




# CXAU VFD Unit

Air-Cooled Modular Chiller/  
Heat Pump



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# CXAU VFD Unit

- CXAU0655BVSAEN (20TR) / CXAU1305BVSAEN (40TR)
- CXAU0656BVSAEN (20TR) / CXAU1306BVSAEN (40TR)
- CXAU0657BVSAEN (20TR) / CXAU1307BVSAEN (40TR)

According to AHRI Standard 550/590, entering water temperature is 54°F and leaving water temperature is 44°F, outdoor temperature is 95°F.

Three power supply : 380V/3Ph/50Hz, 380V/3Ph/60Hz and 460V/3Ph/60Hz

AquaCube 



IPLV  
6.18 

The unit meets ASHRAE 90.1-2022 for both full- and part-load efficiencies. Cooling IPLV reached 6.18, far exceeding the minimum efficiency requirements. Cooling and heating loads are well balanced in summer and winter, worry-free all year round.



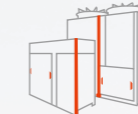
High-efficiency DC inverter scroll compressor. Optimized energy efficiency and high reliability.



Well-known brand variable frequency drive adopts high-power module and refrigerant cooling mode to ensure the efficient and stable operation of the unit.



Well-known brand high-efficiency stainless steel plate heat exchanger has low water-side pressure drop and high heat exchange performance.



Trane red iconic column stands out and looks bright and eye-catching. Embedded red handle, beautiful and elegant, easy maintenance.



Equipped with sheet metal panel to protect critical parts from exposure, extended dustproof and waterproof resistance and longer lasting reliability.



Precise leaving water temperature control, smaller water temperature fluctuation, more constant water temperature, yielding improved comfort for customers.



U-shaped fin coil, eight-sided heat exchange with air, outstanding performance; Louvered hydrophilic aluminum fins, high heat exchange efficiency, anti-oxidation and anti-corrosion.



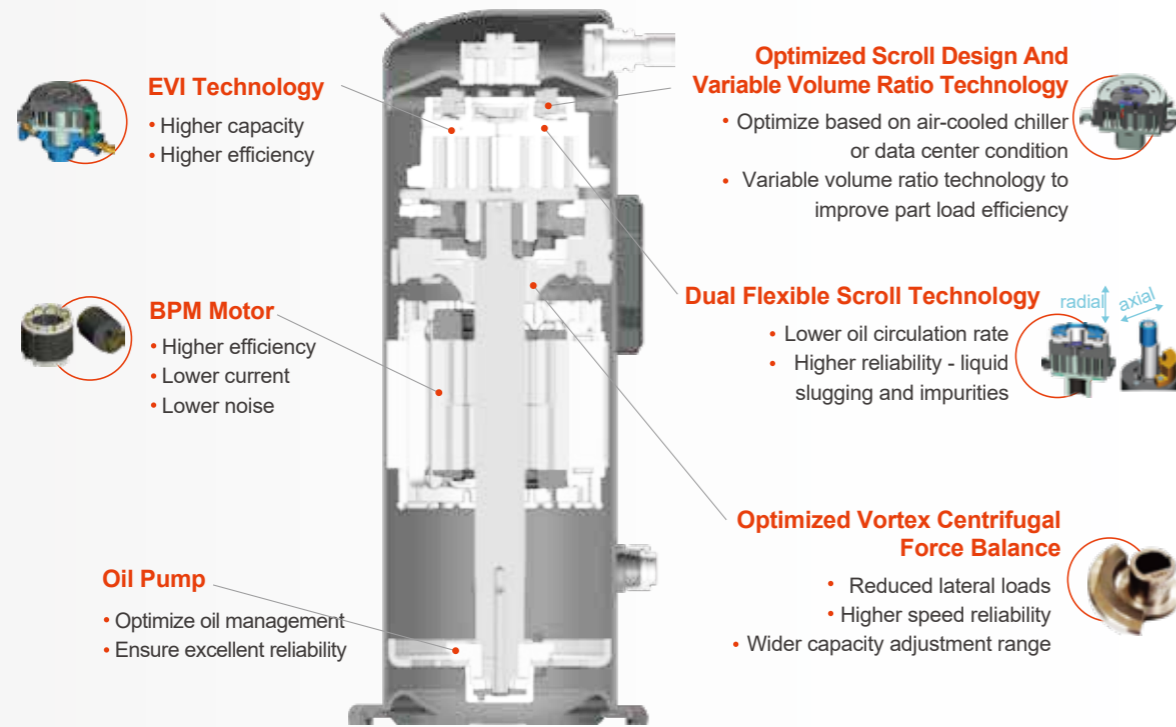
Stepless part-load adjustment between 15% and 100%, according to actual load on site, effectively reducing operating costs.



The unit can operate stably in heating mode at ambient temperature -30 to 48 °C and in cooling mode at -20 to 48°C. Easily cope with severe cold and heat, and meet the vast majority of comfort/process air conditioning applications.

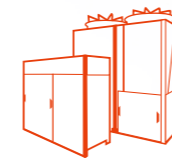
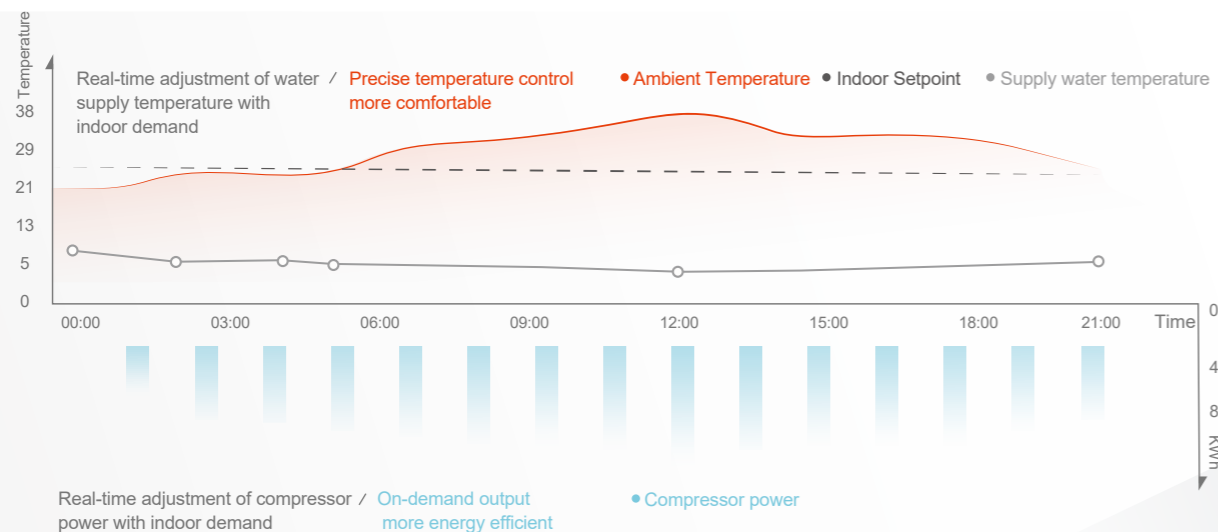
# High Efficiency / Energy Saving

## High efficiency DC inverter compressor



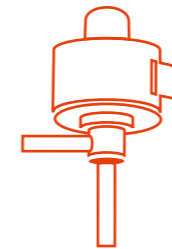
## Energy Saving Mode

The summer energy-saving mode of the Trane modular unit automatically increases the supply water temperature when the indoor temperature setpoint is reached, thus the operating frequency is reduced, the load is reduced, and the noise is reduced. Customers feel more comfortable, and the units are more energy-efficient.



## Dual Circuit Design

The 130 (40 TR) module adopts dual-circuit design. The refrigerant system and the air-side heat exchanger of each circuit operate independently. One circuit can be closed while the other continues to operate under part-load, thereby reducing energy consumption.



## EEV Precise Control

The 480 step high precision electronic expansion valve (EEV) is accurately adjusted and logically set according to different working conditions to ensure that the unit is always in the best operating state. EEV has the advantage of responding quickly and sensitively, thus the control is more precise.



## High Efficiency Fan Design

Large air volume and low noise axial flow fan with aerodynamic optimization, along with variable frequency drive, effectively reduce part-load energy consumption. Lower fan speed also means lower noise and more comfortable.



## High Efficiency Plate Heat Exchanger

The stainless steel plate heat exchanger with optimized design of cooling and heating performance has high heat exchanging efficiency. Meanwhile, very low water pressure drop can effectively reduce the power consumption of the pump.



## High Efficiency Fin Heat Exchanger

The U-shaped fin coil structure, with multi-angle air intake, can maximize air-side area and significantly improve the heat exchanging efficiency.

Separate left and right side air duct design ensure each circuit can run independently. This ensures stable water temperature even though one side is in defrosted mode.

Coil bottom is specially designed for superheat circuit protection to ensure completely defrosting in order to avoid ice climbing, which enable the unit to always run efficiently with sufficient heat exchanging.



## High Precision Stepless Energy Modulation

Trane variable frequency unit can implement 15-100% stepless load modulation according to the actual load requirements on site, while traditional constant-speed units can only achieve limited load modulating (2-4 levels). Low capacity output effectively reduce the operating cost under low load condition.



## Full Function · Convenient Operation

  
Schedule Management

  
Self-diagnosis



- CXAU uses a new 7-inch color touch screen, the interface is clear and easy to operate.
- The schedule management mode can set the unit to automatically turn on/off by week or day.
- Self-restart function after power recovery. Customers can choose to activate this function by their needs. In case of accidental power off failure, the system will automatically record the operating mode before power off and restore the original mode after power restoration.
- Remote control mode can remotely switch on/off the unit and switch cooling and heating mode through the host contact.
- Perfect self-diagnosis function, clear view of fault query to help maintenance quickly solve problems.
- All-day noise reduction mode or night noise reduction mode can be selected. The fan speed can be intelligently adjusted to create a comfortable and quiet environment.

## Combined Control · System Optimization



### Variable Water Flow Control

Equipped with control logic and control terminals of water system solenoid valve, which can be opened/closed with the start/ stop of the unit. Supporting the VFD water pump to achieve variable primary flow for energy saving.



### Real-time Variable Water Temperature Control

The water temperature setpoint can be changed without shutdown during unit operation.



### Terminal Linkage Control

Automatically start/stop the units based on on/off status of the terminals to achieve energy-saving.

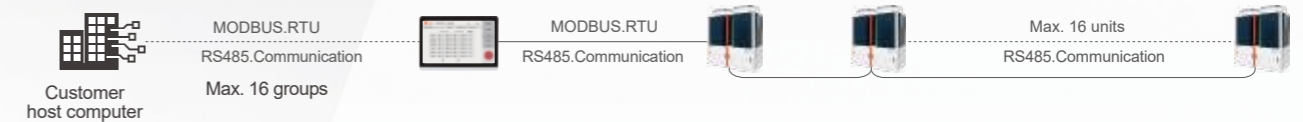


### Multi-unit Centralized Control

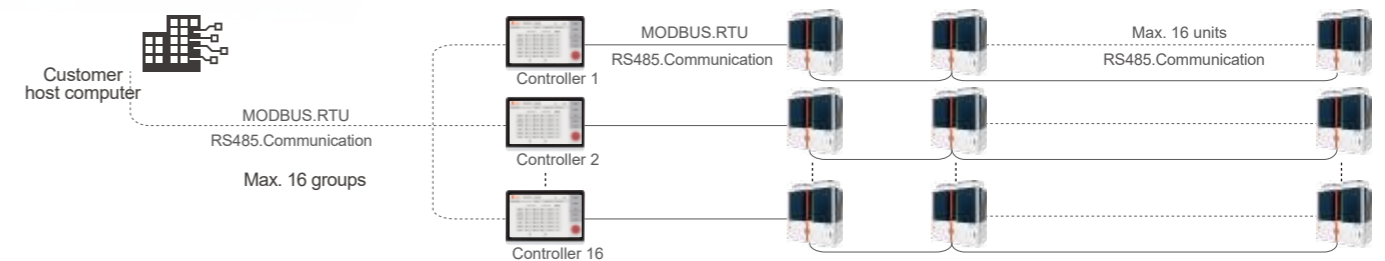
Built-in multi-stage start-up logic, where compressors and units startup one by one, effectively reducing the impact of the power grid.

## Intelligent Communication · System Centralized Control

- ZhenYue 7-inch color touch screen centralized controller supports up to 16 module units to meet the needs of centralized management of most projects;



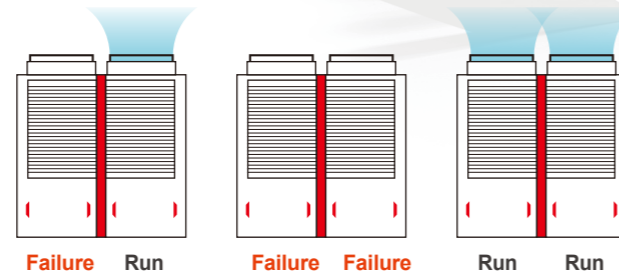
- With RS485 interface, standard open MODBUS protocol, easy access to building management system (BMS);
- When the host computer system is centrally controlled, it supports control of up to 16 groups with up to 256 units;



# Stable / Reliable

## Emergency Backup Operation

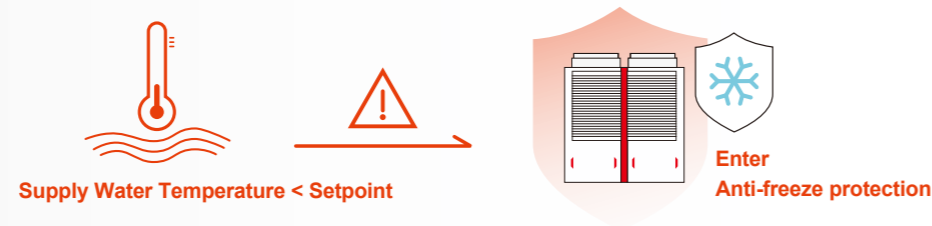
- For the model CXAU130-VS with dual-circuit design, when one circuit fails, the other circuit can continue to operate.
- When any of the modular units in centralized control fails or is repaired, the rest units can still operate, ensuring the continuous operation to the greatest extent.



## All-around Anti-freeze Protection

### Summer

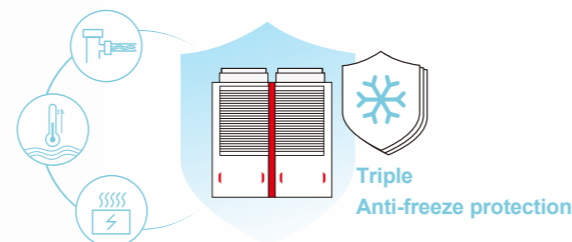
In cooling mode, when the supply water temperature is lower than setpoint, the unit will automatically enter anti-freeze protection to prevent BPHE from freezing.



### Winter

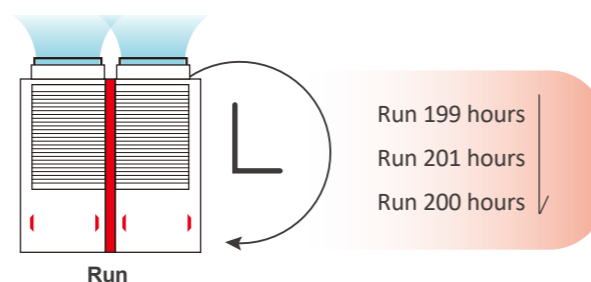
#### Triple automatic low temperature anti-freeze protection in winter

- When the water temperature is lower than setpoint, start the circulating pump, controlled by the host, to avoid the pipeline freezing.
- If the water temperature drops further, the unit will enter heating mode as the second protection, until the water temperature rises above the setpoint and then exit;
- Control signal for auxiliary heater is provided, configured by customers according to their needs. When the unit fails to turn on accidentally, the heater will be turned on to raise water temperature to the setpoint.



## Balanced Compressor operation

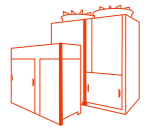
Real-time monitor, adjust and balance the running time of each module and compressor in the system intelligently, which effectively extend the service life of the unit and reduce the frequency of maintenance.



## Reliable Components

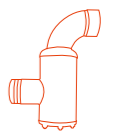
### Four-sided Sheet Metal Protection

Equipped with 4-side sheet metal panel as standard, the unit is not only beautiful and elegant, but also can protect important parts from direct exposure, greatly reducing the invasion of wind and rain, dust and even small animals.



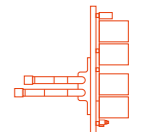
### Water Filter

CXAU065 uses Trane's patented drum-type water filter, more convenient to remove and wash, stronger dirt capacity than ordinary Y-type filters. The CXAU130 uses stainless steel water filter, more corrosion-resistant, more dirt capacity.



### Refrigerant Cooling Driver

Compared with the air-cooled driver, the refrigerant cooling can better reduce the driver temperature with higher reliability. Meanwhile, the compressor can be ensured with high-frequency operation in a larger range for higher cooling/heating capacity. The driver has a wider voltage range to ensure proper operation.



## Smart Defrosting Without Downtime

### Smart Defrost

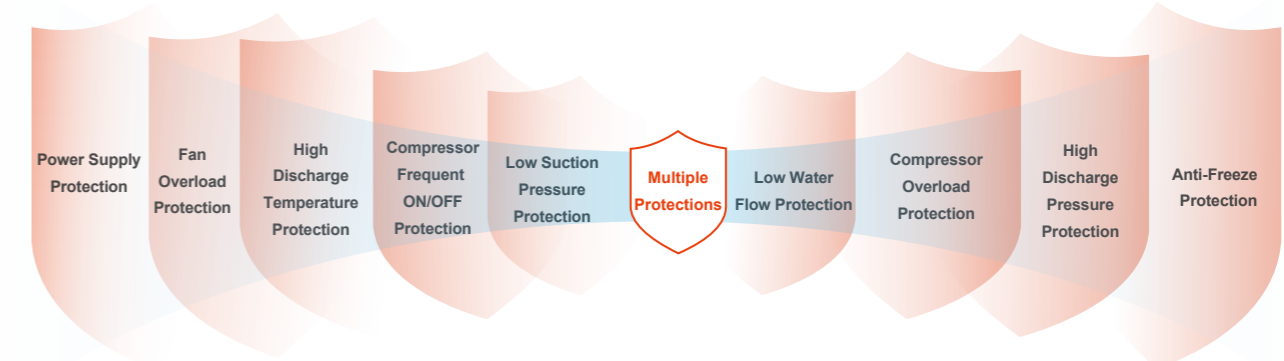
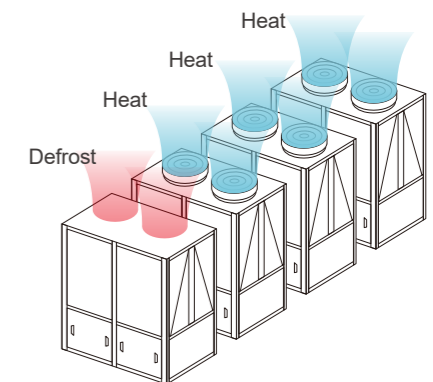
Trane's unique logic, intelligently judging defrosting entry and exit time according to the system operation, defrost uniform and clean and avoiding frequent defrosting.

### Manual Defrost

Manual defrosting function is also designed to perform the defrosting function in bad weather manually by customers to completely remove the frost layer and freezing.

### Defrosting in Heating Mode without Downtime

When multiple modules are combined, the defrosting sequence of each module will be automatically calculated and balanced, and some units can operate normally during defrosting of other units. For dual-circuit design models, when one circuit is defrosting, the other circuit can operate normally in heating mode, ensuring supply water temperature fluctuation small, and the heating capacity stable and efficient.



# CXAU-VS

## Variable Frequency Unit

### CXAU-VS Specification

| Model          |                            | CXAU065 | CXAU130                          | CXAU065  | CXAU130  |          |
|----------------|----------------------------|---------|----------------------------------|----------|----------|----------|
| Power          | Power Supply               | V/Ph/Hz | 380/3/50 , 380/3/60              |          | 460/3/60 |          |
|                | Capacity                   | kW      | 64.5                             | 129      | 64.5     | 129      |
| Cooling        | Input Power                | kW      | 21.3                             | 41.9     | 21.3     | 41.9     |
|                | Operating Current          | A       | 40                               | 82       | 33       | 68       |
|                | Capacity                   | kW      | 70                               | 145      | 70       | 145      |
| Heating        | Input Power                | kW      | 19.7                             | 38.5     | 19.7     | 38.5     |
|                | Operating Current          | A       | 41                               | 79       | 34       | 65       |
|                | Maximum Power              | kW      | 31                               | 56       | 31       | 56       |
| Max. Operating | Maximum Current            | A       | 65                               | 115      | 55       | 96       |
|                | Type                       | -       | R410A                            |          |          |          |
| Refrigerant    | Number of Circuits         | -       | 1                                | 2        | 1        | 2        |
|                | Charge Amount              | kg      | 13.5                             | 15.3x2   | 13.5     | 15.3x2   |
|                | Type                       | -       | EVI Inverter Scroll Compressor   |          |          |          |
| Compressor     | Quantity                   | pcs     | 1                                | 2        | 1        | 2        |
|                | Heat Exchanger Type        | -       | Braze Plate                      |          |          |          |
| Water side     | Rated Water Flow           | m3/h    | 9.7                              | 19.4     | 9.7      | 19.4     |
|                | Pressure Drop              | kPa     | 42                               | 33       | 42       | 33       |
|                | Pressure Drop(With Filter) | kPa     | 54                               | 38       | 54       | 38       |
|                | Connection                 | inch    | Rc 2                             | Rc 2-1/2 | Rc 2     | Rc 2-1/2 |
| Air side       | Fan Type                   | -       | Variable Speed Aisial Fan        |          |          |          |
|                | Fan Quantity               | pcs     | 2                                | 2        | 2        | 2        |
|                | Fan Airflow                | m3/h    | 12500×2                          | 23500×2  | 12500×2  | 23500×2  |
|                | Fan Power                  | kW      | 0.75×2                           | 1.8×2    | 0.75×2   | 1.8×2    |
| Unit           | Heat Exchanger Type        | -       | High Efficiency Round-tube & Fin |          |          |          |
|                | Cooling COP                | kW/kW   | 3.03                             | 3.08     | 3.03     | 3.08     |
|                | Heating COP                | kW/kW   | 3.55                             | 3.77     | 3.55     | 3.77     |
|                | IPLV                       | -       | 6.18                             | 6.03     | 6.18     | 6.03     |
|                | Sound                      | dB(A)   | 71                               | 71       | 71       | 71       |
|                | Net Weight                 | kg      | 395                              | 890      | 395      | 890      |
|                | Shipping Weight            | kg      | 400                              | 900      | 400      | 900      |
| Dimension      | Length                     | mm      | 1790                             | 2200     | 1790     | 2200     |
|                | Width                      | mm      | 840                              | 1150     | 840      | 1150     |
|                | Height                     | mm      | 1690                             | 2450     | 1690     | 2450     |

- Note:**
- Cooling Condition: Entering/leaving water temperature: 54/44 °F, Ambient Temperature: 95 °F in accordance with AHRI standard 550/590.
  - Heating Condition: Leaving water temperature: 113 °F, rated cooling water flow rate, Ambient dry/wet-bulb temperature : 44.6/42.8 °F.
  - Trane has a policy of continuous product data improvement and reserves the right to change specifications without notice.

The CXAU-VS variable frequency module unit has excellent performance; the unique energy-saving mode in summer, and the load is adjusted through frequency throughout the year, making the product more energy-efficient. Precise temperature and humidity control, bring a more comfortable environment, also suitable for clean industry and laboratory and other fields. The wide operating range enables worry-free use all year round.

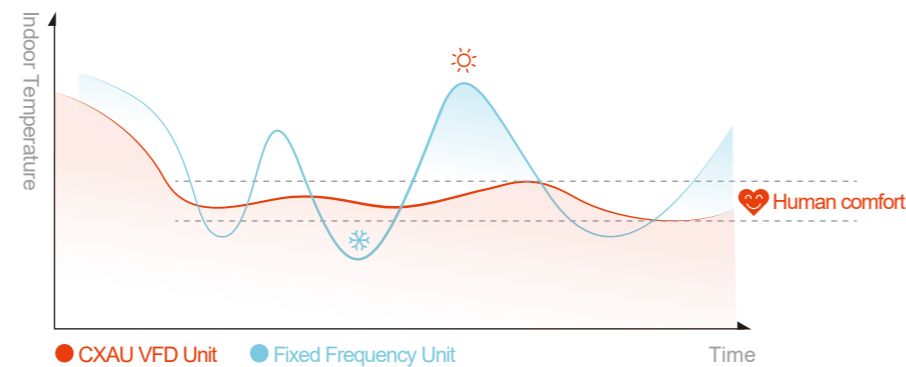
A  
B

### Excellent Energy Efficiency

Superior efficiency VS series products pay great attention to the optimization of energy efficiency. Both full- and part-load efficiencies(IPLV) are far exceeding the minimum efficiency requirements in accordance with ASHRAE 90.1-2022, which can meet the needs of high-end customers for excellent energy efficiency.

### Comfortable Temperature and Humidity

Compared with the fixed frequency unit, the CXAU VFD unit can automatically adjust the speed according to the load maintaining a more constant indoor temperature, and the customer will not feel the temperature fluctuation. When running at partial load, the unit automatically increases the supply water temperature to reduce the loss of moisture in the air and ensure comfortable body humidity.



The application of VFD technology brings higher indoor temperature control accuracy, small temperature fluctuations, and more comfortable human feelings.

### Wide Application

CXAU VFD units can meet not only regular cooling and heating needs, but also heating needs in low ambient temperature and cooling needs all year round. The ambient temperature range for cooling mode is -20~48 °C, which could meet the cooling needs in "furnace" cities and all year-round cooling needs in industrial area. The units adopting EVI (Enhanced Vapor Injection Technology) design improves heating performance by about 20% at low ambient temperature in winter, and extends the minimum operating ambient temperature from -15°C to -30°C, which can cope with extreme cold weather in some areas.

Unit Operating Range:  
 Cooling Ambient: -20~48 °C  
 Heating Ambient: -30~48 °C

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