

## JM / HT JM Axial Flow Fan

### Range Feature Summary

- 15 diameters available, 315 to 1600 mm
- Volumes up to 234,000 m<sup>3</sup>/h (65 m<sup>3</sup>/s)
- Static pressures up to 2000 Pa
- Fans tested to ISO5801, BS848 and EN12101-3 (High Temperature) F200, Ff250, F300, Ff300 and F400
- High efficiency design to optimise running costs
- Low installed noise levels
- Motor protection IP55
- Hot dip galvanised casing

### IMPELLER

**Material:** Aluminium Hub and Blades (LM6 or LM13 dependant on application and rotational speed) or Steel Hub with Aluminium Blades.

**Blade Design:** High Twist Aerofoil section blades

**Hub Design:** Aluminium hub and clamp-plate, with integral steel shaft insert to ensure correct motor drive shaft fit. Hub design allows for each blade pitch angle to be individually adjusted. Alternatively, steel hubs are available for some applications.

**Manufacture:** All die cast impeller components are examined using real time X-ray radiography (in accordance with ASTM E-155) before machining to ensure highest quality.

**Balance:** In accordance with BS 848-7 / ISO 14694, Grade G16 to G6.3, depending on rated motor power.

**Form of Running:** Form B: Airflow through impeller then over the motor (as standard)

**Impeller location and fixing:** Impeller is located and fixed to the motor drive shaft by a key and keyway manufactured in accordance with BS 4235:1972. Axial location is provided by a collar or shoulder on the drive shaft together with a retaining washer and screw, fitted into a tapped hole in the end of the shaft. The screw is locked in position

**Aerodynamic design:** Fan maximum absorbed power is designed to occur within the normal working range, i.e. Fan exhibits a non-overloading characteristic. In order to provide

an extended operational life, impellers are designed to have low stress levels, when operated below the maximum speed stated within the published fan performance characteristic.

### FAN CASING

**Material:** Casings are manufactured from mild steel to BSEN 10111 Grade DD14.

**Casing Design:** Casing and flange thickness varies depending on fan diameter. Casings are of the long type, enclosing the entire length of the impeller and motor assembly and are complete with an inspection port closed with a rubber moulding. A steel closing plate shall be used for Emergency High Temperature applications above 200°C.

**Casing Finish:** Hot dip galvanised after manufacture to BSENISO1461

**Connection Flanges:** Flanges are an integral part of the fan casing and feature fixing holes that are equi-spaced around a pitch circle diameter to facilitate connection to duct work in accordance with Eurovent standards.

### MOTOR

**Type:** Fan motors are of the totally enclosed, squirrel cage induction, continuous duty variable torque type.

**Bearings:** Either ball or roller type bearing with an L<sub>10</sub> design life of at least 20,000 hours when calculated using ISO 281 for rated fan duty.

**Motor insulation:** The minimum insulation standard (for standard temperature fans) is Class "F". High temperature fans designed for Smoke Extraction have a minimum insulation standard of Class "H". When operating under the most onerous catalogued condition the motor temperature rise will be in accordance with EN 60034-1, or EN 12101-3 in cases of Emergency High Temperature applications.

**Motor output ratings:** Motor outputs are *integrated fan motor* ratings (based on insulation class), unless otherwise agreed, Power ratings reply on an enhanced level of cooling being provided by the fan impeller, motor mounting shaft and fan casing and as

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such, the motor is therefore considered to be an integrated fan component. Performance is generally in accordance with BSEN 60034-1.

**Motor Finish:** Aluminium self-finish or Cast iron painted to motor manufacturers specification.

**Ingress Protection:** IP55 with drain plug fitted.

**Terminal Boxes:** All terminal boxes shall have the same level of protection as the motor.

**Single phase motors:** These are of the capacitor start and run type. All motors are capable of withstanding direct online starting.

**Standard Temperature fans:** Fans are designed for Continuous operation from -40°C to +50°C, but is suitable for frequent starting down to -20°C.

Motor insulation is class F.

**High Temperature (HT) Range:** Once off emergency use up to 400°C for a duration of 2 hours in accordance with EN12101-3.

Motor insulation is class H.

**Supply:** Single and Three Phase, 50Hz  
Single and Three Phase, 60Hz

Note: HT motors are only available to suit a three phase electrical supply.

## MOTOR SPEED CONTROL

**Two Speed:** Pole Change (PC) or Dahlander two speed motors are reconnected from a single winding via six winding terminals to give two separate pole numbers. Dual Wound motors have two separate windings.

**Speed Control:** All three phase, single speed, motors are suitable for inverter control. Transformer or electronic control options are also available for some smaller frame sizes. Single phase, single speed, motors are suitable either transformer or electronic speed control.

## PERFORMANCE DATA

Published fan performance data represents what will be achieved when tested to ISO 5801 (or equivalent to AMCA standard 210) and the achieved sound power level, when tested to BSENISO 5136 (which replaces BS 848-1, BS 848-2.5, etc.) or equivalent to AMCA standard

300. Acoustic data is to be given as sound power levels (Lw re: 1 pW (10<sup>-12</sup> watts) for each of the eight octave bands (63Hz to 8kHz).

## WARRANTY PERIOD

Our standard warranty period for both the fan and motor is 2 years from date of despatch.

## STANDARD ACCESSORIES

### BELLMOUTH INLETS

Bellmouth inlets can be provided for long and short cased fans and are spun from mild steel to BSEN 10111 Grade DD14 and hot dip galvanized to BSENISO 1461 after manufacture.

### INLET/OUTLET GUARD

Inlet and outlet wire guards can be provided where requested and are fabricated from mild steel wire and rod as a welded assembly, which is either hot dip galvanized, or zinc plated after manufacture. Guards are manufactured in accordance with BS 848-5/ISO 12499.

### FAN MOUNTING FEET

Fans can be provided with attachable feet where requested, suitable for horizontal or vertical mounting, fabricated from mild steel to BSEN 10111 Grade DD14, up to 8mm thick. Feet are hot dip galvanized in accordance with BSENISO 1461 after manufacture or in accordance with BS EN 10346:2015.

### FLEXIBLE CONNECTORS

Flexible connectors can be provided where requested and are fabricated from silicon coated glass fibre fabric. The materials should withstand temperatures up to 400°C/2hrs and be flame resistant, conforming to BS 476-7. Flexible connectors should be fitted using stainless steel worm drive clips.

### ANTI-VIBRATION MOUNTS

Two mount variants are available. Rubber in-shear mounts are designed for standard temperature fans, while spring mounts are available for high temperature fans.