YFLES - LABORATORY EXHAUST FAN

INFINAIR™
INFINAIR ARABIA CO. LTD.

Ratings and Applications

Airflow Range	1,000～100,000 m³/h (588 ～58,857 CFM)
Static Pressure Range	300～2,000 Pa (1.2 ～ 8.0 inwg)
Drive Types	Direct / Belt
Installation Methods	Rooftop Mounted
Applications	1. Laboratory high plume jet exhaust 2. Diluted Exhausts 3. Polluted gases 4. Fume emissions 5. Oil & smoke exhaust

Impeller Technology

1. Wheel in a New Form

The mixed flow wheel includes a wheel cone carefully matched to the inlet cone for precise running tolerances to reduce air leakage and turbulence, improve efficiency and lower sound.

2. Advanced Design

The design of the wheel is optimized through CFD flow field simulation and repeated tests for optimum air performance, dramatically improving the efficiency over the traditional mixed flow wheel.

3. High Balance Quality Grade

The wheel has been dynamically balanced twice: after the continuous welding process and after epoxy coatings applied on the surface. The balance quality grade reaches AMCA 204-G2.5 standard well above the international standard of G6.3. This helps greatly improve wheel balance, reduce vibrations and lower sound.

4. Optimum Sound Performance

The mixed flow wheel takes on intermediate performance characteristics between the axial and centrifugal wheel.

5. Advanced process

Die-formed and continuously welded, the wheel and flow passage components are of high precision, high strength and greater reliability.

General Features

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With a unique discharge nozzle design, the YFLES High Plume Lab Exhaust Fan System can entrain the surrounding air and dilute the lab exhaust gas, thus reducing the concentration of pollutants discharged. More importantly, the addition of ambient air increases the mass flow rate and speed of the discharge windband, providing greater nozzle discharge force, which ultimately allows it to be diluted above the roof therefore the following are the main features:

- Complete environmental solution, more professional and reliable.
- Patented fully mixed flow wheel design to improve the efficiency and reduce the noise.
- High jet & dilution exhaust to avoid exhaust re-entrainment into the same or adjacent buildings.
- Compact structure to save installation space.
- Modular combination in larger volume application.
- INFI-COAT Molecular film, long-lasting coating.
- Efficient discharge nozzle design.
- Available to be used in system for system retrofits

Technical Information

1. Quality Standards

The fan has designed according to AMCA design procedure, the products are produced within very control procedure following ISO 9001, ISO14001 and ISO 45001.

2. Fan Type

YFLES fan shall be direct or belt driven, inline type. The fan wheel shall be of the mixed flow type, constructed of steel, Wheels shall be statically and dynamically balanced up to AMCA 204-G2.5 standard.

The fan design should achieve maximum efficiency. The fan should have the characteristics of sudden pressure rise that extends to The pressure shall continue to rise beyond the peak efficiency for stable and quiet fan operation. In the normal .the operating range selection area, the horsepower shall reach its peak and be self-limiting.

High Plume Lab Exhaust Fan System YFLES shall be of the non-over loading design, and the size and volume capacity shown shall be consistent with the fan performance table.

3. Surface Processing

The surface of the wheel shall be polished to remove any protuberances, welding spatters, burrs, sharp edges, scrap iron and greasy dirt before being finished with electrostatic epoxy coatings (Optional). The surface shall be a level one without sags, cracks, cockles or detachment. The surface shall remain free from corrosion.

4. Main Fan parts

Fan Part	Description
Mixed Flow Impeller	The wheel is of steel mixed flow type, which includes a tapered front disc, a hemispherical hub and a straight blades. The wheel shall be statically and dynamically balanced to G2.5 balance per AMCA 204 standard. When the wheel is running at the maximum allowable speed, it shall be able to maintain a smooth airflow and low noise. The wheel characteristics should be able to effectively avoid performance decline caused by slippage at the operating point.
Fan Housing	Housing The fan shall have a cylindrical housing welded by steel plates. The air inlet should be streamlined. The housing should be properly supported and fixed to prevent vibration and pulsating airflow. The weather cover should wrap the motor and V-belt drive. The YFLES fan shall include an outlet nozzle, a wind band, a curb cap, a weather cover, and a sealed belt tube that prevents the belt and the drive from being affected by the airstream.
Motor	The motor shall be carefully matched to the fan load. It shall be (IP55,IP56, …etc) rated with Class F,H Insulation according to project specification . The motor bearing shall be of ball type and lubrication- free. Out of the air stream shall the motor and drive mechanism be located to avoid grease or dirt accumulation.
Shaft	The shaft shall be made of 40Cr steel and heat treated through homogenizing furnace to the hardness level of HB 286. The shaft material shall have a maximum limit of yield strength of 550MPa. Hard film shall be applied on the surface to avoid corrosion. The shaft shall also be dynamically balanced together with the wheel. The design speed of the shaft shall be at least 25% more than the maximum running speed of the fan.
Pulley	Fan pulleys shall be sized for a minimum of 150% of the driving power. Pulleys shall be cast iron, keyed and securely attached to the wheel and motor shaft. Conical type bushings shall be equipped for easy removal of the pulley.
Belt	The belt shall be grease and oil and static proof and resistant to high temperature
Bearing	Independent metal bearings shall be used to support the shaft to avoid vibrations directly coming onto the motor. The bearing shall be selected with service life of (80, 000 to 200,000) hours at the maximum operating speed specified in the catalog as per the design. The bearing shall be of permanently sealed type and pillow block metal ball bearing that can be lubricated.
Drive Support	Drive mechanism shall be supported by thick steel sheet finished with powder coatings to avoid corrosion. The belt tension can be adjusted through the adjusting bolt at the motor base. The design shall make sure the fan shaft and motor shaft is always parallel.
Belt Guard	The fully-enclosed belt guard shall be fitted to avoid injuries
Curb cap	It shall be of heavy-duty steel or galvanized type to ensure rainproof transition between the roof curb and the fan
Nozzle and windband	With a nozzle and windband combined, the ambient airflow will be induced inside the housing and increase the discharge velocity to a recommended velocity of at least 15.24m/s with no significant Impact on BHP.
Weather cover	The removable and rain-tight rain cover can offer complete protection of the motor and the exposed parts of the V belt driving unit.