

Energy Saving Products Company - Energy-saving Products



ESE-ZYKT Central Air Conditioner Energy Saving System

About the Product:

Central air conditioner is widely used in large shopping malls, supermarkets, offices, hotels and factories. Throughout the year and within one day, there are great temperature differences in the morning; noon and night, which require different cooling capacity and thus cause huge waste. With the development of science and technology, the current central air conditioner hosts have automatic adjustment functions, which can adjust power output in accordance with the temperature changes of the outside world. The circulatory system is still working on the method of adjusting pump; the issue of huge flow of small temperature difference has not yet been completely resolved. ESE-ZYKT Intelligent Central Air Conditioner Energy Saving System is composed by the acquisition of temperature parameters of input and output of the water. It can adjust the amounts of the circulatory system and wind systems throughout the operation to keep the whole system in the best condition. Its energy-saving rate is 20% to 50%.

Energy saving theory

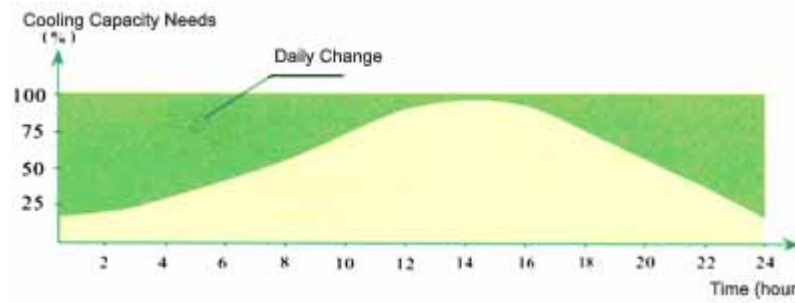
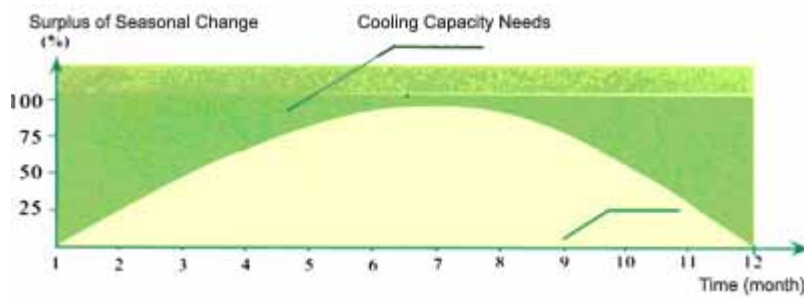
If you want to save energy there must have energy-saving space. Central air conditioner energy saving space exists mainly in three areas:

1. design space

Generally, central air conditioner is designed with the largest heat and reserves 10 . 20% energy for the equipment selection.

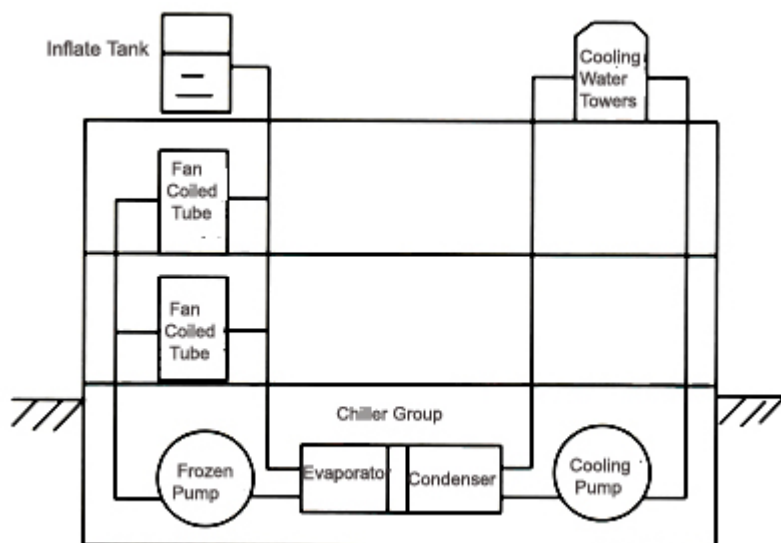
2. seasonal spaces

3. daily time difference space



Because of these three energy-saving spaces, the central air conditioner system only operate under high load condition during a very short period in one year and it can work with reduced power for most of the time. Because the central air conditioner system is not equipped with the capability to track the load and adjust power automatically, it is operated in the “the big horse pulls a small cart” state, which has low efficiency and wastes considerable electric power. It can be said that at least 20% of your monthly payment for the central air conditioner can be saved.

The structure and working principles of the central air conditioner It is mainly composed of the refrigerator, cooling water circulation system, freezing water circulation system, fan coil system engineering and cooling towers. Please refer to the following chart:



The refrigerator compresses the refrigerant into liquid by the compressor and then sends it into the evaporator to exchange heat with the freezing water. Refrigerator will cool the freezing water, which will be sent into the fan coil tube by the water pump. Then the fan will blow the cool wind to achieve the purpose of cooling. After the evaporation, the refrigerant will release its heat in the condenser and exchange with the cool circulation water. The cooling pumps will bring the heat of cooling water to cooling towers, in which, the fan will spray cool water to cool the heat and exchange with the air. Finally, the heat is sent to the air.

In the system, frozen pump and cooling pump make use of the temperature difference of the water output as the chief control value to automatically adjust the rotary speed of the motor in accordance with the water output speed. It also provides RS232/RS485 serial interfaces to network the central control chamber and realize centralized monitor, which will inform the maintenance personnel of the working state of the system.

Technical Parameters

- rated input voltage: three-phase 380VAC , 50Hz
- allowed working scope of the voltage: $380V \pm 15\%$
- allowed voltage fluctuations: $380V \pm 15\%$ frequency: $50Hz \pm 5\%$
- output voltage: 0~380V
- overload capability: 5.5KW~132KW: 120% rated current 1 minute
- 160KW and above: 110% rated current 1 minute
- 150% rated current 1s
- terms of use: indoor; not exposed to the sun light; no corrosion gas, flammable gas, oil mist or steam.
- altitude: lower than 1000m
- environmental temperature: $-10 \sim +40$ (please reduce use frequency at the temperature of $40 \sim 50$) .
- temperature: 20~90%RH (without dew)
- protection rank: IP20~IP44
- control mode: automatic, manual remote control
- cooling: forced wind cooling, fan control, water cooling on explosive occasions

System Characteristic

- Frequency output with variable torque converter
- closed-loop control, open-loop control as well as the PLC time control
- Closed-loop control can be adjusted by the temperature PID or temperature difference PID regulator
- soft start and stop function of the motor, adjustable start and stop time
- The first time you start running at full speed function to shorten the start-up time can be operated manually or automatically.
- The bypass circuits of the system can be reset, which can be switched to the

urban electricity if the energy-saving system is under failure maintenance or repair.

- It possesses such protection functions as: over-voltage, over-current, voltage-shortage, ground, short circuit, overload, over-heat, outside alarm as well as main components protections.

- It can adapt to various functions, such as, cooling water pump, freezing water pumps, blowers of the central air-conditioner as well as applies to heat pumps without any structural change. Structure Feature (identical with the FP Model)