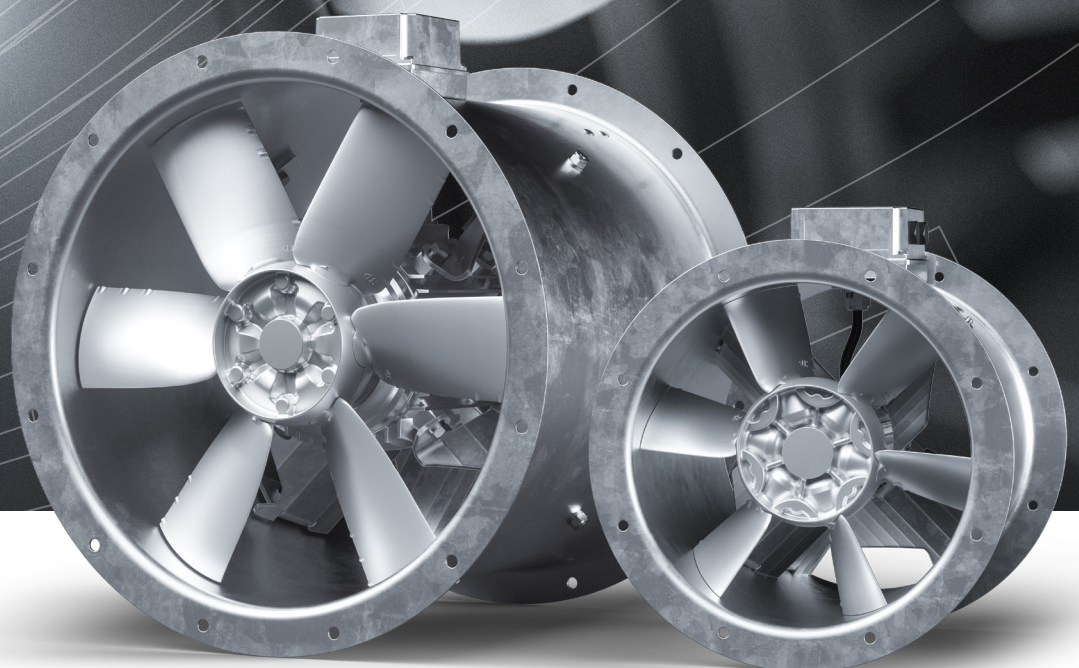


-  AIR COMFORT
-  FIRE SAFETY
-  AIR MOVEMENT

# JMv | AN AERODYNAMIC REVOLUTION

» GAIN THE AERODYNAMIC ADVANTAGE WITH THE NEW JMv  
FEATURING VORTEX CREATION CONTROL FOR ULTIMATE EFFICIENCY

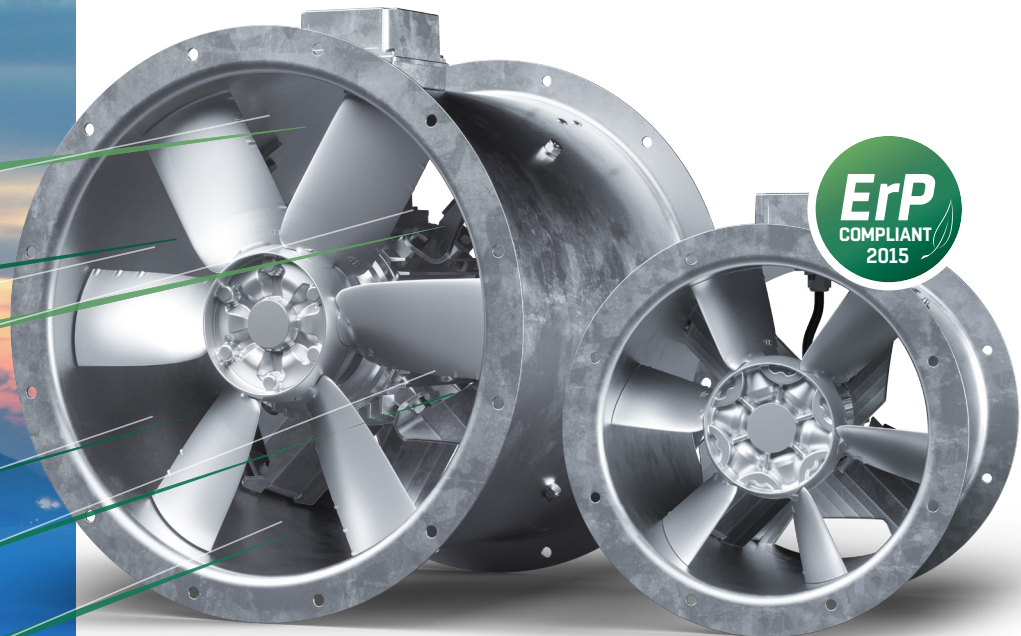


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## *Save Energy, Economy and Environment with Fläkt Woods*

Energy optimisation is an important aspect of creating a healthy and cost-effective indoor climate, and an area in which Fläkt Woods have acclaimed expertise. We use the e<sup>3</sup> symbol to highlight products and solutions that are particularly effective. They serve a dual purpose, that of protecting the environment whilst being economical to run. >> [flaktwoods.com/energy](https://flaktwoods.com/energy)



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## JMv by FLÄKT WOODS

# AERODYNAMIC EFFICIENCY – TAKEN TO THE NEXT LEVEL

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For our new JMv range we have taken inspiration from the field of aeronautical engineering, where aerodynamic efficiency is a key factor when striving to lower fuel costs and reduce emissions. The result is our most aerodynamically advanced fan design yet which uses Fläkt Woods' Vortex Creation Control (VCC) technology. Using our Engineering excellence and advanced CFD design tools, we have optimised blade, hub and static component design to deliver outstanding aerodynamic performance which achieves energy and running cost reductions of up to 24% (average saving across the range is 17%).

The low life-cycle costs of the JMv range is also supported by the traditional strengths of our JM-series, which means class leading levels of reliability and quality, as well as quick and cost effective installation. And, as you'd expect, the entire range is future-proof and exceeds ErP 2015 demands.

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# HOW CAN SUBTLE IMPELLER DESIGN CHANGES AND VCC TECHNOLOGY **REDUCE YOUR ANNUAL ENERGY BILL BY UP TO 24%?**

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Often, many small and subtle changes, if applied with insight and innovation, can add up to make a significant impact – and this is certainly the case with the new JMv. Not a single part has escaped scrutiny in order to create a design that optimises overall efficiency. The brand new hub and blade design is at the core of Fläkt Woods' Vortex Creation Control technology which delivers the much improved aerodynamic performance. The airflow through the fan is managed very precisely to boost efficiency – starting with the aerodynamic hub design, continuing to the vortex generators on the trailing edge of impeller blades and finishing with a 2 stage guide vane assembly to further control and reduce turbulence, leading to the best possible conversion of turbulent energy into usable aerodynamic performance. To ensure that efficiency is maximised we manufacture all components to tight tolerances and carefully assemble them to make sure that every single fan can deliver its optimum efficiency – so that each fan has quality built-in, and premium performance is assured.





# <CC™

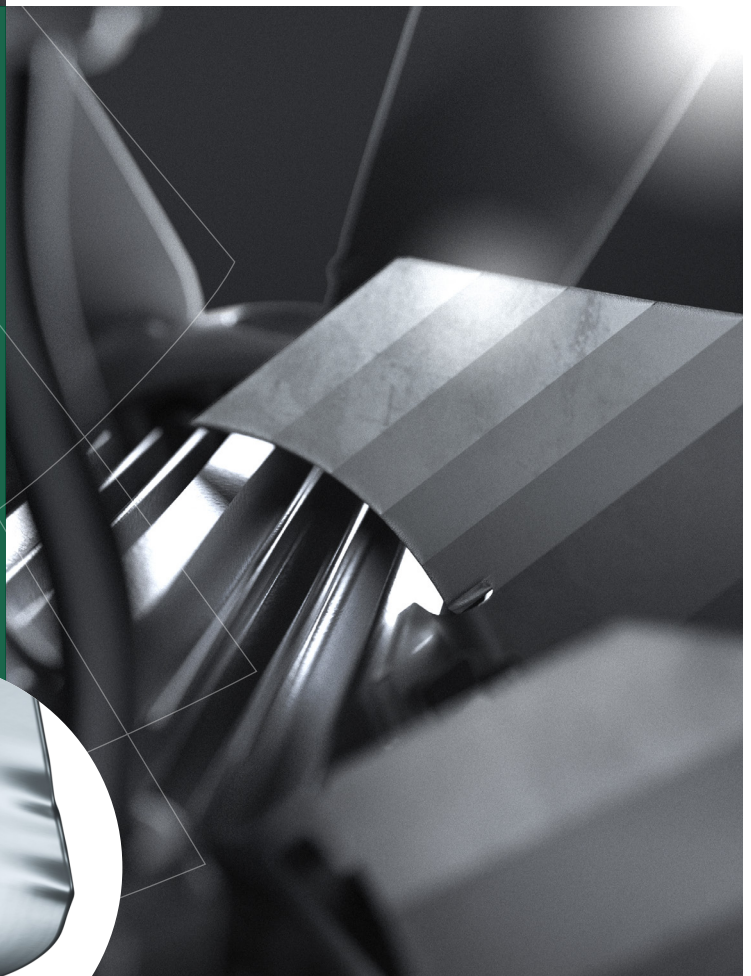
## VORTEX CREATION CONTROL

by **FLÄKT WOODS**

Thanks to the innovative VCC technology, JMv is an extremely efficient fan, which often exceeds ErP 2015 efficiency targets without the need for an expensive high efficiency motor. Of course, if customers need to enhance energy savings further, then we can offer fans fitted with IE3 rated motors or matched inverters which can be used to optimize running efficiency and power usage.

### INNOVATION AND VCC TECHNOLOGY GIVES YOU THE AERODYNAMIC ADVANTAGE

- CFD optimised blade design for more performance at lower pitch angles
- Vortex generators on the trailing edge of impeller blades intelligently manages airflow and turbulence for optimum aerodynamic performance
- Total fan design optimised for increased efficiency
- Advanced technical components incorporating registered design features
- 2 stage guide vanes boost efficiency further and also provide support for the motor which means less weight and complexity
- Average running cost savings are 17% (24% max)
- Look for the VCC logo on the blade to make sure that your new fan delivers optimum efficiency!



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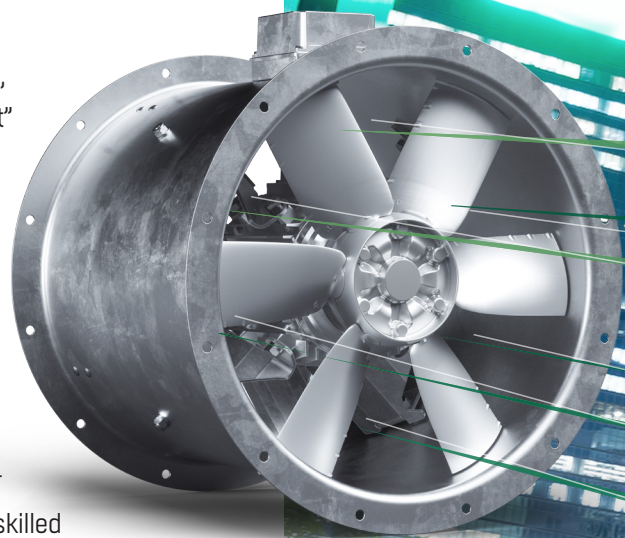
# MAKING BUILDINGS GREENER AND MORE EFFICIENT BOTH NOW AND IN THE FUTURE

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As the world tries to combat and address global warming, the focus on energy consumption and its "carbon footprint" increases. If we can use less, that footprint will be smaller. According to ErP directive 2009/125/EC energy consumption in buildings must be reduced, by increasing combined fan and motor efficiency, by 20%, by 2020. Because HVAC system energy costs typically make up 85% of a building Life Cycle Costs, property owners and investors are therefore increasingly demanding higher energy efficient solutions.

Fläkt Woods can help you achieve these targets. With our strong heritage, vast product range, global coverage and skilled people, we are in a unique position to deliver energy efficient products and solutions to all applications and industries. Our solution is a broad approach that leaves no stone unturned to achieve optimum results. It is a chain that starts with high-performing components utilising the latest technologies, continues with carefully designed products that focus on energy efficiency and finishes with complete solutions that use smart controls to manage every single part of the system to optimise the possible energy savings. All this is achieved whilst maintaining high levels of indoor comfort that we need and expect within a modern building design.

» Read more at [flaktwoods.com/energy](http://flaktwoods.com/energy)





## ***Controlling cost and comfort***

Mechanical ventilation should only be provided when it is actually required – delivered when demanded. That's why, at Flakt Woods, we are focussed on developing controls that optimises performance with minimum running costs while maintaining, or increasing, functionality. Our extensive experience and systematic approach ensure that we can always provide a good energy efficient solution and comfortable indoor climate. For the JMv fan we can supply a range of options, ranging from simple speed controllers to inverter drives that have full BMS connectivity capability.

**>> Read more at [flaktwoods.com](https://www.flaktwoods.com)**



# A COMPLETE RANGE WITH EFFICIENCY AND FUNCTIONALITY YOU CAN RELY ON

Our JM family has an enviable reputation for great functionality, energy efficiency and reliability in a wide variety of applications. The new JMv continues this tradition and builds on these attributes by using our innovative Vortex Creation Control technology that takes aerodynamic control and efficiency to new levels. Thanks to its long case design it is quick and simple to install and equally suitable for new installations and retrofit applications. The range includes both Standard and High Temperature versions in seven sizes to make sure we can supply the correct fan for you – whatever your application.



## JMv AEROFOIL STANDARD

The Standard JMv variant is designed for normal ventilation applications where everyday running costs and performance are important. It combines reliability, quality and energy efficiency into one optimised package.

### TECHNICAL FACTS:

Casing	Long
Size	7 available, 315–630 mm
Hub size	140/160/200
Impeller	6 blades
Temperature range	-40°C to +50°C
Electrical supply	1 ph/50Hz or 60Hz 3 ph/50Hz or 60Hz



## JMv AEROFOIL HT

The HT JMv variant is not only designed for normal ventilation applications, but also for “one-off” emergency smoke extraction. Even though it is specifically designed to handle smoke extract temperatures of up to 400°C for 2 hours, it still offers an energy efficiency solution.

### TECHNICAL FACTS:

Casing	Long
Size	7 available, 315–630 mm
Hub size	140/160/200
Impeller	6 blades
Temperature range	200/300/400°C for 2 hours
Electrical supply	3 ph/50Hz (400°C max) 3 ph/60Hz (400°C max)*

\*Maximum speed is dependent on fan diameter and speed variant. Please enquire for specific guidance.





**AERODYNAMIC EFFICIENCY\***  
+9%



**RUNNING COST\*\***  
-17%



**MAXIMUM ENERGY USE\*\*\***  
-2496 kWh



**MAXIMUM CO<sub>2</sub> EMISSION\*\*\*\***  
-1.305 tonnes

## JMv – a new benchmark for energy saving and running cost reduction

At Fläkt Woods, we are constantly applying our technological skills and experience to the continuing drive for greater efficiency and reduced energy waste in order to minimise the environmental impact of our products. It is also driven by the need to comply to new or updated legislation, such as the ErP directive. Energy efficiency is a core principle of our fan design, but environmental concerns are not the only factor. The problem of escalating energy costs is a significant additional incentive. So our development focus is always firmly on two principal goals: Delivering the same (or better) functions, while reducing the amount of power a fan needs and enabling it to operate only when needed.

The development of our new JMv is a perfect example of this principal – the innovative Vortex Creation Control technology takes advantage of optimised aerodynamic performance to give impressive running cost and energy consumption reductions.

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**Aerodynamic efficiency: 9% average improvement\***

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**Running cost: 17% average reduction\*\***

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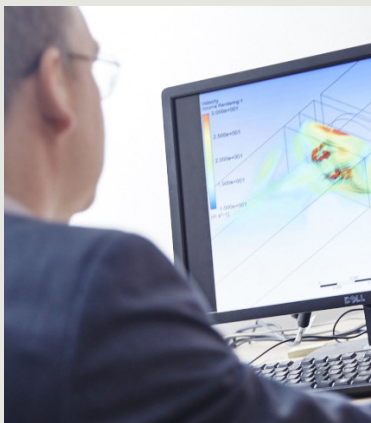
**Energy use: 2496 kWh maximum energy reduction\*\*\***

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**CO<sub>2</sub> emission reduction: 1.305 Tonnes\*\*\*\***

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\*Average across the range \*\*500 mm Ø fan, based on 2000 hours running time per year. Compared to JM. \*\*\*Relates to 560mm diameter fan (Dual Mode fan: suitable for HT 300°C/2hr and normal ventilation) \*\*\*\*Conversion from kWh to kg of Carbon based on a factor of 0.523 (which relates to UK power generation)



### Advanced research and testing facilities

Fläkt Woods has some of the most advanced ventilation laboratories in the world, where we are able to perform simulations and testing in full-scale environments to ensure that the benchmark performance as well as international norms and standards are being met. During development of the JMv, extensive use of CFD simulations meant that we were able to achieve a very high level of aerodynamic efficiency.

**Fan Selector – for quick and easy selection**

The Fläkt Woods Group Fan Selector is probably the most comprehensive tool of its kind in the world. The software has been developed based on many years experience of producing support tools for the fan industry. The Fan Selector tool is available to all customers and prospects. To get access you need only a browser with an Internet connection, so that you can navigate to our resource web page which allows you to download our software for local installation. Fan Selector can be configured with your own preferences (language, volume flow rate units, LCC calculation set up, currency, etc). The tool currently includes a large number of the Fläkt Woods axial fans, centrifugal fans, box and duct fans, and our Energy Recovery Units.

[fanselector.flaktwoods.com](http://fanselector.flaktwoods.com)

## OVER 100 YEARS OF AIR MOVEMENT EXPERIENCE **AT YOUR SERVICE**

At Fläkt Woods we are committed to the continuous development of our complete range of Air Technology Products, Systems and Components. We provide superior Air Movement solutions for occupants, advanced Fire Safety solutions to protect people and equipment – in combination with substantial energy and cost savings. Reducing the environmental foot print through innovative products and energy efficient solutions has been at the core of our business since the start and that mindset is transferred through our unrivalled industry expertise into every project.

### **BY YOUR SIDE, FROM PRODUCT SELECTION TO INSTALLATION AND BEYOND**

Our expertise is not confined to original manufacture and supply. It is available to you from the selection process onwards, and continues well beyond installation, throughout each system's operating life.

When you first select and install one or more of our systems, our partnership with you is only just beginning. Because you'll always be able to call on Fläkt Woods experience. We're at your service.

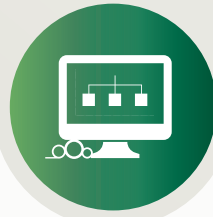


# JMv – an aerodynamic revolution with clear and simple advantages



## END USER/BUILDING OWNER

- Proven energy savings - running costs reduced by up to 24%
- ErP 2015 compliant
- Low life cycle costs – reduced energy consumption and low maintenance costs
- Reduced CO<sub>2</sub> foot print



## CONSULTANT

- ErP 2015 compliant
- Proven energy savings - running costs reduced by up to 24%
- BREEAM/Green design credentials
- Advanced Fan Selector Tool - makes selecting the most energy efficient solution easy



## CONTRACTOR

- Wide range and great availability
- Easy installation
- Compliant with consultant specifications
- ErP 2015 compliant

**<CC**  
VORTEX  
CREATION  
CONTROL  
by **FLÄKT WOODS**

## JMv Axial Flow Fan

### Range Feature Summary

- 7 diameters available, 315 to 630 mm
- Volumes up to 31,680 m<sub>3</sub>/h (8.8 m<sup>3</sup>/s)
- Static pressures up to 1170 Pa
- Fans tested to ISO5801, BS848 and EN12101-3 (High Temperature)
- High efficiency design to optimise running costs
- Low installed noise levels
- Motor protection IP55
- Hot dip galvanised casing

### IMPELLER

**Material:** Aluminium (LM6 or LM13 dependant on application and rotational speed)

**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.

**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. it has a non-overloading characteristic. Impeller stress levels have been designed to be sufficiently low so as to ensure a near infinite life when operated at maximum

speed within the published fan performance characteristic.

### FAN CASING

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

**Casing Design:** Casing and flanges will have a thickness of 3 mm up to and including 630mm in 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 airstream rated (based on insulation class), unless otherwise agreed. 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.

## JMv Axial Flow Fan

**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 on line 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 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

### 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. 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 BS 848P-1 / ISO 5801:2007 (or equivalent to AMCA standard 210), and the achieved sound power level when tested to BS 848-2.5 / BSENISO 5136 (or equivalent to AMCA standard 300). Acoustic data is to be given as sound power levels (Lw re: 1 pW ( $10^{-12}$  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.

### 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.