CABINET AIR CONDITIONER

1. Product introduction:

The cabinet air conditioner realizes heat absorption and cooling through compression refrigeration, and transfers the heat emitted to the outside of the cabinet by the equipment in the sealed environment of the cabinet.

The high temperature, dust and other dirty gases outside the cabinet will not enter the inside of the cabinet, thus solving a series of problems caused by fan heat dissipation.

The inside of the cabinet can always be maintained at an ideal temperature environment of about 30°C, which effectively guarantees the stability of the electronic equipment. (figure 1)

Features:

1. It is widely used in outdoor communication cabinets, battery cabinets, electrical cabinets, industrial control cabinets and other occasions that require heat dissipation.

2. The internal and external circulation IP55 protection grade, dustproof and waterproof, can be installed indoors and outdoors.

3. This system is suitable for high/low temperature 55℃/-5℃ working conditions.

4. Digital temperature controller with high control accuracy.

electrical cabinet
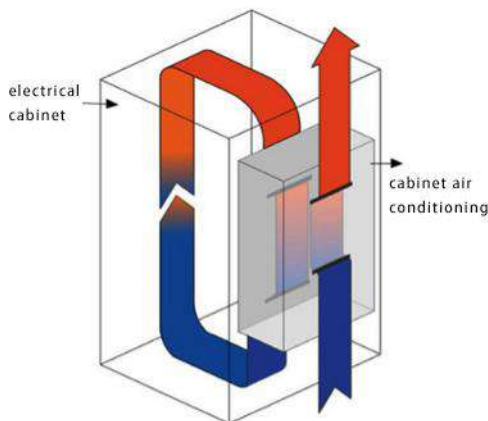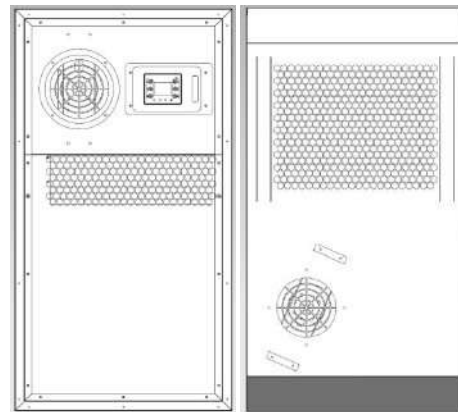
cabinet air conditioning

Figure 1

Figure 2   Figure 3

2. Air conditioner structure (side-mounted air conditioners cannot be fenced, door-mounted air conditioners can be fenced)

The front of the air conditioner (indoor circulation), as shown in Figure 2:

The reverse side of the air conditioner (outdoor side circulation), as shown in Figure 3:

CABINET AIR CONDITIONER

This cabinet air conditioner is a temperature control solution designed for telecommunications indoor and outdoor cabinets

Suitable for various challenging indoor and outdoor environments. The air duct is short and the air is evenly discharged, which can effectively solve the heating problem of the cabinet. It is the first choice for applications in the communications industry.

Application field

Communication cabinet

Power cabinet

Battery grade silicon

Shelter and base station

Product advantages

University environmental protection

Adopt high-efficiency energy-saving fans and high-efficiency compressors,

Extend the service life of air conditioners and reduce power consumption.

Easy to install and operate

Compact all-in-one machine, plug and play, easy to install

The flange design facilitates various installation methods.

The closed refrigeration cycle protects the equipment from harsh environments.

Spray metal sheet metal to prevent rust and corrosion.

intelligent control

Multi-function warning output, implement system monitoring

Convenient and quick man-machine interface, simple operation

Control the external fan, used to remove hydrogen or emergency ventilation.

Product parameter

Input power: 220V-60Hz

Protection level: IP55

Operating temperature range: -40 degrees 55 degrees

Communication interface: RS485

Alarm output: dry contact

Model	Capacity (W)	Power Input (W)	Width (mm)	Thickness (mm)	(mm)	Noise Level (dB(A))	Weight (kg)	Freon	Protection
JGK-800	800	400	409	190	800	48	18	R134a	IP55
JGK-1000	1000	500	409	190	800	50	19	R134a	IP55
JGK-1200	1200	580	460	190	860	52	22	R134a	IP55
JGK-1500	1500	680	460	190	860	58	25	R134a	IP55
JGK-2500	2500	1160	540	260	1275	62	42	R134a	IP55
JGK-3500	3500	1620	540	260	1275	65	48	R134a	IP55
JGK-4500	4500	2080	660	400	1600	69	72	R134a	IP55

Remarks: cooling capacity test conditions indoor temperature 35 degrees, outdoor temperature 35 degrees

Noise test conditions: 1.5 meters outside the machine, 1.2 meters high.

SCOPE OF APPLICATION

COMMUNICATION INDUSTRY ▶

◀ ELECTRIC POWER INDUSTRY

EQUIPMENT INDUSTRY ▶

4. Selection method of cabinet air conditioner

The formula is as follows:

$Q_t = (Q_i + Q_r) * 1.2$

Q_t = Total heat generated by the cabinet (unit: W)

Q_i = Total heat generated in the cabinet (unit: W)

Q_r = The heat transferred from outside the cabinet to the inside of the cabinet (unit: W)

The calculation basis for the heat generation of the components in the cabinet is: (related to the installed components)

1) In verter, transformer, drive servo amplifier, etc. calorific value: rated power 1KW, about 30~50W calorific value (depending on the load status: divided into fan pump load and mechanical load)

2) The heating value of PLC is about 35W~50W (take the group as the calculation unit); the heating value of the industrial computer is calculated according to the size of the industrial computer, generally about 300W/unit

3) The calorific value of contactors and other components: the rated power of 1KW is about 5-20W, which is basically negligible compared with high-power heating devices.

4) Common server heat: about 280-500W; UPS heat: 20% of power

5) The heating of the thyristor is: 2W/A; the DC drive is 7-10W

$Q_r = k * A * \Delta T$ k: heat transfer coefficient

1) k=5.5W/m².K steel material cabinet

2) k=12W/m².K magnesium aluminum alloy cabinet

3) k=0.2W/m².K plastic material cabinet

A: Surface area of   the cabinet (unit: m²)

$\Delta T = T_1 - T_2$(℃)

T1: Maximum temperature outside the cabinet T2: Control temperature inside the cabinet

Example: The overall dimensions of a cabinet made of steel materials are: length*height*thickness=1500*2000*800mm

The heating components inside the cabinet generate 1000W of heat, the control temperature inside the cabinet is 28°C, and the temperature outside the cabinet is 35°C.

Solution: The surface area of   the cabinet is: A=1.5*2*2+0.8*2*2+1.5*0.8=10.4m²

The heat transferred from the cabinet to the cabinet: $Q_r = k * A * \Delta T = 5.5 * 10.4 * (35-28) = 400.4W$

The total heat generated by the cabinet $Q_t = (Q_i + Q_r) * 1.2 = (1000+1400) * 1.2 = 1680.48W$

Therefore, a cabinet air conditioner with a cooling capacity of 2000W can be selected.