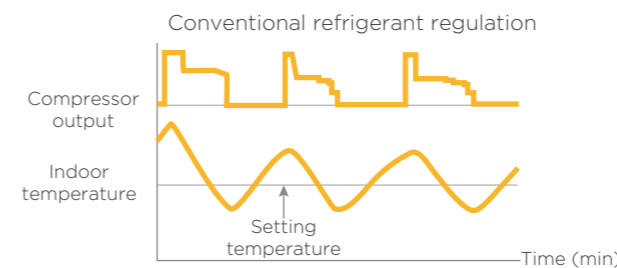
**Variable Indoor Airflow**

**STEP 3: Adaptive indoor airflow and refrigerant flow**

Each indoor unit automatically adjusts the corresponding indoor airflow and refrigerant flow according to the evaporating temperature, enabling precise temperature control.



Automatic matching of the corresponding indoor airflow to the load and refrigerant temperature.



## Comfort+

Further upgraded ZEN AIR technology to maximize **COMFORT**.



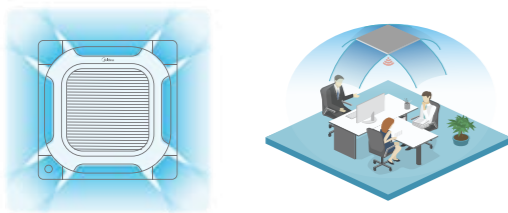
### Benefits

- Quiet
- Enhanced comfort
- Healthy

0.5°C temperature adjustment, 7 fan speeds selection, sleep mode, silent mode, windless technology, high efficiency filter, a variety of sterilization devices and other advanced technologies used in 7G Cooling Series VRF are dedicated to creating a quiet, comfortable and healthy indoor environment.

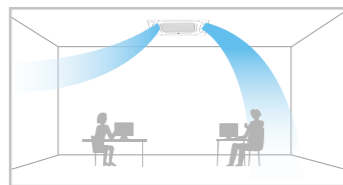
### 360° Airflow

New design, round air flow path ensures uniform air flow and temperature distribution.



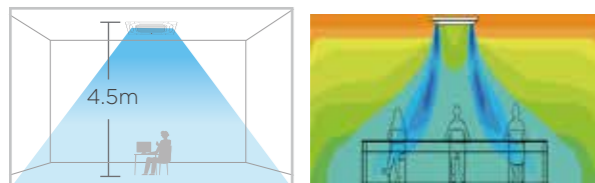
### Individual Louver Control

The Individual louver control can control the motors separately, making it possible to control all four louvers independently.



### Long Distance Air Delivery\*

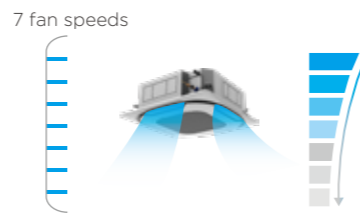
The Four-Way Cassette has an additional 50Pa of static pressure for long airflow delivery and can be used in spaces of up to 4.5m in floor height.



\*This function is available as a customization option.

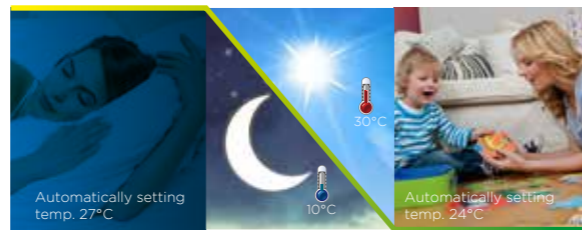
### 7 Fan Speeds

7 indoor fan speed options to meet the needs of different indoor conditions.



### Sleep Mode

The smart sleep mode provides a comfortable sleep period and a refreshing wake up time.



\*The above temperatures are for reference only.

### Innovative Puro-air Kit

Protectors of health and safety

From Germany - OSRAM quality UV light source

Ozone -Free  
UV leakage-Free

\*The indoor unit needs to be customized in order to use the Puro-air Kit.



## Analyze+

Further upgraded DOCTOR M technology to maximize **EASY SERVICE**.



### Benefits

- Easy maintenance
- Fast maintenance
- Low maintenance cost

Based on a cloud-based platform of big data and artificial intelligence, the 7G Cooling Series VRF can monitor the operation status of each unit in real time, predict system faults in advance and provide data analysis for system maintenance. The intelligent Bluetooth module and special Bluetooth after-sales kit can further simplify maintenance and improve maintenance efficiency.

### Intelligent Maintenance Tool

With the intelligent Bluetooth module or special Bluetooth after-sales kit, the data of the outdoor unit can be directly read and written on your smart phone without connecting a PC or opening the cabinet.



\*The Bluetooth module is available as a customization option.

### Real-time Monitoring of Operating Parameters

The 7G Cooling Series VRF synchronizes and stores all the unit parameters to the cloud through the data cloud gateway, including the running status, locking status, dirty blocking rate, all spot inspection parameters and so on. Users can query real-time and historical parameters on computers, tablets and mobile phones at any time.



\*The data cloud gateway needs to be purchased separately.

### Cloud-based Big Data Analytics

TRANE 7G Cooling Series VRF transmits the system operation data to the cloud in real time through the data cloud gateway, and timely reminds the system of abnormal conditions through big data analysis, helping users to proactively avoid the risk of failure that has not yet occurred and minimize hidden problems.



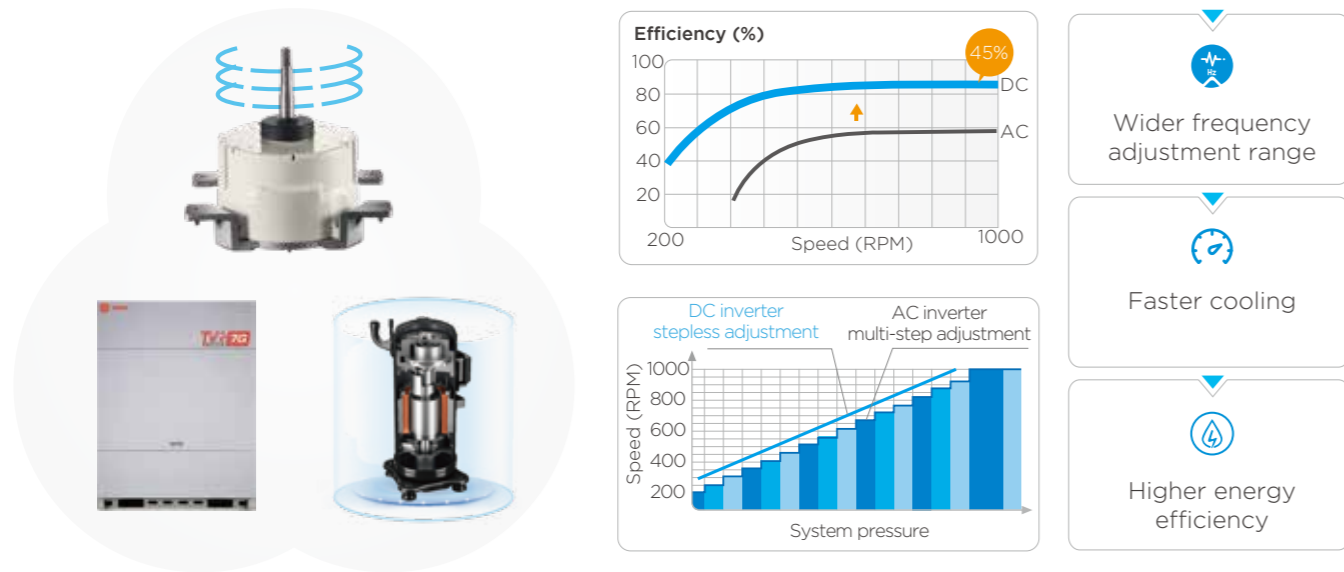


# High Efficiency

## Full DC Inverter Technology

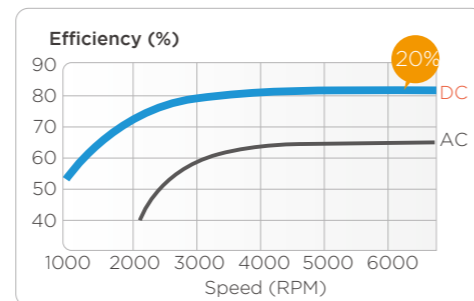
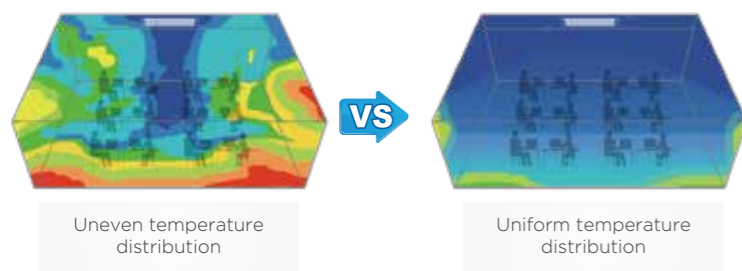
### Full DC Inverter for Outdoor Components

The 7G Cooling Series VRF uses full DC inverter compressor and fan motor to achieve high precision stepless speed adjustment according to system operation, and ensures that the system is always in optimum condition, operating more efficiently, more consistently and with less noise.



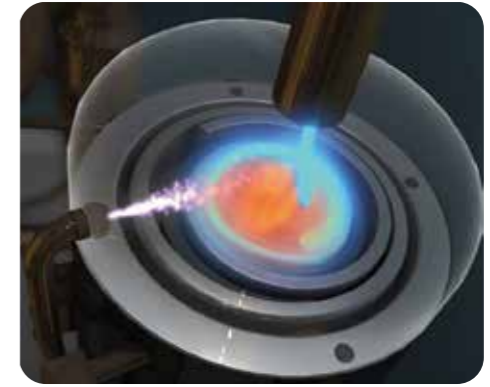
### Full DC Inverter for Indoor Components

All power devices such as indoor fan motor, drain pump and electric control board are fully DC, which increases electrical efficiency by 20% and results in more accurate temperature control, a more constant indoor temperature and higher energy efficiency.



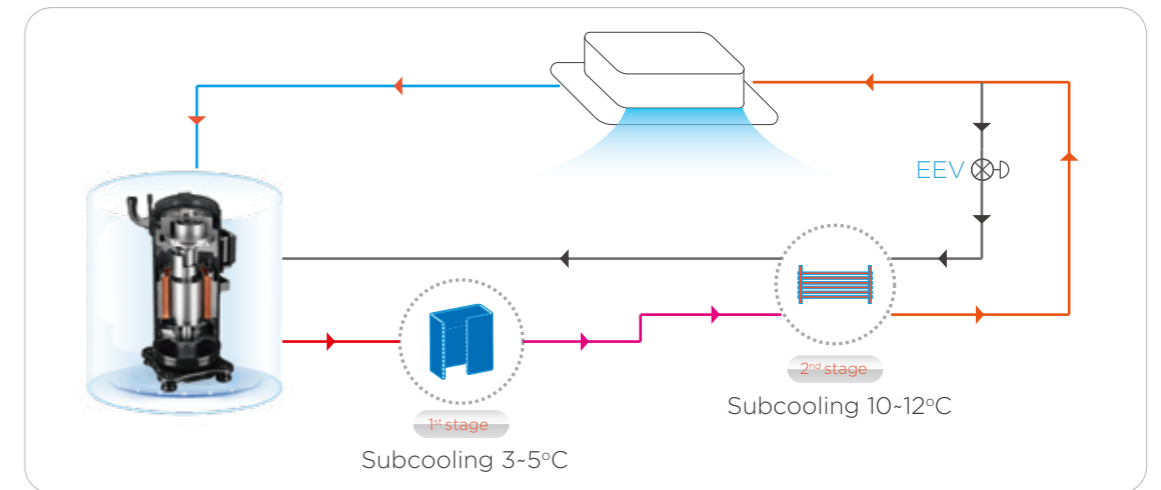
## Enhanced Vapor Injection (EVI) Compressor

The enhanced vapor injection DC inverter compressor increases refrigerant circulation and improves cooling capacity.



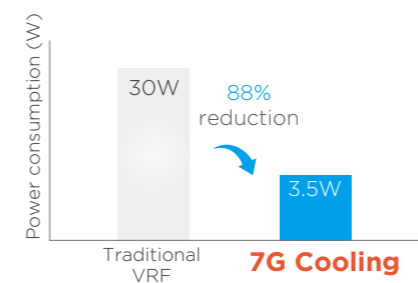
## Advanced Subcooling Technology

The 7G Cooling Series VRF uses a micro-channel heat exchanger to further cool the refrigerant and the refrigerant system can achieve 15 ° C refrigerant subcooling, which can further improve the refrigerant heat transfer efficiency while reducing the sound of refrigerant flow.



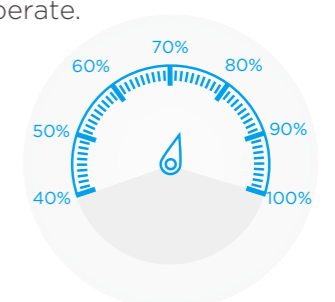
## Low Standby Power Consumption

Compared to the standby power consumption of traditional VRF of about 30W, the 7G Cooling Series VRF uses optimized control scheme to further reduce standby power consumption to as low as 3.5W.



## 60-step Energy Management

For projects with temporary electricity supply restrictions, the outdoor unit supports 60-step energy management which can be set to output 40-100% capacity in 1% increments. It prevents tripping during conditions of restricted electricity supply and allows the system to continue to operate.





# High Reliability

## Quadruple Backup

In two fans, two compressors and multiple units, one can run in backup for another. Additionally, the 7G Cooling series VRF generates a corresponding virtual sensor for each physical sensor by means of a digital algorithm, which serves as a backup for each other, ensuring no shutdown in the event of a fault, and further guaranteeing comfort.

### 1 Unit Backup

In a multi-unit system, the different units act as a backup to each other, ensuring that the system can continue to operate if one unit fails.



Intelligent load-bearing between units during normal operation

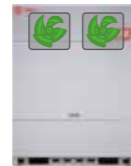


Continue operating in case of failure of one unit

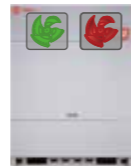
Operation compressor Failed compressor

### 2 Fan Backup

In unit with two fans, the two fans act as a backup to each other, ensuring that the system can continue to operate if one fan fails.



In normal operation, each fan runs on demand



Automatic backup operation of another fan in case of failure of one fan

Operation fan Failed fan

### 3 Compressor Backup

In unit with two compressors, the two compressors act as a backup to each other, ensuring that the system can continue to operate if one compressor fails.



Intelligent load-bearing between compressors during normal operation



Continue operating in case of failure of one compressor

### 4 Sensor Backup

New & Unique

Through digital algorithms, each physical sensor generates a corresponding virtual sensor that acts as a backup to each other, ensuring that the failure of one sensor does not affect the normal operation of the system.

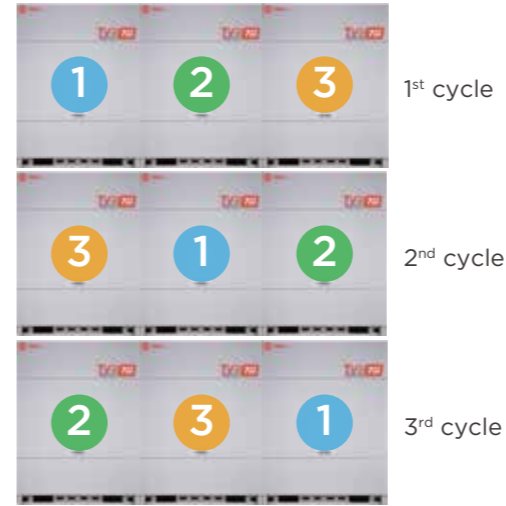


Automatic backup operation of the corresponding virtual sensor in case of failure of one physical sensor

## Double Duty Cycling

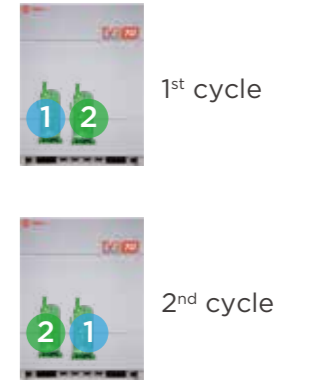
### 1 Unit Duty Cycling

In a multi-unit system, duty cycling equalizes the running time of each outdoor unit, significantly extending unit lifespan.



### 2 Compressor Duty Cycling

In units with two compressors, duty cycling equalizes the running time of each compressor, significantly extending compressor lifespan.



Compressor start-up sequence

Note: The duty cycling sequence shown in the figure is only a schematic reference. The actual duty cycling sequence is not a fixed sequence. Please refer to the technical manual for specific rotation rules.

## ShieldBox

IP55 fully enclosed electric control box provides all-round protection for internal electronic components, greatly improving system reliability.



Anti-corrosion



Dustproof



Rain & snow proof



Insect proof



## SenseMesh

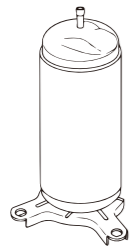
7G Cooling Series VRF uses up to 17 sensors for each outdoor unit and 4 sensors for each indoor unit. The operating status of the system refrigerant is clearly visible, which can achieve intelligent analysis of operation parameters, intelligent error diagnosis and forecasting, and visualized energy saving.



## Precise Oil Control

Four stages of oil control technology ensure all outdoor compressor oil is always kept at a safe level, eliminating any compressor oil shortage problems.

1



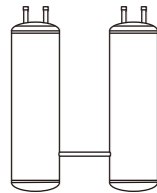
Compressor internal oil separation.

2



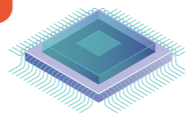
High-efficiency centrifugal oil separator (with separation efficiency of up to 99%) ensures that oil is separated from the discharge gas and returned to the compressors in a timely fashion.

3



Oil balance pipes between gas-liquid separator ensure even oil distribution to keep compressors running normally.

4



The automatic oil return program determines the oil return through the running time and the oil discharge amount, enabling precise oil return.

## Heavy Anti-corrosion Protection\*

Standard outdoor units are given anti-corrosion treatment for non-extreme conditions and can also be customized with heavy anti-corrosion treatment on main components for surface protection against corrosive air, acid rain and saline air (for installations in coastal regions) to extend overall useful life. The integrity of the anti-corrosion treatment is ensured by subjecting major components and parts to salt mist testing, moisture and heating testing and light aging testing.



\*Heavy anti-corrosion treatment is available as a customization option.

## UL Anti-Corrosion Certificate\*

It has been certified by UL that our VRF outdoor unit can withstand 27 years of simulated severe corrosion under a salt contaminated traffic environment.

\*UL anti-corrosion certificate is available for heavy anti-corrosion treatment units.

Outdoor Unit can resist 27 years of simulated severe corrosion under a salt contaminated traffic environment



## Auto Dust-clean Function

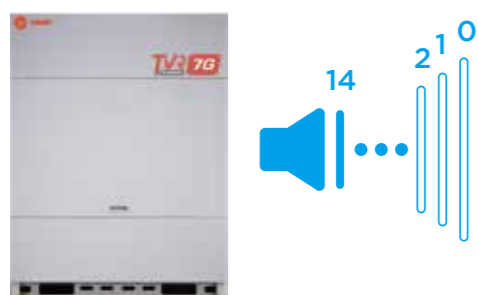
The innovatively designed dust-clean function enables the outdoor unit to prevent the dust by itself.



# Enhanced Comfort

## Advanced Silent Technology

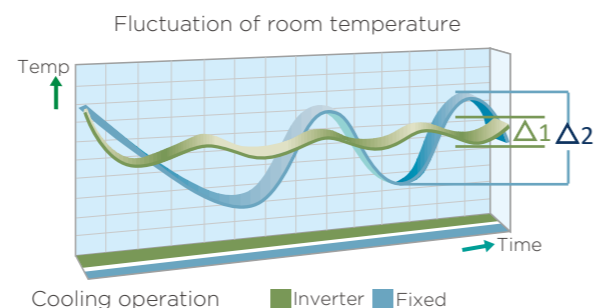
15-step silent mode provide more freedom and convenience to match the customer needs.



15 silent options

## Fast Cooling

Thanks to advanced full DC inverter technology, the system can quickly reach full load output, shorten cooling time, reduce temperature fluctuations, and create a more comfortable living environment.



# Wide Application Range

## Wide Capacity Range

The capacity of one 7G Cooling Series VRF system is from 8HP to 96HP with up to 3 units combined, perfectly suited for small to large buildings.



## Wide Operation Range

Thanks to the refrigerant cooling technology, the 7G Cooling Series VRF can operate stably in a temperature range as low as -15°C and as high as 55°C.





## Wide Range of Indoor Units

The 7G Cooling Series VRF offers 12 types of over 100 models of indoor units to meet different scenarios of applications such as offices, shopping malls, hotels, airports, schools, hospitals, etc.

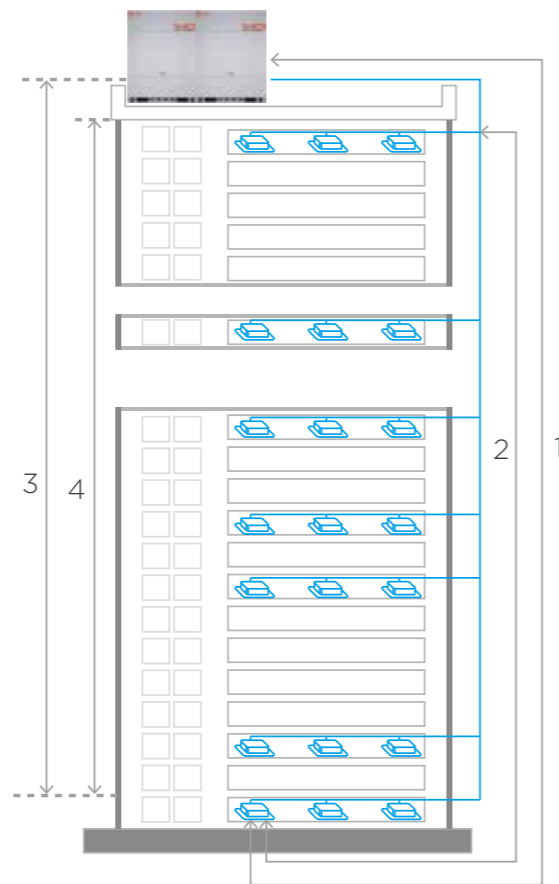


## Long Piping Capability

The 7G Cooling system can support a total piping length of up to 1100m, an installation height difference of up to 110m between indoor and outdoor units, and up to 40m between indoor units, making the 7G Cooling Series VRF adaptable to a wide range of building designs.

- Total piping length: **1100m**
- 1 Longest piping length - actual (equivalent): **220(260)m**
- 2 Longest piping length after first branch: **40/120\*m**
- 3 Level difference between IDUs and ODU - ODU above (below): **110(110)m**
- 4 Level difference between IDUs: **40m**

\*The longest length after first branch is 40m as a standard but can be extended to up to 120m under certain conditions. Please contact your local dealer for further information.



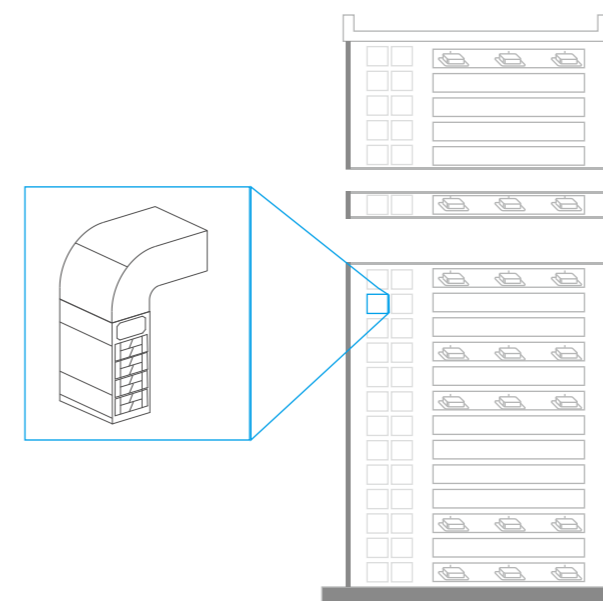
## Free Wiring

HyperLink communication technology supports any wiring pattern rather than just daisy chain connection, reducing the installation cost and the possibility of incorrect connection. It has stronger anti-interference ability, achieving a communication distance of up to 2000m.

## External Static Pressure up to 120Pa\*

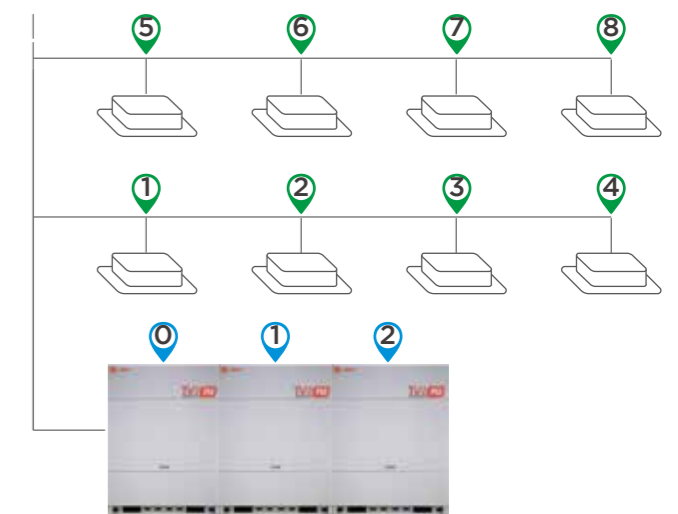
The static pressure of the outdoor unit can be up to 120Pa which facilitates installation of the unit on each floor of high-rise buildings or on balconies.

\*External static pressure above 20Pa is available as a customization option.



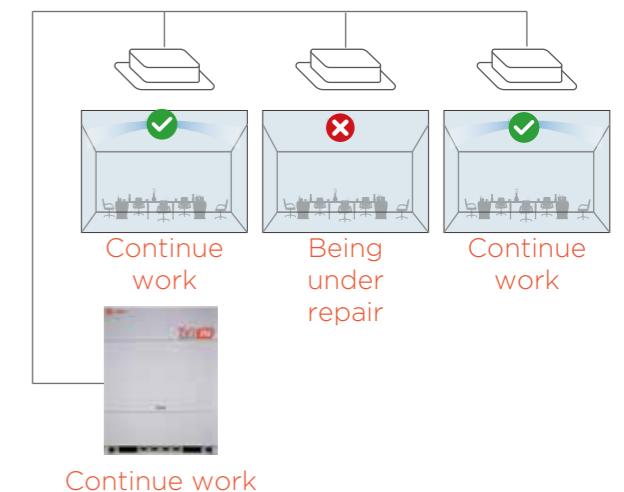
## Auto Addressing

Addresses for all indoor units and combined outdoor units can be assigned automatically by the 7G Cooling system, further simplifying installation.



## Maintenance Mode

The maintenance mode allows the shutdown of some indoor units without shutting down the whole VRF system, and it can be activated on site during the maintenance period as the remaining indoor units continue to operate.



## Automatic Refrigerant Charging\*

Compared to manual refrigerant charging, automatic refrigerant charging greatly simplifies the process, making installation and maintenance easier and more efficient.

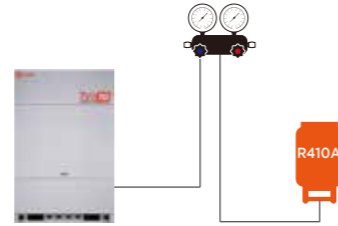
### Manual refrigerant charging

- 1 • Calculate additional refrigerant quantity
- 2 • Connect refrigerant tank to the outdoor unit & start the filling process
- 3 • Observe the weight scale to check the refrigerant charge
- 4 • Close the shut-off valve manually & finish the filling process

\*This function is available as a customization option.

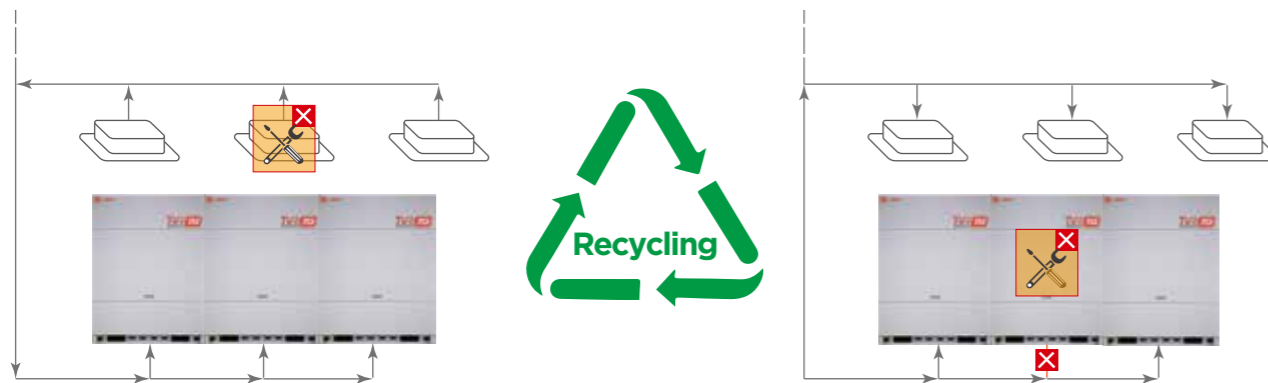
### Automatic refrigerant charging

- 1 • Connect refrigerant tank to the outdoor unit & activate automatic charging function
- 2 • Close the shut-off valve automatically & finish the filling process



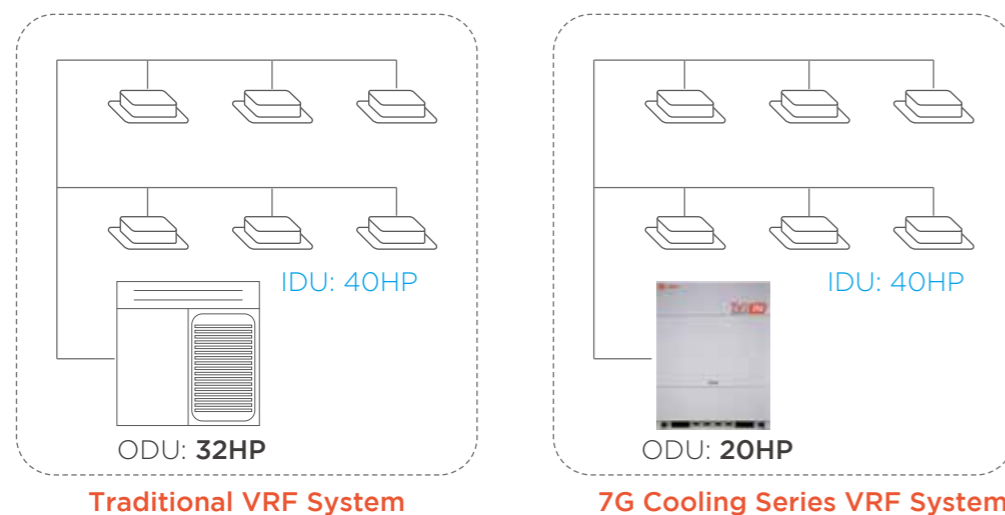
## Automatic Refrigerant Recycling

When an indoor unit fails, the refrigerant can be recycled into the outdoor units. When part of the outdoor unit fails, the refrigerant can be recycled into the indoor units and the normal outdoor unit. Two types of refrigerant recycling make the maintenance process easier and more efficient.



## Wide Combination Ratio\*

Compared to traditional VRF with combination ratio of 50-130%, the 7G Cooling Series VRF can be extended to 50-200%, and the wider combination ratio allows for more flexible system configuration. The larger combination ratio can be applied to long-term part-load operation scenarios, allowing for further reduction in installation costs.



\*Combination ratio over 130% is available as a customization option.

## Easy Software Program Upgrade

In addition to upgrading the program of outdoor and indoor units through USB and burner, the new product can also remotely upgrade all the programs of indoor and outdoor units through the data cloud gateway, making system upgrades very convenient and ensuring that the system program is always up to date.

\*The data cloud gateway needs to be purchased separately.

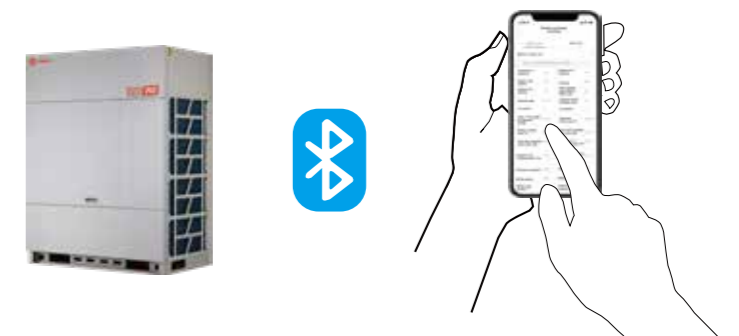


## Smart Commissioning/Maintenance Tool

With the newly developed smart tool (Bluetooth module and special Bluetooth after-sales kit), system settings, operating parameter queries, trial runs and programme upgrades are all possible without opening the cabinet.

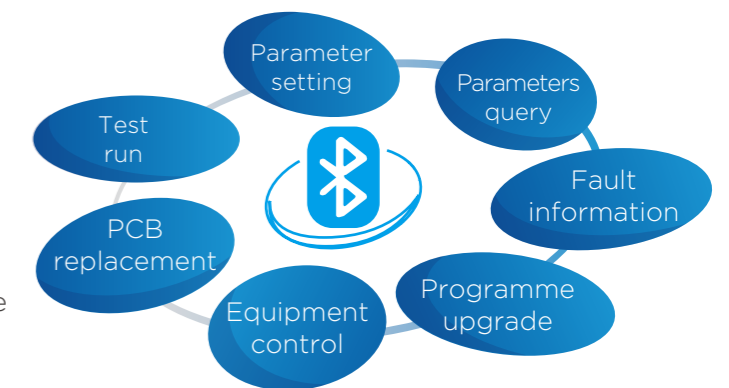
### Useful in the following situations:

- Installation
- Service maintenance



### Main functions:

- Fault information storage
- Operating parameters query
- Start commissioning test run
- System parameter setting
- Quick after-sales PCB replacement
- Equipment control
- Indoor and outdoor units programme upgrade





# Specifications



## Specifications

### 7G Series VRF

| HP                                      |                  |                   | 8                                      | 10                                     | 12                                     |
|---|------------------|-------------------|--|--|--|
| Model name                              |                  |                   | 4TVVT086DD07CAI                        | 4TVVT096DD07CAI                        | 4TVVT115DD07CAI                        |
| Power supply                            |                  |                   | V/N/Hz<br>380-415/3/50(60)             | 380-415/3/50(60)                       | 380-415/3/50(60)                       |
| Cooling <sup>1</sup>                    | Capacity         | kW                | 22.4                                   | 28.0                                   | 33.5                                   |
|   |                  | kBtu/h            | 76.4                                   | 95.5                                   | 114.2                                  |
|   | Power input      | kW                | 4.8                                    | 6.8                                    | 8.8                                    |
|   | EER              |                   | 4.65                                   | 4.14                                   | 3.81                                   |
| Connected indoor unit                   | Total capacity   |                   | 50-130% of outdoor unit capacity       | 50-130% of outdoor unit capacity       | 50-130% of outdoor unit capacity       |
|   | Maximum quantity |                   | 13                                     | 16                                     | 19                                     |
| Compressor                              | Type             |                   | DC scroll inverter                     | DC scroll inverter                     | DC scroll inverter                     |
|   | Quantity         |                   | 1                                      | 1                                      | 1                                      |
| Fan motor                               | Type             |                   | DC                                     | DC                                     | DC                                     |
|   | Quantity         |                   | 1                                      | 1                                      | 1                                      |
|   | Static pressure  | Pa                | 0-20 (standard)<br>20-120 (customized) | 0-20 (standard)<br>20-120 (customized) | 0-20 (standard)<br>20-120 (customized) |
|   | Airflow rate     | m <sup>3</sup> /h | 12600                                  | 12600                                  | 13500                                  |
| Refrigerant                             | Type             |                   | R410A                                  | R410A                                  | R410A                                  |
|   | Factory charge   | kg                | 7.4                                    | 7.4                                    | 7.4                                    |
| Pipe connections <sup>2</sup>           | Liquid pipe      | mm                | Φ12.7                                  | Φ12.7                                  | Φ12.7                                  |
|   | Gas pipe         | mm                | Φ25.4                                  | Φ25.4                                  | Φ25.4                                  |
| Sound pressure level <sup>3</sup>       |                  | dB(A)             | 57                                     | 58                                     | 60                                     |
| Net dimensions (W×H×D)                  |                  | mm                | 940×1760×825                           | 940×1760×825                           | 940×1760×825                           |
| Packed dimensions (W×H×D)               |                  | mm                | 1010×1945×890                          | 1010×1945×890                          | 1010×1945×890                          |
| Net weight                              |                  | kg                | 185                                    | 185                                    | 185                                    |
| Gross weight                            |                  | kg                | 200                                    | 200                                    | 200                                    |
| Ambient temp. operation range (cooling) |                  | °C                | -15 to 55                              | -15 to 55                              | -15 to 55                              |

| HP                                      |                  |                   | 14                                     | 16                                     | 18                                     |
|---|------------------|-------------------|--|--|--|
| Model name                              |                  |                   | 4TVVT140DD07CAI                        | 4TVVT155DD07CAI                        | 4TVVT172DD07CAI                        |
| Power supply                            |                  |                   | V/N/Hz<br>380-415/3/50(60)             | 380-415/3/50(60)                       | 380-415/3/50(60)                       |
| Cooling <sup>1</sup>                    | Capacity         | kW                | 40.0                                   | 45.0                                   | 50.0                                   |
|   |                  | kBtu/h            | 136.4                                  | 153.5                                  | 170.5                                  |
|   | Power input      | kW                | 9.7                                    | 12.3                                   | 13.4                                   |
|   | EER              |                   | 4.12                                   | 3.67                                   | 3.74                                   |
| Connected indoor unit                   | Total capacity   |                   | 50-130% of outdoor unit capacity       | 50-130% of outdoor unit capacity       | 50-130% of outdoor unit capacity       |
|   | Maximum quantity |                   | 23                                     | 26                                     | 29                                     |
| Compressor                              | Type             |                   | DC scroll inverter                     | DC scroll inverter                     | DC scroll inverter                     |
|   | Quantity         |                   | 1                                      | 1                                      | 1                                      |
| Fan motor                               | Type             |                   | DC                                     | DC                                     | DC                                     |
|   | Quantity         |                   | 1                                      | 1                                      | 1                                      |
|   | Static pressure  | Pa                | 0-20 (standard)<br>20-120 (customized) | 0-20 (standard)<br>20-120 (customized) | 0-20 (standard)<br>20-120 (customized) |
|   | Airflow rate     | m <sup>3</sup> /h | 13500                                  | 15600                                  | 15600                                  |
| Refrigerant                             | Type             |                   | R410A                                  | R410A                                  | R410A                                  |
|   | Factory charge   | kg                | 7.4                                    | 8.4                                    | 8.4                                    |
| Pipe connections <sup>2</sup>           | Liquid pipe      | mm                | Φ15.9                                  | Φ15.9                                  | Φ15.9                                  |
|   | Gas pipe         | mm                | Φ28.6                                  | Φ28.6                                  | Φ28.6                                  |
| Sound pressure level <sup>3</sup>       |                  | dB(A)             | 60                                     | 61                                     | 62                                     |
| Net dimensions (W×H×D)                  |                  | mm                | 940×1760×825                           | 940×1760×825                           | 940×1760×825                           |
| Packed dimensions (W×H×D)               |                  | mm                | 1010×1945×890                          | 1010×1945×890                          | 1010×1945×890                          |
| Net weight                              |                  | kg                | 185                                    | 200                                    | 200                                    |
| Gross weight                            |                  | kg                | 200                                    | 215                                    | 215                                    |
| Ambient temp. operation range (cooling) |                  | °C                | -15 to 55                              | -15 to 55                              | -15 to 55                              |

Notes:

- Indoor temperature 27°C DB, 19°C WB; outdoor temperature 35°C DB; equivalent refrigerant piping length 7.5m with zero level difference.
- Diameters given are those of the unit's stop valves.
- Sound pressure level is measured at a position 1m in front of the unit and 1.3m above the floor in a semi-anechoic chamber.

## Specifications

### 7G Series VRF

| HP                                      |                  |                   | 20                                     | 22                                     | 24                                     |
|---|------------------|-------------------|--|--|--|
| Model name                              |                  |                   | 4TVVT192DD07CAI                        | 4TVVT211DD07CAI                        | 4TVVT228DD07CAI                        |
| Power supply                            |                  |                   | V/N/Hz<br>380-415/3/50(60)             | 380-415/3/50(60)                       | 380-415/3/50(60)                       |
| Cooling <sup>1</sup>                    | Capacity         | kW                | 56.0                                   | 61.5                                   | 67.0                                   |
|   |                  | kBtu/h            | 191.0                                  | 209.7                                  | 228.5                                  |
|   | Power input      | kW                | 17.4                                   | 17.3                                   | 19.0                                   |
|   | EER              |                   | 3.21                                   | 3.55                                   | 3.52                                   |
| Connected indoor unit                   | Total capacity   |                   | 50-130% of outdoor unit capacity       | 50-130% of outdoor unit capacity       | 50-130% of outdoor unit capacity       |
|   | Maximum quantity |                   | 33                                     | 36                                     | 39                                     |
| Compressor                              | Type             |                   | DC scroll inverter                     | DC scroll inverter                     | DC scroll inverter                     |
|   | Quantity         |                   | 1                                      | 1                                      | 1                                      |
| Fan motor                               | Type             |                   | DC                                     | DC                                     | DC                                     |
|   | Quantity         |                   | 1                                      | 1                                      | 2                                      |
|   | Static pressure  | Pa                | 0-20 (standard)<br>20-120 (customized) | 0-20 (standard)<br>20-120 (customized) | 0-20 (standard)<br>20-120 (customized) |
|   | Airflow rate     | m <sup>3</sup> /h | 16500                                  | 16500                                  | 21500                                  |
| Refrigerant                             | Type             |                   | R410A                                  | R410A                                  | R410A                                  |
|   | Factory charge   | kg                | 10                                     | 10                                     | 12.8                                   |
| Pipe connections <sup>2</sup>           | Liquid pipe      | mm                | Φ15.9                                  | Φ19.1                                  | Φ19.1                                  |
|   | Gas pipe         | mm                | Φ28.6                                  | Φ31.8                                  | Φ31.8                                  |
| Sound pressure level <sup>3</sup>       |                  | dB(A)             | 63                                     | 63                                     | 64                                     |
| Net dimensions (W×H×D)                  |                  | mm                | 940×1760×825                           | 940×1760×825                           | 1340×1760×825                          |
| Packed dimensions (W×H×D)               |                  | mm                | 1010×1945×890                          | 1010×1945×890                          | 1410×1945×890                          |
| Net weight                              |                  | kg                | 225                                    | 225                                    | 260                                    |
| Gross weight                            |                  | kg                | 245                                    | 245                                    | 285                                    |
| Ambient temp. operation range (cooling) |                  | °C                | -15 to 55                              | -15 to 55                              | -15 to 55                              |

| HP                                      |                  |                   | 26                                     | 28                                     | 30                                     | 32                                     |
|---|------------------|-------------------|--|--|--|--|
| Model name                              |                  |                   | 4TVVT251DD07CAI                        | 4TVVT270DD07CAI                        | 4TVVT288DD07CAI                        | 4TVVT305DD07CAI                        |
| Power supply                            |                  |                   | V/N/Hz<br>380-415/3/50(60)             | 380-415/3/50(60)                       | 380-415/3/50(60)                       | 380-415/3/50(60)                       |
| Cooling <sup>1</sup>                    | Capacity         | kW                | 73.0                                   | 78.5                                   | 85.0                                   | 90.0                                   |
|   |                  | kBtu/h            | 248.9                                  | 267.7                                  | 289.9                                  | 306.9                                  |
|   | Power input      | kW                | 19.4                                   | 22.3                                   | 26.4                                   | 30.4                                   |
|   | EER              |                   | 3.76                                   | 3.52                                   | 3.22                                   | 2.96                                   |
| Connected indoor unit                   | Total capacity   |                   | 50-130% of outdoor unit capacity       | 50-130% of outdoor unit capacity       | 50-130% of outdoor unit capacity       | 50-130% of outdoor unit capacity       |
|   | Maximum quantity |                   | 43                                     | 46                                     | 50                                     | 53                                     |
| Compressor                              | Type             |                   | DC scroll inverter                     | DC scroll inverter                     | DC scroll inverter                     | DC scroll inverter                     |
|   | Quantity         |                   | 1                                      | 2                                      | 2                                      | 2                                      |
| Fan motor                               | Type             |                   | DC                                     | DC                                     | DC                                     | DC                                     |
|   | Quantity         |                   | 2                                      | 2                                      | 2                                      | 2                                      |
|   | Static pressure  | Pa                | 0-20 (standard)<br>20-120 (customized) | 0-20 (standard)<br>20-120 (customized) | 0-20 (standard)<br>20-120 (customized) | 0-20 (standard)<br>20-120 (customized) |
|   | Airflow rate     | m <sup>3</sup> /h | 21500                                  | 22000                                  | 22000                                  | 22000                                  |
| Refrigerant                             | Type             |                   | R410A                                  | R410A                                  | R410A                                  | R410A                                  |
|   | Factory charge   | kg                | 12.8                                   | 15.4                                   | 15.4                                   | 15.4                                   |
| Pipe connections <sup>2</sup>           | Liquid pipe      | mm                | Φ22.2                                  | Φ22.2                                  | Φ22.2                                  | Φ22.2                                  |
|   | Gas pipe         | mm                | Φ31.8                                  | Φ31.8                                  | Φ31.8                                  | Φ31.8                                  |
| Sound pressure level <sup>3</sup>       |                  | dB(A)             | 64                                     | 64                                     | 64                                     | 64                                     |
| Net dimensions (W×H×D)                  |                  | mm                | 1340×1760×825                          | 1340×1760×825                          | 1340×1760×825                          | 1340×1760×825                          |
| Packed dimensions (W×H×D)               |                  | mm                | 1410×1945×890                          | 1410×1945×890                          | 1410×1945×890                          | 1410×1945×890                          |
| Net weight                              |                  | kg                | 260                                    | 325                                    | 325                                    | 325                                    |
| Gross weight                            |                  | kg                | 285                                    | 350                                    | 350                                    | 350                                    |
| Ambient temp. operation range (cooling) |                  | °C                | -15 to 55                              | -15 to 55                              | -15 to 55                              | -15 to 55                              |

Notes:

- Indoor temperature 27°C DB, 19°C WB; outdoor temperature 35°C DB; equivalent refrigerant piping length 7.5m with zero level difference.
- Diameters given are those of the unit's stop valves.
- Sound pressure level is measured at a position 1m in front of the unit and 1.3m above the floor in a semi-anechoic chamber.