

Ratings and Applications

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|-----------------------|---|
| Airflow Range | 600~50,000 m³/h (353~29,412 CFM) |
| Static Pressure Range | 500~900 Pa (2~3.61 in.WG) |
| Drive Types | Direct / Belt drive / VFD |
| Mounting Types | Base mounted / Ceiling hung / Duct mounted |
| Applications | 1. General ventilation Ducted air supply and exhaust 2. Filtered air supply and exhaust 3. Explosion-proof air supply and exhaust 4. Smoke removal 5. Sound-proof fan box |



Wheel Technology

1. New Wheel Design

- Excellent sound and air performance.
- Wide performance range of high efficiency and non-overloading.
- The balance quality grade as high as G2.5.

2. Air Performance Design

- Optimized design through CFD flow field simulation and repeated tests.
- The front disc and inlet cone in conformity with flow field characteristics.
- Flow passages control: airflow regulated well through precise synergy.
- Optimized mounting angle for blades.

3. Structural Design

- Stress analysis by FEA method for better performance.
- Various additional strengthening for different specifications for greater reliability.
- Riveting technology used to avoid stress.

4. Wheel Improved

- Continuous Improvement: upgraded to the 4th generation of wheel.
- Compared with the 3rd generation: overall performance improved by 5-10%.
- Compared with the 3rd generation: overall sound level reduced by 2-3 dB(A).

5. Advanced Process

- Wheel cone and inlet cone formed by spinning to ensure good air performance.
- Inlet cone: replacing the inlet bell to ensure smooth airflow.
- Blades: formed by punching to ensure quality.
- Tooling: dedicated fixtures to ensure the precise mounting position of blades.

General Features

1. Wide Performance Range and More Economical

- The 4th generation of centrifugal Wind-Surfer wheel possessing a wider pressure scope and lower sound compared with the 3rd generation.
- The wheel diameter as long as one meter, requiring fewer fans and lower primary investment.
- No scroll needed and the fan size reduced, making installation easier.

2. Sound Solution: Centrifugal Inline Type

- Fundamental difference from axial/mixed flow types: speed reduced by 20-30%.
- Range of sound pressure level down by 10-15 dB(A).
- A fundamental solution to sound.

3. No Scroll

- Air directly pressurized in wheel and airflow pattern improved.
- Direct drive and dust-free: suitable for clean rooms in microelectronics, food and medical industries.

4. Square Design with Different Discharge Direction Options: Mounting Costs Reduced

- Square inlet/outlet flanged sleeve: connector and ring flange now not used.
- Lower air duct connection costs and faster installation.
- Different mounting positions available for the motor.
- Different discharge positions: ease of design and installation.

Technical Information

1. Quality Standards

The fan shall be tested and certified in accordance with AMCA Standard 210 & 300, UL 705, TUV EN 12101-3 for smoke application. AMCA Seal for (Efficiency Sound and Air Performance) shall be tagged on each fan before leaving the factory as a standard seal, for other seals shall be tagged on the fan according to application and customer needs.

The manufacturer shall obtain Production License for National Industrial Products and be certified by ISO 9001, ISO 14001, ISO 45001.

2. Fan Type

The fan shall be centrifugal inline type, with an aluminum backward inclined centrifugal wheel directly facing incoming air. The wheel cone shall have a curved section to ensure smooth air movement. Each wheel should be statically and dynamically balanced up to AMCA 204- G2.5 balance quality grade (Standard ISO 1801940).

3. Fan Housing

Material: The fan housing shall be made in cast steel sheet (Option: cold roll steel sheet finished with electrostatic epoxy coatings). It shall be thick and strong enough to support the drive mechanism and motor.

Shape: The housing shall be a square one equipped with square flanged sleeves to avoid square/ round connectors. The housing design shall allow different discharge directions. On the left and right sides, there shall be sizable access doors so that motor maintenance and replacement can be performed without the need to remove the air ducts.

4. Fan Parts and Drive Mechanism (For belt drive type only)

| Fan Part | Description |
|---------------|---|
| Shaft | The shaft shall be heat treated through homogenizing furnace to the hardness level of HB370, and the hard film shall be applied on the surface to avoid corrosion. The shaft shall also be subject to balancing tests together with the wheel. The design speed of the shaft shall be at least 25% more than the maximum running speed of the fan. |
| Bearings | Metal bearings shall be used to support the fan shaft to avoid vibrations directly coming onto the motor. The bearing life shall be (80, 000 to 150,000) hours at the maximum operating speed specified in the catalog as per the design. The bearing shall be of permanently sealed type and metal pillow block 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. |
| 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. |
| 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. |