

## Ratings and Applications

Airflow Range	600~45,000 m³/h (353~26,471 CFM)
Static Pressure Range	32~1,200 Pa (0.13~4.82 in.WG.)
Drive Type	Direct / Belt / VFD
Mounting Types	Rooftop
Applications	Rooftop Centralized Air Exchange/ Filtration



## Wheel Technology

### 1. Effect of the 4G Wind-Surfer wheel series

- Excellent aerodynamic characteristics and noise characteristics.
- High-efficient area width without overloading.
- Balance quality grade up to G2.5.

### 2. Air Performance Design

- Optimized design of CFD flow field simulation, repeatedly validated.
- Front disc and inlet venture tube according with flow field characteristic.
- Flow passage control: matched each other to restrain the air flow better.
- Optimize the blade angles.

### 3. Structure Performance Design

- Stress analysis of FEA to improve performance.
- Selected the strengthen structure according to different specifications to improve reliability.
- Using riveting technology to avoid stress.

### 4. Improved Wheel

- Continues improvement: The wheel has the 4th generation.
- Compared with the 2nd generation: Performance increased by 5-10% in the same parameters.
- Compared with the 2nd generation: Noise reduced 2-3 db(A) in the same parameters.

### 5. Advanced Process

- Inlet venture tube & Front disc: spun process to ensure streamlines aerodynamic characteristics.
- Inlet venture tube: replace bell mouth to ensure smooth air flow.
- Blades: once punch forming to ensure process quality.
- Tooling: dedicated fixture to ensure precise install of the blades.

## General Features

### 1. Excellent Aerodynamic and Sound Characteristics

- Compared with 4th generation Wind-surfer wheel: Performance increased by 5-10% and noise reduced 2-3Db (A) in the same condition.
- Compared with axial/mixed flow fans, sound reduced by 10~15dB (A).
- Fan internal with well-organized airflow and the pressure loss is small.
- Wide performance range of high efficiency.

### 2. Reliability Design

- FEA aided design, distributed evenly of stress for making operation reliable.
- Performance loss caused by working point change.
- High static pressure: Low RPM in same pressure.
- Blade falling resistant: Safe.
- Non-overloading.

### 3. Appearance Design

- Low streamline wind band: reduces wind load.
- Pitched wind band baffle: drains snow rapidly by gravity.
- Suitable for strong winds.
- Modernize buildings with enhanced taste.

### 4. Detail Design

- Upward air intake: effectively prevented the incoming air mixing with rain water.
- Roof curb cap: easy to assemble and water leakage is prevented.
- Insect screen for intake.
- INFI-COAT Molecular Film TM: long-lasting coating.

### 5. Advantages of Direct Drive: Efficient, maintenance-free

- Higher transmission efficiency.
- No wearing parts, low maintenance.
- Easier and more effective of maintenance.
- Sealed self-lubricating bearing for motor, increasing service life.
- Motor located the airflow: active cooling.

### 6. Advantages of Belt Drive: Precise, adjustable

- More precise selection up to the requirements of design conditions.
- Easier maintenance and replacement of motor.
- Independent bearings to bear the vibration, extending bearing life.
- Design change: can be adjusted flexibly.

## Technical Information

### 1. Quality Standards

# YFRSC - CENTRIFUGAL ROOF SUPPLY FAN

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

The fan shall be the centrifugal fan which adopts backward inclined centrifugal wheel. The drive type shall be direct-drive or belt-drive. The fan shall use aluminium backward inclined centrifugal wheel, and shall include a wheel cone carefully matched to the inlet Venturi for precise running tolerances. The wheel shall be statically and dynamically balanced to Level G2.5 as per AMCA204 standard.

## 3. Wind Band

The wind band shall be constructed of heavy gauge galvanized steel a rigid internal support structure. The wind band profile shall be of the streamline type; the structure shall be of the multi reinforced rib type to protect the fan from wind overload; and the external surface shall be pitched to quickly drain rain and snow by gravity.

## 4. Upward Air Intake

The fan inlet shall have upward air intake to make sure rain would not be sucked into the fan body as well as the building.

## 5. 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.

## 4. Drive Mechanism (For belt drive type only)

Fan Part	Description
Shaft	Fan shaft shall be heat treated through soaking furnace to reach the hardness level of HB250, and the surface shall be hard film corrosion treated. The fan shaft shall be balanced together with the wheel, and the shaft design speed shall at least exceed 25% of the maximum fan operation speed.
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	Drives shall be supported by powder coated heavy gauge steel and mounted on vibration isolators. The belt tension shall be adjusted through motor support plate to make sure the fan shaft and motor shaft always parallel.
Pulley	Fan pulleys shall be sized for a minimum of 150% of driven power. Pulleys shall be cast iron. Motor pulleys shall be adjustable for final system balancing. Conical (QD) type bushing shall be equipped for easy removal of the pulleys.