AERODRY

Compare Our Axial Fan with Centrifugal Fans

Axial-flow fans: Air passes through the fan parallel to the driveshaft. An axial-flow fan is suitable for a larger flow rate (CFM) with relatively small pressure gain. The effective progress of the air is straight through the impeller at a constant distance from the axis. These fans are widely used for providing the required airflow in heat and mass transfer operations.

Centrifugal Fans: Often called "squirrel cage" fans, a centrifugal operates on the principle of "throwing" air away from the blade tips. The air is led through the inlet pipe to the center of the impeller which forces it radially (making a right angle turn) out-ward into the volute from which it flows into the discharge pipe. The blades can be forward curved, straight, or backward curved (inclined). A centrifugal fan has a comparatively smaller flow rate with a larger pressure rise and because of this pressure rise, the likelihood of stress fractures and fan failures is increased.

Motor horsepower is determined by the amps required to turn the fan at a given speed on a pre-determined voltage -- 1800 RPM or 3600 RPM are standard. The performance of a fan depends on the size, shape and rotating speed of the impeller. Factors like cost optimization, power rating and noise levels govern the selection of a fan suitable for a given application. Two measurements are commonly used to describe the physical characteristics of a fan -- blade diameter and motor horsepower. While these are useful measures, without the proper combination of airflow rate and static pressure capabilities, they only give a very general idea of fan capacity.

Neither pressure alone nor volume alone can effectively move fluid. The correct combination of pressure and volume provide complete vehicle coverage and the adequate force to remove properly treated rinse water. Only a small amount of pressure is necessary to break the surface tension; then the volume, along with the weight of that volume will effectively move the debris/water. This concept can be understood easily using the following example:

Using a zero degree nozzle, try to wash debris from a driveway. The narrow nozzle delivers water at a high pressure, but volume is reduced, cleaning only a narrow path and is not effective in pushing a quantity of debris forward. Adjusting the nozzle to a wider path increases the volume of water (and thereby the weight). Although the pressure is slightly decreased, the increased weight of the water along with the increased width of the path will effectively carry more debris forward.

The Advantages of an Axial-Flow Fan:

- Optimal aerodynamic design of fan provides higher efficiency.
- Reduction in overall weight of fan extends the life of the mechanical drive system.
- Requires lower drive motor rating and bearing system.
- Low power consumption resulting in appreciable energy savings.
- Molded aluminum fans have uniform dimensions and consistent quality.
- Lower flow noise and mechanical noise levels.
- Longer life of fan due to improved mechanical strength.