

## FocusAir™ Series Precision Air Conditioner



## Data Center Inrow High-efficiency Precision Cooling Solution

# Kstar FocusAir™ Series Precision Air Conditioner, provides you with perfect solution.

- Kstar StationAir™ series precision air conditioner is elaborately designed for the specific cooling needs of the new generation of high heat density data center cabinet
- The design is close to heat source application. It adopts brand-new airflow distribution method and serves the data center with high reliability, high efficiency, energy saving, accurate measurability and flexibility
- It solves intractable problems in practice with technologies such as real-time monitoring, dynamic coordinated output, cabinet size design and no need for raised floor to ensure the uninterrupted, high-efficient and reliable operation of key equipment for 24 hours of 365 days





# FocusAir™ Series Precision Air Conditioner

## ◎ Accurate and Measurable Cooling

FocusAir™ series Inrow precision air conditioner directly deals with the hot air discharged from the server, shortens airflow path, prevents cold and hot air from mixing together, minimizes airflow loss and eliminates the uncertainty of airflow and cooling through the design of closeness to hot source. Through real-time monitoring on heat source load change and accurate adjustment of cooling capacity output and fan output, the cooling capacity and air volume can be accurate and predictable so that more targeted accurate cooling can be achieved and the problem of high-density heat dissipation of data center can be perfectly solved.



## ◎ Inrow Cooling Features

### ▼ More Reasonable and Accurate Air Distribution

FocusAir™ series can accurately predict airflow path, and the generated airflow is reasonably distributed in the inlet of front door of the cabinet so that cold airflow can be delivered to the desired place precisely; Moreover, the unit adopts EC stepless speed regulation DC fan and air volume automatically matches the load change of the server.

- Reasonable and accurate airflow control can minimize the loss of cooling capacity and make the planning of cooling system more reasonable
- Unique air distribution naturally achieves the containment effect of cold aisle



### ▼ Real-time Monitoring of the Heat Load

FocusAir™ series unit is compatible with multiple temperature sensors, monitoring the heat load change real-time, and directly control the supply air temperature (the inlet air temperature of servers), that is safe, reliable, and energy saving, making sure that the inlet air temperature of servers conform to the requirements and the equipment running in the best state.

### ▼ Flexibility and Compatibility of the Space Application

FocusAir™ series unit is compatible with main manufacturers' racks, suitable for concrete or raised floor room. Rack size modular frame, 4 air supply types, 3 cooling types. Flexible to expand as business grows.

### ▼ Dynamic Coordination Output

The IT equipments of data center run all year around, and the operation condition is constantly changing. The FocusAir refrigeration system works based on the change of the heat load, dynamic coordinates cooling capacity output and air volume output of the unit, realizes real-time matching with the load change to keep the unit running in the best condition.

### ▼ Precise Air Volume Control

FocusAir™ series units are standard with the EC fan that can rapidly response to the output requirements; the effect of energy saving in the part load mode is remarkable, up to 30% higher than the conventional AC fan.

### ▼ Stepless Speed Regulation Compressor

FocusAir™ series unit adopts DC variable frequency stepless speed regulation compressor, which can accurately control cooling capacity output by regulating the rotational speed of compressor, match the heat load change of heat source in real time, and achieve accurate cooling and high energy efficient operation.

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## ◎ Inrow Cooling Features

### ▼ Electronic Expansion Valve

The electronic expansion valve controlled by microcomputer can quickly and accurately control the refrigerant flow in the system with the change of cooling demand. It can always ensure the high reliability and high energy efficiency of air conditioner system and realize the improvement of unit start-up features, fast and stable working condition control and better refrigeration performance; Relying on the wide flow characteristics of electronic expansion valve, the air conditioner system can make full use of the lower external ambient temperature and save energy consumption up to 30%.



## ◎ Advanced Functional Design



### High Return Air Temperature Design

FocusAir™ series are designed in 100% sensible heat ratio with the high return air temperature and it makes the data center operating in the state of more energy saving.



### Multiple Sets of Temperature Sensor

Compatible with multiple sets of temperature sensor, real-time monitoring the heat load changes of the cabinet, accurate judging for refrigeration output.



### G4 Filtrating System

The G4 filter system of FocusAir™ series with the filter jamming switch is safe and reliable.



### Water Leaking Detection System

Equipped with the water leaking detection system can avoid the water leakage and make the system reliability.



### Monitoring

Communication monitoring can monitor the unit status, manage and control the data center in a better way.



### Rack Size Design, Compatible with the IT Environment

The compact design and compatibility conforming to different manufacturer make the FocusAir™ series unit suitable for different data centers.



### No Need Raised Floor

The unique style of the FocusAir™ series is the ideal choice for the data center without the raised floor.



### Humidifying/Heating System

It can deal with the temperature and humidity of the equipment room without the room level humidifying.



### Cold Aisle Containment Effect

Without adding additional air restraint accessory, the unique airflow design has realized the effect of Cold Aisle Containment.



### Avoiding the Water Leakage Trouble

Equipped with the condensing water pump, avoid the water leakage hidden trouble and make the system reliability.

## ◎ FocusAir™ Series Unit Configuration

### ▼Advanced Intelligent Controller

FocusAir™ series adopts powerful professional precision air conditioner intelligent control system to realize high-efficient, energy-saving, stable and reliable control of the unit with superior performance.

- Standard RS485 intelligent communication interface
- Graphical state display and temperature & humidity curve display
- Alarm notification and it can record more than 3000 alarm events
- Display and setting of environmental parameters
- Reminding of running time and maintenance of main components

- Optional external remote temperature & humidity sensor
- Optional water leakage detector
- Optional condenser pump

### ▼Multiple Sets of Temperature Sensors

They monitor regional environment in real time, and the fan is adjusted according to temperature requirements in real time; The rotational speed of compressor or chilled water valve opening is adjusted in real time according to temperature requirements.

### ▼Convenient Installation and Maintenance

- Maintenance can be carried out from the front and rear parts
- Pipeline can be connected from bottom and top.

### ▼Three Cooling Types

Three kinds of cooling systems are available  
(A air-cooled type, W water-cooled type and C chilled water type).

### ▼Four Kinds of Air Supply Modes

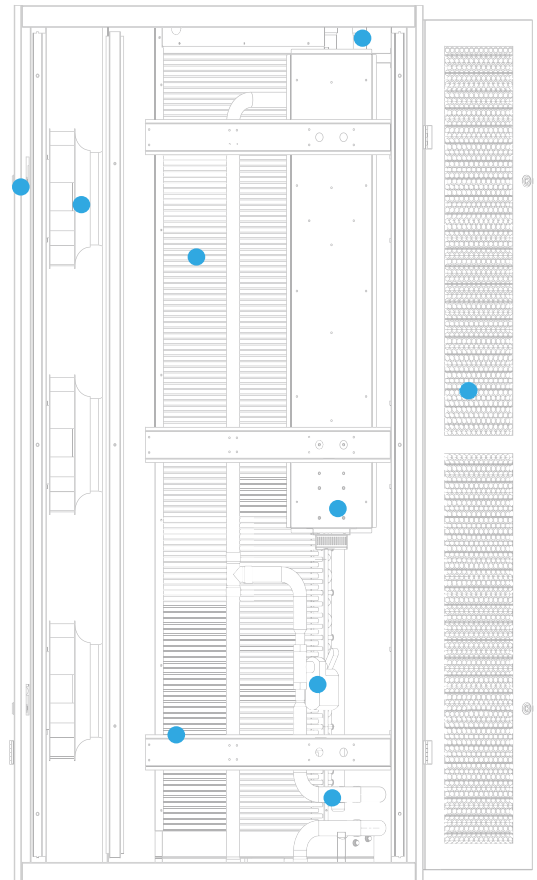
FocusAir™ series can provide four different air supply options, including bilateral air supply, air supply on the right side, air supply on the left side, and forward air supply.

### ▼Cooling Configuration of Compressor

- DC variable frequency compressor
- EC fan
- Electronic expansion valve
- Intelligent controller
- Air filter
- High-efficiency heat exchanger
- Optional humidifier
- Optional heater

### ▼Cooling Configuration of Chilled Water

- EC fan
- Intelligent controller
- Air filter
- High-efficiency heat exchanger
- Two-way valve (Optional three-way valve)
- Optional humidifier
- Optional heater



# FocusAir™ Series Precision Air Conditioner

## Technical Parameters

### ▼ DX Unit (Air-cooled Type)

FS***	Unit	007		012		007		012	
Compressor type		Fixed frequency				Frequency conversion			
The unit configuration	/	Constant temperature	Constant temperature and humidity	Constant temperature	Constant temperature and humidity	Constant temperature	Constant temperature and humidity	Constant temperature	Constant temperature and humidity
Total cooling capacity <sup>1)</sup>	kW	7.5	7.5	12.5	12.5	7.5	7.5	12.5	12.5
Sensible capacity <sup>1)</sup>	kW	7.5	7.5	12.5	12.5	7.5	7.5	12.5	12.5
Air volume	m³/ h	3400	3400	3600	3600	3400	3400	3600	3600
Sensible heat ratio	%	100	100	100	100	100	100	100	100
Heating capacity	kW	2	2	2	2	2	2	2	2
Humidification capacity (wet film humidification)	kg/h	-	2	-	2	-	2	-	2
Number of compressors	PCS	4	4	4	4	4	4	4	4
Humidification	/	/	Electrode humidifier	/	Wet-film humidifier	/	Electrode humidifier	/	Wet-film humidifier
Voltage	V	220±10%	380±10%	380±10%	380±10%	220±10%	380±10%	380±10%	380±10%
Frequency	Hz	50	50	50	50	50	50	50	50
Number of phase	p	1	3	3	3	1	3	3	3
Full load current	A	23.5	24.0	19.5	20.0	32.8	33.3	40.5	41.0
Unit weight	kg	208	210	223	225	208	210	223	225
Unit width	mm	300	300	300	300	300	300	300	300
Unit depth	mm	1200/1400	1200/1400	1200/1400	1200/1400	1200/1400	1200/1400	1200/1400	1200/1400
Unit height	mm	2000	2000	2000	2000	2000	2000	2000	2000

### ▼ DX Unit (Air-cooled Type)

FS***	Unit	025	025	030	030	040	050	060	070
Refrigerant Type	-	R410A							
Total cooling capacity <sup>1)</sup>	KW	25.5	25.5	30.5	30.5	42.8	52.0	65.0	70.0
Sensible capacity <sup>1)</sup>	KW	25.5	25.5	30.5	30.5	42.8	52.0	65.0	70.0
Air volume	m <sup>3</sup> /h	5050	7000	5050	8000	9500	11000	12500	14200
Heating capacity	kW	3.5	3.5	3.5	6.0	6.0	9.0	9.0	9.0
Humidification capacity (wet film humidification)	kg/h	2.5	2.5	2.5	3.5	3.5	3.5	3.5	3.5
Number of compressors	pcs	1	1	1	1	1	1	1	1
Number of fans	pcs	6	2	6	2	3	3	3	3
Voltage	V	380	380	380	380	380	380	380	380
Frequency	Hz	50	50	50	50	50	50	50	50
Full load current (Cooling only)	A	20.0	20.0	30.0	30.0	32.0	35.0	46.0	50.0
Full load current (Constant temperature and humidity)	A	30.0	30.0	36.5	36.5	38.5	46.0	55.0	60.0
Number of phase	p	3	3	3	3	3	3	3	3
Unit weight	kg	230	265	240	290	290	345	360	375
Unit width	mm	300	600	300	600	600	600	600	600
Unit depth	mm	1100/1200	1100/1200	1100/1200	1100/1200	1100/1200	1100/1200	1100/1200	1200
Unit height	mm	2000/2200	2000/2200	2000/2200	2000/2200	2000/2200	2000/2200	2000/2200	2000/2200

## ▼CW Unit (Chilled Water Type)

FS***	Unit	025	030	040	050	065
Total cooling capacity <sup>1)</sup>	kW	25.1	30.5	40.5	50.2	67.0
Sensible capacity <sup>2)</sup>	kW	25.1	30.5	40.5	50.2	67.0
Air volume	m <sup>3</sup> /h	5100	5500	9500	11000	12500
Water flow	m <sup>3</sup> /h	4.8	5.3	7.4	9.1	11.0
Water pressure drop	kPa	49	69	34	71	83
Heating capacity	kW	3	3	6	6	6
Humidification capacity (wet film humidification)	kg/h	1.5	1.5	3.0	3.0	3.0
Voltage	V	380	380	380	380	380
Frequency	Hz	50 / 60	50 / 60	50 / 60	50 / 60	50 / 60
Phase	P	3	3	3	3	3
Fan type	/	EC fan				
Full load current (Constant temperature and humidity)	A	7.2	7.2	12.1	13.9	13.9
Full load current (Cooling only)	A	2.8	2.8	4.9	6.7	6.7
Inlet and outlet pipe diameter	mm	G1	G1	G1-1/2	G1-1/2	G1-1/2
Unit weight	kg	192	196	209	226	235
Unit width	mm	300	300	600	600	600
Unit depth <sup>3)</sup>	mm	1100/1200	1100/1200	1100/1200	1100/1200	1100/1200
Unit height	mm	2000	2000	2000	2000	2000

## Notes:

1. Parameter table

1) Air/water cooled unit data is based on indoor return air temperature 37°C and 25%RH, outdoor ambient temperature 35°C;

2) Chilled water unit data is based on indoor return air temperature 37°C and 25%RH, chilled water in/out temperature 10°C/15°C.

2. Outdoor unit operation temperature range is -20°C~45°C, below -20°C, low temperature kit is required, above 45°C, please contact Kstar.

3. Shenzhen Kstar Science &amp; Technology Co., Ltd. reserves the right of final interpretation of the data without prior notice if the data in the table is changed due to technical progress of the product.