YFMRT - METRO FAN

INFINAIR™
INFINAIR ARABIA CO. LTD.

Ratings and Applications

Airflow Range	10,000 ~ 980,000 m³/h (5,882 ~ 576,471 CFM)
Total Pressure Range	50 ~ 2,300 Pa (0.2 ~ 9.23 in.WG.)
Drive Types	Direct Drive
Mounting Types	Horizontal / Vertical
Applications	1. Metro, Tunnels 2. Construction projects 3. Dams, etc.

General Features

1. Great Reliability

- With the design optimized through the FEA method and experimental verification, the fan has adequate factor of safety. The impeller material has the required thermal expansion and strength under 300 ℃ so that the fan can operate reliably for emergency smoke removal.
- The impeller adopts the advanced die-casting technology. The aluminum alloy blades and hub are well-structured by virtue of the metallographic analysis. Each blade must be tested by the X-ray flaw detection method for reliable quality and safe operation.
- The impeller has been dynamically balanced twice: on the hub and on the whole impeller. The balance quality grade reaches ISO G2.5 (higher than the national standard of ISO G5.6). The fan has stable operation with low vibration level.
- The fan is tested on impeller over speed, mechanical performance, vibration, air performance before leaving the factory to ensure the operational stability and reliability.
- The blades are mounted on the hub with high-strength bolts for durable and reliable operation. The fan housing is constructed of heavy gauge steel plates.

2. High Efficiency and Low Sound

- The Model YFMRT fan uses latest aerodynamics technologies in the aviation industry represented by the airfoil blades of optimum air performance. The design is optimized through CFD simulation and experimental verification to ensure the air performance conforms to the flow field characteristics with great efficiency, wide performance range of high efficiency and low sound ensured.
- The Model YFMRT fan is designed with streamlined inlet guard and rear guide vanes for improved flow filed, greater efficiency and lower sound.

- The blade pitch is statically adjustable to meet the changing operating conditions and ensure the impeller always operates in the performance range of high efficiency.

- Each impeller has been dynamically balanced for quiet and stable operation.

3. Anti-Surge Patent Design

The piston wind generated during subway train operation may cause changes in the operating conditions of the fan. To prevent stall and surge, a patented anti-surge unit has been designed for the fan to operate without surges.

5. Compact Design and Easy Maintenance and Installation

- The rear guide vanes and airflow guiding unit help minimize the length of housing and create a compact design while maintaining the optimum fan performance.
- The fan is direct driven with low maintenance and no quick wear parts.
- The grease tube leading all the way from the grease nipple to the fan housing makes greasing and maintenance much easier.
- The vibration isolators are right chosen to meet metro, tunnel and other application scenarios.

6. Reversible Rotations within Short Switching Time

- The Model YFMRT fan is made to have reversible rotations. The symmetrical airfoil blades ensure the fans have similar performance in reverse rotations.
- The Model YFMRT fan designed with streamlined inlet guard and rear guide vanes for improved flow filed, greater efficiency and lower sound.
- By minimizing the moment of inertia, time needed to start/stop the fan is quite short while ensuring safety and reliability.
- The method of dynamic braking is adopted to switch the fan rotations. Tests have shown that rotations can be switched to the rated speed (by soft start) within 45S and 30S (by compensated start).

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. Anti- surge Unit

It is to protect the fan from the surge to ensure the stable and durable operation and to ensure safety and reliability in emergency in particular.

3. Dismounting and repair of fan

Remove the flexible ducts connecting to the both ends of the fan and space section, loosen the anchor bolts and then move the fan freely for repair.

4. Nameplate

A permanently fixed aluminum nameplate shall clearly display the fan number, product model and serial number (A unique ID for each fan) so that the parts used can be traceable by customers.

5. Main Fan parts

Fan Part	Description
Impeller	The impeller includes hub and blades and is die cast with high strength aluminum alloys- Axial type. Heat treatment, X-ray flaw detection, tensile test, metal processing and dynamic balancing tests have been performed on the impeller. The blade pitch is statically adjustable by loosening the clamp bolts to ensure the airflow and pressure meet the actual operating conditions.
Housing	The housing is constructed of quality steel sheets. The impeller mounting section has been machined to ensure the radial clearance of the blades. The housing is designed to have minimal length and weight and the surface has undergone hot-dip galvanizing or painting process for corrosion prevention.
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 has oil fill hole, oil drain hole and shaft temperature sensor. The junction box is located on the housing.
Guide Vane	The guide vane is a static part to ensure the highest possible energy efficiency and minimal size of the fan.
Mounting Brackets	The mounting brackets shall be light and easy to mount while ensuring the strength of the fan.