

## What is the difference between forward tilt and backward tilt in a centrifugal fan?

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Centrifugal fans can be divided into forward centrifugal fans and backward centrifugal fans. Different structures determine different performance and applications.



### Composition and application of forward inclined centrifugal fan:

This series of fan is composed of an external rotor motor, a plastic or metal forward curved impeller, and a plastic or metal spiral case. It has the characteristics of compact structure, small volume, light weight, convenient installation and use, etc.

Application: It is suitable for forced ventilation of automatic control devices, electronic equipment, and indoor pipe dedusting, exhaust, heat removal, environmental protection, air purification and pollution control.



### **Composition and application of backward inclined centrifugal fan:**

The fan is composed of an external rotor asynchronous motor, plastic/aluminum impeller, etc. The low temperature rise of the motor has the advantage of ventilation, heat dissipation and self cooling. So as to prolong the life reliability of the fan. The fan is a backward curved impeller, featuring compact structure, large air volume, high static pressure, low vibration, low noise and convenient installation.

Application: It is mainly used for purifying workbenches, purifying units, dedusting of ventilation ducts, purifying air-conditioning systems, environmental protection and pollution control, etc.



The forward inclined and backward inclined centrifugal fans mainly refer to the different blades of the fan. The forward inclined type is generally called the blower, and the backward inclined type is generally called the induced draft fan. The difference is the length of the impeller crosspiece and the impeller edge. The forward inclined impeller is parallel to the edge of the impeller. When the outlet angle of the impeller is greater than 90 degrees, the forward inclined impeller is also called the forward inclined impeller. The forward inclined impeller is mostly high-pressure. The backward inclined impeller is not parallel to the impeller, and the difference between the length and the edge of the impeller is a few centimeters or a few millimeters. If the outlet angle of the impeller is less than 90 degrees, the backward inclined impeller is also called the backward inclined impeller. The backward inclined impeller is mainly of medium pressure.

### **There are mainly three differences**

#### **① Power**

The static head used to overcome the system resistance, the forward tilt centrifugal fan shall be smaller than the backward tilt centrifugal fan. Since the channel in the backward inclined blade fan is gradually expanded, and the curvature of the backward inclined blade is smaller than that of the forward inclined

blade, its hydraulic loss is less than that of the forward inclined blade fan. The efficiency of the forward tilt centrifugal fan is lower than that of the backward tilt centrifugal fan.

### ② Energy consumption

Since the efficiency of the forward tilt centrifugal fan is lower than that of the backward tilt centrifugal fan, its power consumption is greater than that of the backward tilt centrifugal fan.

### ③ Noise

The forward inclined blade air flow has a large loss in energy conversion, a large collision speed between the air flow and the casing, and a gentle curvature of the backward inclined blade channel. Therefore, the operating noise of the forward inclined centrifugal fan is greater than that of the backward inclined centrifugal fan.

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