

## 1. Introduction

Deeray BS series new small and medium-sized machine air conditioners are specially designed for the environment of small and medium-sized data center racks, to provide a stable and reliable precision temperature and humidity environment.

Deeray BS series new air conditioners have the features of large air volume, small enthalpy difference, high sensible heat ratio, high energy efficiency and high reliability, which can provide uninterrupted operation with 24 hours \* 365 days a year for small and medium-sized data centers.

Deeray BS series new small and medium-sized air conditioners can be used in data center rooms, small and medium-sized data centers, transformer substations, storage rooms, test rooms, 4G/5G communication base stations, large screen equipment rooms, equipment rooms requires high accuracy control on temperature and humidity, and other places.

Deeray BS series air conditioner has a cooling capacity covering 6 - 20kW, which can be used as single cooling type, with heating type, with humidification type, constant temperature and humidity type, etc., to meet the demand for different environmental temperature and humidity control.

### Cooling capacity range:

5.8kW

7.6kW

12.6kW

17.5kW

20.2kW



**Product advantages:**

- It adopts the design of large air volume, small enthalpy difference and high sensible heat ratio. The sensible heat ratio is more than 90%, which meets the environmental requirements of high sensible heat in the data center room and provides a stable temperature and humidity environment.
- Equipped with world-famous branded high-energy compressor, continuous compression, no reciprocating parts, low failure rate.
- Equipped with electronic expansion valve, it can accurately adjust the cooling flow according to the cooling conditions, with fast adjustment speed and high precision.
- Equipped with EC fan, the EC fan can operate with speed adjustment according to the cooling condition, which can reduce the energy consumption of the fan while ensuring the control accuracy. In addition, EC fan can cooperate with electronic expansion valve in dehumidification condition, increase dehumidification capacity, reduce energy consumption waste caused by excessive compensation of electric heating due to low temperature during dehumidification, and save energy efficiently.
- The outdoor fan adopts speed regulation fan, which can operate according to the pressure of the refrigeration system, reduce the pressure fluctuation of the cooling system, improve the operation stability of the cooling system, and reduce the energy consumption of the whole machine.
- The control system has the function of group control, adopts the CAN bus with higher reliability, can be controlled 32 devices in a centralized manner, and has the functions of rotating standby, avoiding competitive operation, hot backup, fault backup, etc., so as to realize the overall energy saving of the equipment in the data center room.
- The cooling system adopts R410A refrigerant, which conforms to the modern environmental protection concept.

### **Energy efficiency:**

- All devices adopt world-famous brands components, and the design of devices and systems is stable. The equipment has been tested under laboratory limit conditions and operates reliably.
- Perfect alarm protection function, with:
  - ✓ Power protection
  - ✓ Water leakage protection
  - ✓ Temperature and humidity over limit alarm
  - ✓ Filter screen dirty and blocked alarm
  - ✓ System device protection
  - ✓ Other alarm protection
- Intelligent auto-starting function when power is on. When the power is cut and then called, the unit will start automatically, and after starting, it can operate according to the same parameters before shutdown. And the start-up time can be adjusted to avoid the impact on the power grid caused by the simultaneous start-up of multiple devices in the same room.
- Standard RS485 interface, free communication protocol, can be connected to the monitor system to realize remote monitoring.
- Low temperature components and long connecting pipe components can be selected to ensure the reliable operation of the unit under worse conditions.
- Electrode humidifier is adopted, which has the advantages of fast humidification speed and high humidity control precision.

### **Stable and reliable**

- The standard configuration is 4.3-inch color touch screen, which can display in real time:
  - ✓ Component operation status
  - ✓ Component running time
  - ✓ Air conditioning operation time
  - ✓ Real time alarm

- ✓ Alarm history
  - ✓ Temperature and humidity curve
  - ✓ Other display contents
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- The control system has multi-level password protection, and different personnel have different permissions to prevent irrelevant personnel from adjusting parameters.
  - Intelligent judgment can distinguish different levels of alarm information, and different alarm signals can be sent according to different levels of alarm.
  - It has group control functions such as shift and backup, and realizes the automatic switching operation between the host and the standby at the set time.
  - Standard RS485 monitoring interface is adopted, and standard RS485 protocol can be provided free of charge.
  - It can realize remote setting and monitoring of unit operation status and alarm information.
  - Equipped with semi-conductor PTC electric heater, with positive temperature coefficient characteristics, to avoid the surface redness caused by other electric heaters, and equipped with safety protection function, the operation is safer.

### **Intelligent control**

- Standard threaded quick connector, quick installation on site without welding.
- Define the best air supply mode according to the site conditions.
- Select auxiliary heating or humidification function configuration according to environmental request.

## Technical Specification

<b>Model No.</b>	<b>DY-CBS006FRH</b>
Input power	220Vac/1Ph/50Hz
<b>Performance parameter</b>	
Refrigerating capacity (KW)	5.8
Sensible cooling capacity (KW)	5.2
<b>Compressor parameters</b>	
Refrigerant form	R410A
Number of compressors	1
<b>Fan parameters</b>	
Fan type	DC EC centrifugal fan
Number of fans	1
Air volume (m3/h)	1900
External residual pressure (Pa)	The standard residual pressure is 20Pa, 0-400pa adjustable
<b>Electric heating parameters</b>	
Electric heating form	PTC electric heater
Electric heating capacity (kW)	3
<b>Electrode humidification parameters</b>	
Humidification form	Electrode humidifier
Maximum humidification amount (kg/h)	3
Throttling form	Electronic expansion valve
Air filter screen	G4 plate filter screen
<b>Connecting pipe of unit</b>	
Humidifier drain pipe (in)	G 1/2
Condensate drain pipe $\phi$ (mm)	19
Refrigerant gas pipe $\phi$ (mm)	12.7
Refrigerant liquid pipe $\phi$ (mm)	9.52
<b>Internal machine dimension -Width*Depth*Height (mm)</b>	
Dimension	600*510*1900
Weight (kg)	110
<b>External machine</b>	
Model No.	DY-CY0081

<b>Model No.</b>	<b>DY-CBS008FRH</b>
Input power	380Vac/3Ph/50Hz
<b>Performance parameter</b>	
Refrigerating capacity (KW)	7.6
Sensible cooling capacity (KW)	6.9
<b>Compressor parameters</b>	
Refrigerant form	R410A
Number of compressors	1
<b>Fan parameters</b>	
Fan type	DC EC centrifugal fan
Number of fans	1
Air volume (m3/h)	2400
External residual pressure (Pa)	The standard residual pressure is 20Pa, 0-400pa adjustable
<b>Electric heating parameters</b>	
Electric heating form	PTC electric heater
Electric heating capacity (kW)	3
<b>Electrode humidification parameters</b>	
Humidification form	Electrode humidifier
Maximum humidification amount (kg/h)	3
Throttling form	Electronic expansion valve
Air filter screen	G4 plate filter screen
<b>Connecting pipe of unit</b>	
Humidifier drain pipe (in)	G 1/2
Condensate drain pipe $\phi$ (mm)	19
Refrigerant gas pipe $\phi$ (mm)	12.7
Refrigerant liquid pipe $\phi$ (mm)	9.52
<b>Internal machine dimension -Width*Depth*Height (mm)</b>	
Dimension	600*580*1900
Weight (kg)	116
<b>External machine</b>	
Model No.	DY-CY0121

<b>Model No.</b>	<b>DY-CBS013FRH</b>
Input power	380Vac/3Ph/50Hz
<b>Performance parameter</b>	
Refrigerating capacity (KW)	12.6
Sensible cooling capacity (KW)	11.3
<b>Compressor parameters</b>	
Refrigerant form	R410A
Number of compressors	1
<b>Fan parameters</b>	
Fan type	DC EC centrifugal fan
Number of fans	1
Air volume (m3/h)	3800
External residual pressure (Pa)	The standard residual pressure is 20Pa, 0-400pa adjustable
<b>Electric heating parameters</b>	
Electric heating form	PTC electric heater
Electric heating capacity (kW)	3
<b>Electrode humidification parameters</b>	
Humidification form	Electrode humidifier
Maximum humidification amount (kg/h)	3
Throttling form	Electronic expansion valve
Air filter screen	G4 plate filter screen
<b>Connecting pipe of unit</b>	
Humidifier drain pipe (in)	G 1/2
Condensate drain pipe $\phi$ (mm)	19
Refrigerant gas pipe $\phi$ (mm)	15.88
Refrigerant liquid pipe $\phi$ (mm)	9.52
<b>Internal machine dimension -Width*Depth*Height (mm)</b>	
Dimension	600*580*1900
Weight (kg)	135
<b>External machine</b>	
Model No.	DY-CY0191

<b>Model No.</b>	<b>DY-CBS017FRH</b>
Input power	380Vac/3Ph/50Hz
<b>Performance parameter</b>	
Refrigerating capacity (KW)	17.5
Sensible cooling capacity (KW)	15.7
<b>Compressor parameters</b>	
Refrigerant form	R410A
Number of compressors	1
<b>Fan parameters</b>	
Fan type	DC EC centrifugal fan
Number of fans	1
Air volume (m3/h)	5300
External residual pressure (Pa)	The standard residual pressure is 20Pa, 0-400pa adjustable
<b>Electric heating parameters</b>	
Electric heating form	PTC electric heater
Electric heating capacity (kW)	4
<b>Electrode humidification parameters</b>	
Humidification form	Electrode humidifier
Maximum humidification amount (kg/h)	3
Throttling form	Electronic expansion valve
Air filter screen	G4 plate filter screen
<b>Connecting pipe of unit</b>	
Humidifier drain pipe (in)	G 1/2
Condensate drain pipe $\phi$ (mm)	19
Refrigerant gas pipe $\phi$ (mm)	15.88
Refrigerant liquid pipe $\phi$ (mm)	9.52
<b>Internal machine dimension -Width*Depth*Height (mm)</b>	
Dimension	750*660*1900
Weight (kg)	162
<b>External machine</b>	
Model No.	DY-CY0241



<b>Model No.</b>	<b>DY-CBS020FRH</b>
Input power	380Vac/3Ph/50Hz
<b>Performance parameter</b>	
Refrigerating capacity (KW)	20.2
Sensible cooling capacity (KW)	18.2
<b>Compressor parameters</b>	
Refrigerant form	R410A
Number of compressors	1
<b>Fan parameters</b>	
Fan type	DC EC centrifugal fan
Number of fans	1
Air volume (m3/h)	5700
External residual pressure (Pa)	The standard residual pressure is 20Pa, 0-400pa adjustable
<b>Electric heating parameters</b>	
Electric heating form	PTC electric heater
Electric heating capacity (kW)	4
<b>Electrode humidification parameters</b>	
Humidification form	Electrode humidifier
Maximum humidification amount (kg/h)	3
Throttling form	Electronic expansion valve
Air filter screen	G4 plate filter screen
<b>Connecting pipe of unit</b>	
Humidifier drain pipe (in)	G 1/2
Condensate drain pipe $\phi$ (mm)	19
Refrigerant gas pipe $\phi$ (mm)	19.05
Refrigerant liquid pipe $\phi$ (mm)	12.7
<b>Internal machine dimension -Width*Depth*Height (mm)</b>	
Dimension	750*660*1900
Weight (kg)	166
<b>External machine</b>	
Model No.	DY-CY0291

