Centrifugal Fan Series

I. Working Process

Centrifugal fans are kinetic-energy-converting ventilation devices that use centrifugal force to transport gas and increase pressure. The core operating cycle is driven by a motor that spins the impeller at high speed.

Once energized, the motor drives the impeller inside the housing in uniform circular motion via a coupling or belt pulley. Gas in the central region of the impeller is rapidly flung outward toward the outer rim under intense centrifugal force,while simultaneously being accelerated and pressurized, then directed outward along the volute-shaped housing channel to produce a continuous, stable airflow. At the same time, the expulsion of gas from the impeller center creates a negative-pressure zone, continuously drawing in outside air or duct gas under atmospheric pressure to sustain an uninterrupted suction-and-discharge cycle. The unit employs an axial-inlet, radial -outlet structural design and can flexibly accommodate different airflow and pressure requirements by adjusting impeller speed, blade angle, and motor power. Forward-curved, backward-curved,and radial blade forms are available, balancing ventilation efficiency, operating noise, and wear/corrosion resistance. The fan suits conventional ventilation, high-pressure air supply, explosion-proof dust removal, corrosion-resistant exhaust,and many other process scenarios, with purely mechanical transmission throughout — no complex media involved — resulting in stable and reliable operation.

II. Key Parameters

The centrifugal fan series covers standard low-pressure, medium-pressure, and high-pressure models, with parameters spanning residential ventilation to heavy-duty industrial applications. All core performance indicators comply with national ventilation equipment standards and can be customized for specific operating conditions. Standard models have an airflow range of 800 m^3/h to 200,000 m^3/h, with total pressure covering 150 Pa to 5,000 Pa, meeting diverse requirements from short-range conventional ventilation to long-range duct air supply and high-pressure

exhaust. Motor power ranges from 0.37 kW to 220 kW, compatible with three-phase 380 V industrial power; select small residential models support 220 V. Speed ratings include 960 r/min, 1,450 r/min, and 2,900 r/min, with stepless speed control available via a variable-frequency drive. Fan inlet diameters range from 100 mm to 1,200 mm, covering all standard duct sizes. Operating noise is controlled between 55 dB and 85 dB; low-noise models can be further quieted with silencing structures. Protection ratings reach IP44 and IP54; explosion-proof models meet Exd Ⅱ BT4 and Exd Ⅱ CT4 grades; corrosion-resistant models use stainless steel or anti-corrosion coatings to withstand acid and alkali environments. Drive types are direct-coupled (compact, high-efficiency) and belt-driven(more versatile for variable-speed adjustment).

III. Instructions for Use

Before installation, verify that the model, power rating, inlet diameter, and operating conditions match. Mount the fan on a flat, solid foundation with dedicated vibration-damping pads or brackets to reduce vibration transmission and prevent resonance damage. Connect inlet and outlet ducts with flexible couplings; duct weight must not bear directly on the fan housing. Clean the duct interior of debris to protect the impeller. Wiring must be performed by a qualified electrician following the terminal labels with proper grounding; explosion-proof and corrosion-resistant models require sealed and insulated wiring. Before trial operation, manually rotate the impeller to confirm no friction or jamming; then jog-start and verify the rotation direction matches the label — rewire if reversed. During daily operation, periodically monitor fan noise, vibration amplitude,motor temperature, and bearing temperature rise.Overloading or over-speed operation is strictly prohibited. Regularly clean dust, debris, and fibers from the impeller and housing to prevent imbalance and increased vibration. Bearings must be re-greased with the specified lubricant every 3 to 6 months. Belt-driven models require periodic belt-tension inspection and timely replacement of worn belts. Clogged filters must be cleaned or replaced promptly. Upon any abnormal vibration, noise, or motor overheating, immediately shut down and de-energize to investigate; continued operation with known faults is prohibited. Store the unit in a dry, well-ventilated environment away from moisture and corrosive media, with dust protection, to extend storage life.

IV. Product Advantages

The centrifugal fan series features an optimized aerodynamic structural design in which the volute casing and blade curvature are precisely calculated,achieving operating efficiency far exceeding axial fans and other conventional ventilation equipment. Stable wind pressure and long air-delivery distance easily overcome duct resistance to serve complex piping systems. The robust, durable structure uses high-quality cold-rolled steel, carbon steel, or stainless steel with solid welding, and the impeller undergoes dynamic balance calibration for smooth operation,low vibration, and long service life — heavy-duty industrial models sustain 24-hour continuous operation for high-load demands. The wide model range covers low-pressure ventilation, medium -pressure air supply, and high-pressure exhaust, with optional explosion-proof, corrosion-resistant, high-temperature-resistant, and low-noise configurations for special conditions, surpassing the limitations of conventional equipment. Operating energy consumption is controllable; paired with a variable-frequency control system, speed can be adjusted to actual airflow demand for energy-efficient operation with significantly lower energy use than fixed-speed models. Installation is flexible — vertical, horizontal, or ceiling-mounted — to fit various space constraints; maintenance is straightforward, wear parts are inexpensive, no specialized tools are needed, and routine upkeep requires minimal effort. Compared with equivalent ventilation equipment, centrifugal fans deliver ample wind pressure and stable airflow with no reverse back flow, providing consistent exhaust, supply air, dust removal, and smoke extraction. Their adaptability, practicality, and outstanding overall value for money make them a preferred choice.

V. Applicable Industries

With stable performance, diverse model selection, and strong adaptability to various operating conditions, the centrifugal fan series is widely applied in ventilation, exhaust, air supply, dust removal, smoke extraction, and pressurization scenarios across residential, commercial, and industrial sectors. In industrial production, it serves workshop ventilation, dust and exhaust gas treatment, and high-temperature gas conveyance in chemical, metallurgical, mechanical manufacturing, and hardware processing industries, as well as paint-mist exhaust in coating workshops, hot-air

circulation in drying rooms, and induced-draft systems for environmental protection equipment.

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