

JETVENT
INDUCTION



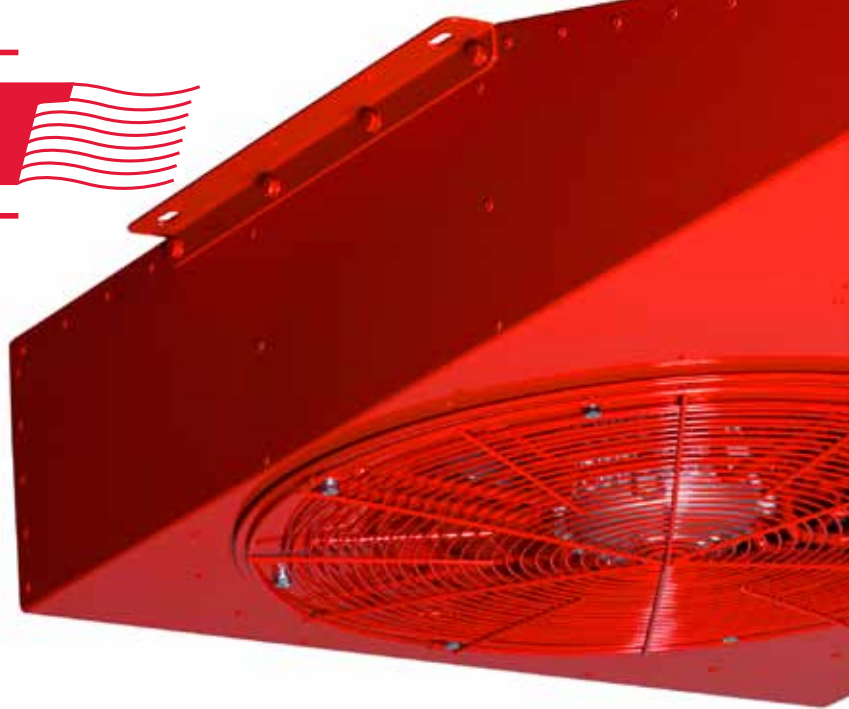
Induction **Ventilation**

JETVENT

introduction

JetVent Centrifugal Induction fans have been specifically designed to provide a high velocity, laminar airflow in a reduced height profile to help overcome problems caused by obstructive structural beams and low overall ceiling heights found in car parks.

The innovative design of JetVent Centrifugal Induction fans provides major benefits in terms of reduced installation and running costs as well as effective smoke and contaminant removal.



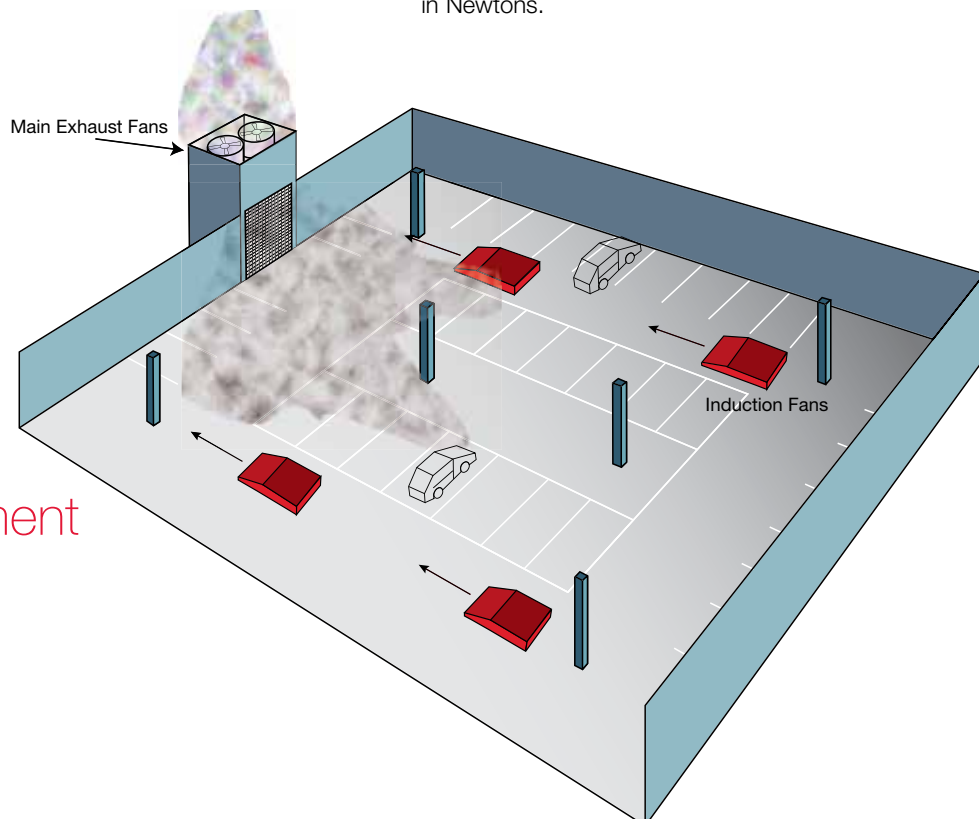
JetVent - the principle

The induction ventilation system is based on a number of small, strategically located high velocity fans in place of the large and expensive distribution ductwork traditionally used in car parks.

Induction fans operate on well proven tunnel ventilation principles, producing a high velocity jet which adds momentum to the air in front of the fan imparting thrust to all the surrounding air through mixing and entrainment as it diffuses. The volume of entrained air is significantly greater than that passing through the fan. (Refer to Figure 1.0)

The induction fans are carefully positioned to direct the airflow towards the main extract fan intake points. The main extract fans are sized to provide the required flow rates, however, given the reduced need for, or complete elimination of ducting, the resulting reduction in system resistance means they are typically smaller and consume less energy.

Induction fan performance is rated in terms of the thrust developed by the fan, which is the product of the mass flow rate times the change in velocity, i.e. volume flow rate times the air density times the fan outlet velocity, and is measured in Newtons.



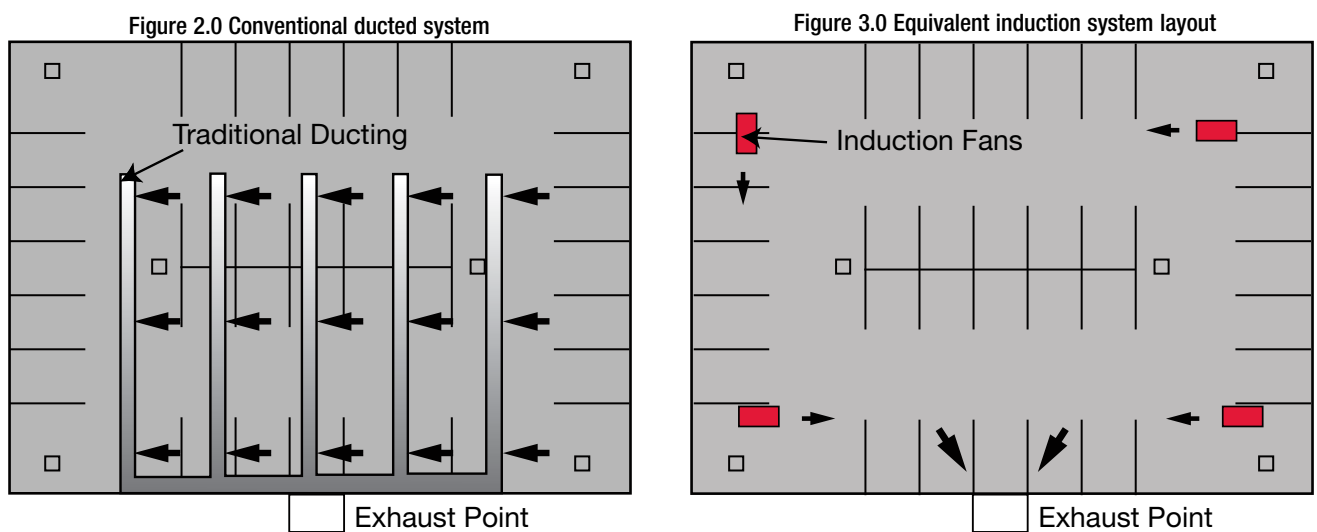
air entrainment
(Figure 1.0)

Please note: All products shown throughout this brochure incorporate the optional fire resistant isolator.

With a tough, robust construction, JetVent is designed around safeguarding occupants, while removing pollutants with the simplest of functionality. Behind the unobtrusive design lies an exceptionally powerful fan, capable of thrusting air belying the modest dimensions of its casing.

Why induction ventilation?

There are a number of differences between the conventional mechanical and modern induction ventilation systems, namely;



- The distribution ducting used in traditional systems (Figure 2.0) is replaced by a number of small JetVent Centrifugal Induction fans (Figure 3.0) to direct the airflow across the designated area.
- Without the distribution duct resistance, smaller exhaust and supply fans and / or motors can be used.

design capability

Technical excellence and innovation in design are the cornerstone of all Elta products - JetVent induction ventilation systems are no exception to this approach.

The harmony of our engineering excellence and technical sophistication combine, to provide an effective first class product, which meets demanding smoke, as well as general fume applications.

With tomorrow's technology at our finger tips, utilising market leading software, Elta can pinpoint, analyse and make design changes and improvements without the expense of conventional prototyping, working with our customers to meet their specific needs.



pure **Elta** design expertise in its latest form

features & benefits

The JetVent Centrifugal Induction fan range comprises two standard sizes, 50N and 100N, both with uni-directional airflow.

no ductwork requirement

By adding momentum to the air, JetVent forces air towards the desired extract points to ensure stagnant fumes and smoke are cleared effectively and efficiently.

This principal can minimise or even totally eliminate the requirement for ductwork within a car park. As the JetVent effectively transfers the polluted air towards the point of exhaust which means better use of limited space in underground facilities.

By eliminating ductwork, the system resistance for the application is greatly reduced, which means lower pressure drops required by the extract fans, lower power consumption, as well as running cost savings.

Greater flexibility in the installation and operation of the JetVent units avoids the problem of stagnant areas.

JetVent used in conjunction with multi-purpose sensors provides further energy savings by selectively operating fans only in specific polluted areas during specific periods of time.

lower maintenance

With no ductwork system there are lower maintenance and installation costs. There is no ducting to become blocked, damaged or subject to leakage.



Note: Product shown has optional F.R. Isolator.

cost effective

JetVent provides the scope for reduced installation and overall construction build costs compared with traditional ducted systems.



better security

The elimination or reduction in ductwork means a safer, lighter environment with better security due to the increased visibility for CCTV cameras.

rigorous testing

JetVent is independently tested to meet the exacting standards of EN 12101 – 3:2002 for operating at 300°C for 2 hours. Performance is tested to BS848 – 10:1999 Fans for general purposes - Performance testing of jet fans.

air quality

JetVent provides an improvement in air quality achieved by mixing the air more effectively, which means the potential risk of contaminant accumulation (beyond specific requirements) is overcome.

robust design

The powder coated mild steel fan casing provides a robust construction, which is very resistant to potential corrosion.

The integral guard is designed to protect against the rotating impeller parts. The guard is finger proof and bright zinc plated.

ease of mounting

The integral mounting plate with three fixing points allows easy mounting of the unit to the soffit this greatly assisting the already minimal installation period.

ingress protection

A minimum protection to IP55 on electrics improves reliability and ease of cleaning by means of pressure washing components.

The unit is supplied as standard with a fitted IP55 terminal box or an optional IP65 lockable fire rated isolator.

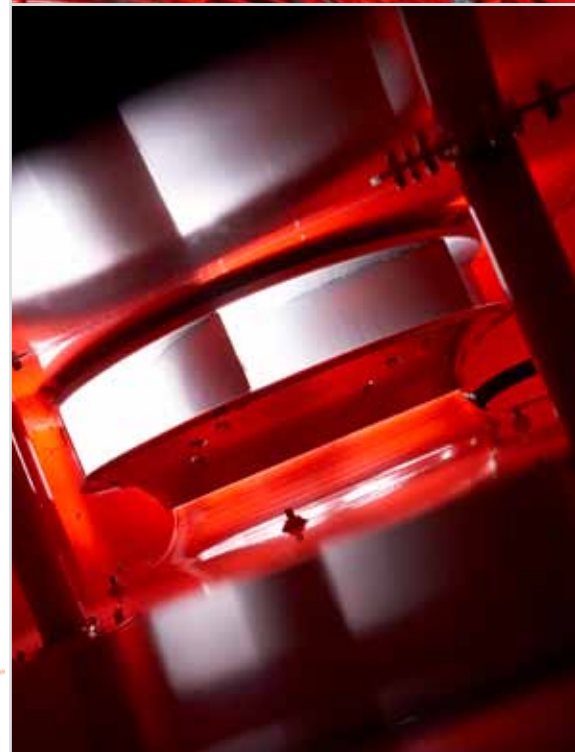
slim profile

The slim profile design of JetVent Centrifugal allows designers to overcome problems caused by obstructive structural beams and low overall ceiling heights, without compromising performance characteristics.

The JetVent fan outlet design ensures a highly efficient uni-directional movement of the airflow into the designated area.

warranty

Each JetVent comes complete with a 12 month warranty.



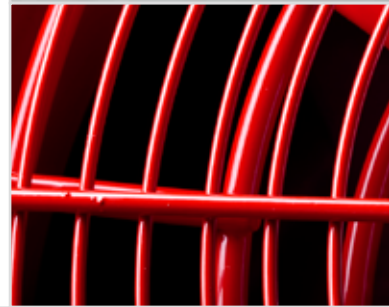
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market applications

Elta Fans has a wealth of experience and knowledge which we dedicate to understanding your particular and specific needs. Whether your criteria includes optimising space, specific performance characteristics, low noise level or a high specification finish, the JetVent Centrifugal Induction range continues to enhance Elta's reputation in the design and supply of specialist ventilation products.

JetVent is designed to meet the particular and specific requirements for general ventilation and smoke movement within fully enclosed or open sided car parks, as well as vehicle bays, metro stations and other applications such as distribution warehouses. By bringing fresh air in (and thoroughly mixing the air) JetVent assists in the removal of harmful pollutants, such as Carbon Monoxide, Nitrous Oxides, fumes from vehicle fluids, oil and other fuels. Whilst enhancing visibility by removing smoke haze created by diesel exhaust fumes during normal daily operation.

Of equal importance is the need for ventilation either during or after the event of a fire. JetVent Centrifugal Induction units contribute to safeguarding lives by providing smoke clearance for occupants to escape, whilst enabling faster and safer access for fire fighters to find and extinguish the fire.



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Elta Fans has a wealth of experience and knowledge, dedicated to understanding your particular needs



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specification

The JetVent Centrifugal Induction range comprises 50N or 100N thrust types, suitable for ambient temperature operation plus once only 300°C for 2 hour high temperature smoke conditions to European Standard EN12101-3:2002.

The two speed motor is suitable for frequency inverter speed control on high speed.

casing

The all metal fan casing provides a robust construction, assisted by the long lasting paint finish (optional).

The integral mounting flanges on the casing allow the unit to be mounted easily to the structure. All casing parts are manufactured from heavy gauge mild sheet steel powder coated as standard.

impeller

Backward curved centrifugal impellers are used to ensure high aerodynamic efficiency.

Impellers are manufactured from mild steel.

Impeller assemblies are dynamically balanced to Grade G6.3.

motors

Motors are totally enclosed airstream cooled, protected to IP55.

Each motor is matched to the aerodynamic performance of the impeller. Motors are Class H insulation for normal continuous duty at 40°C, with effective operation during smoke conditions once only of 300°C for two hours.

The unit is supplied as standard with a fitted IP55 terminal box or an optional IP65 lockable fire rated isolator.

quality management

Units are designed and manufactured with procedures as defined in BS EN ISO 9001: 2000.

All JetVent Centrifugal units are tested at elevated temperatures in accordance with the requirements of the European standard EN12101-3:2002 and certified accordingly.



Note: Product shown has optional F.R. Isolator.

car park ventilation

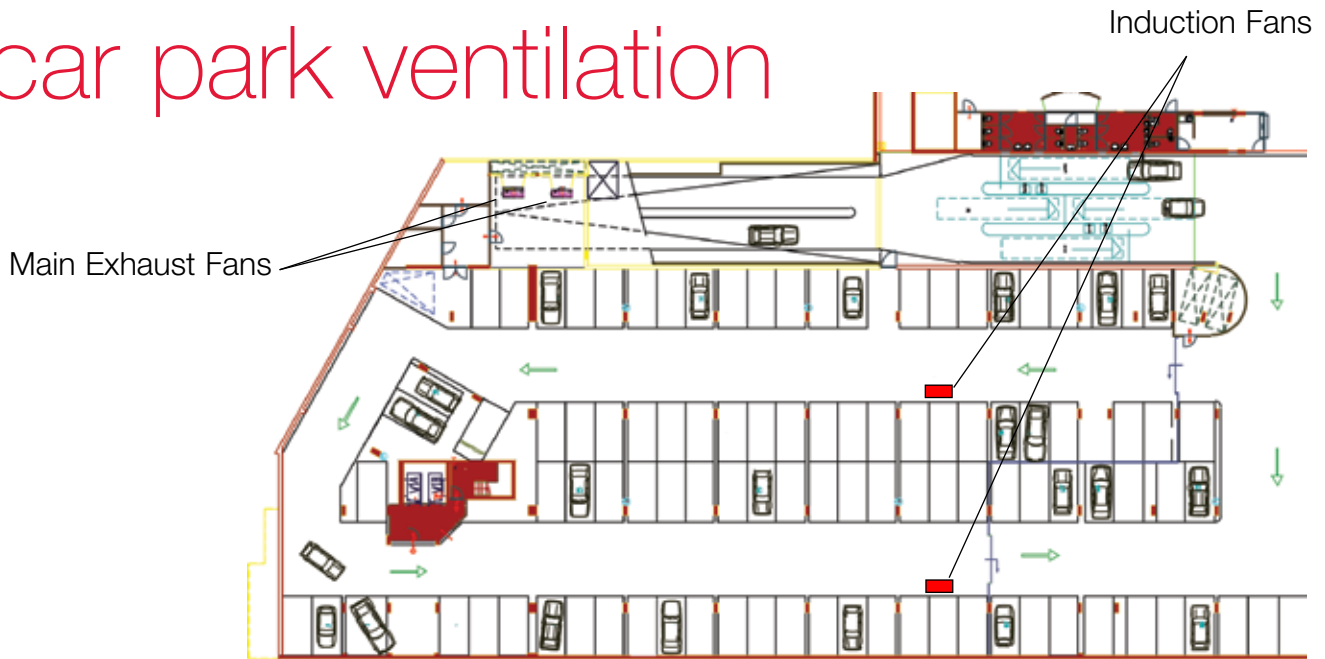


Figure 4.0 Extract from typical car park impulse ventilation schematic



SmokeVent Fan

The ventilation level to be provided within the car park (in order to limit the concentration of carbon monoxide and other vehicle emissions and to remove smoke in the event of a fire) can be found in the relevant Building Regulations and in BS 7346-7:2006 Components for smoke and heat control systems – Code of practice on functional recommendations and calculation methods for smoke and heat control systems for covered car parks.

Elta Fans is a major supplier of axial flow fans for fresh air supply and extract as well as for emergency smoke ventilation systems. The SmokeVent range is specifically developed for general ventilation plus emergency smoke extract at either 200°C or 300°C for 2 hours using fans up to 2000mm in diameter or 400°C for 2 hours up to 1250mm in diameter.

Elta can thus supply the main exhaust fans to operate in conjunction with the JetVent Induction fans. A typical cross-sectional view of an induction fan directing the smoke to the main exhaust fan can be seen in Figure 5.0.

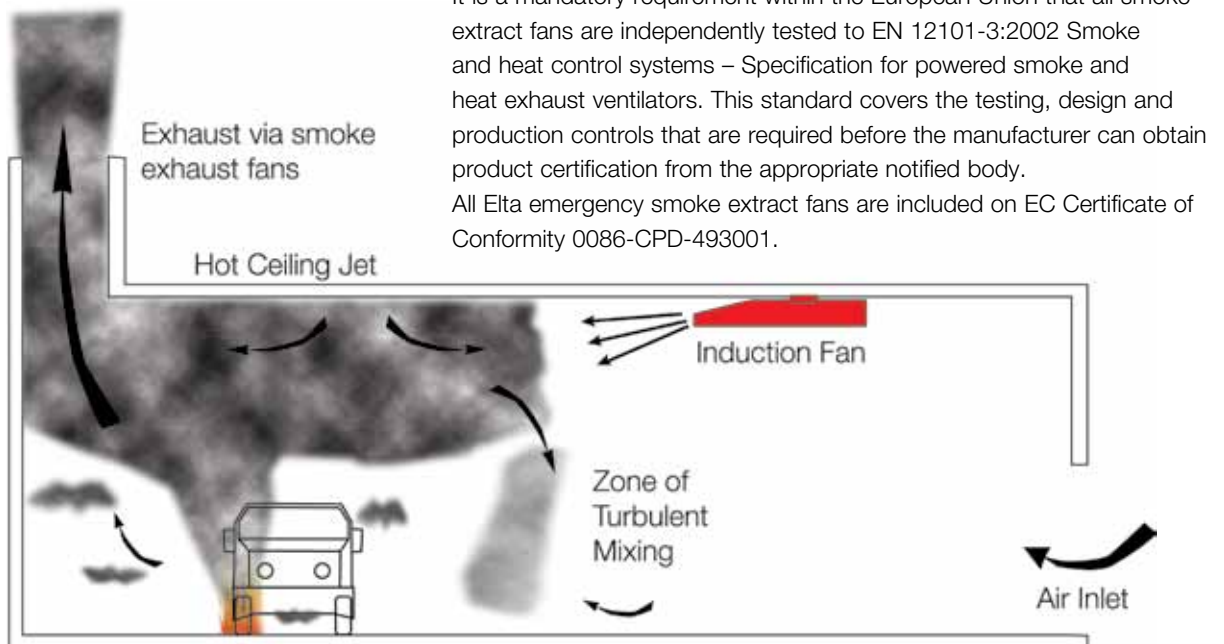


Figure 5.0 Induction ventilation for smoke movement

It is a mandatory requirement within the European Union that all smoke extract fans are independently tested to EN 12101-3:2002 Smoke and heat control systems – Specification for powered smoke and heat exhaust ventilators. This standard covers the testing, design and production controls that are required before the manufacturer can obtain product certification from the appropriate notified body.

All Elta emergency smoke extract fans are included on EC Certificate of Conformity 0086-CPD-493001.

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performance, electrical & wiring data

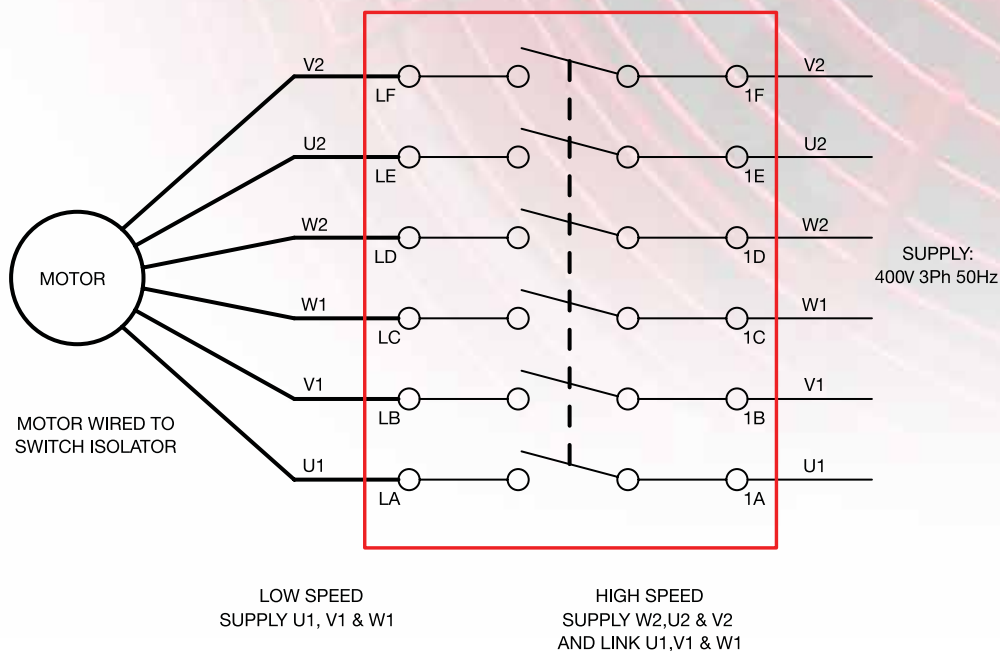
Motors shown below are suitable for the following:-

- A) General use at temperatures (ambient) +40°C
- B) One off high temperature use of 300°C for 2 hours
- C) 400Volt / 3 Phase / 50Hz Electrical Supply
- D) All thrust figures are measured under test conditions
- E) Volume flow and velocity figures shown may have been calculated in accordance with test requirements
- F) All the test data shown has been prepared in accordance with ISO 13350 1999 / BS 848-10-1999
- G) dBA figures are free field sound pressure levels at 45° to the outlet

Product Code	Thrust Newtons	Volume Flow Rate m ³ /s	Velocity m/s	Sound Pressure dBA @1m
JISU-2-CPC-50N	54/12	1.63/0.80	28.82/14.05	75/59
JISU-2-CPC-100N	98/18	2.65/1.35	33.19/16.87	76/60

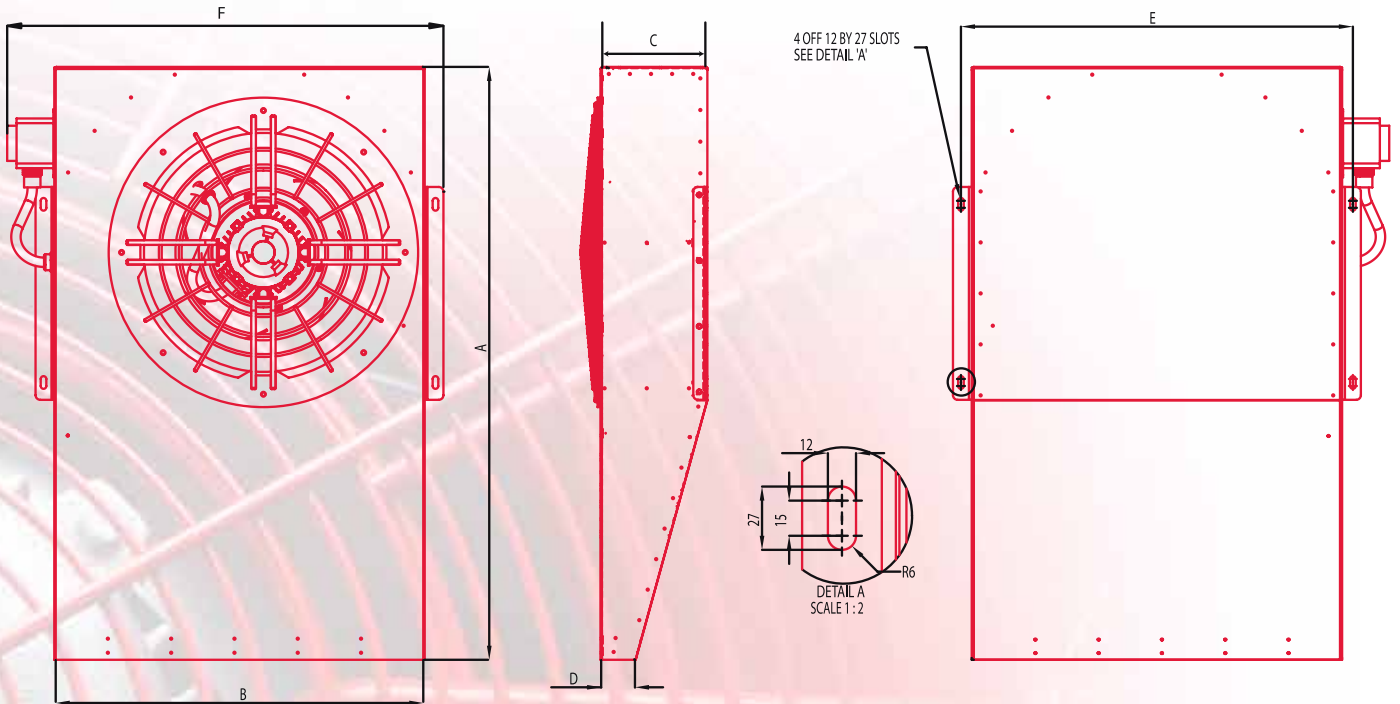
Product Code	Speed r/min	Motor Power kW	FLC Amps	SC Amps	Absorbed Power kW
JISU-2-CPC-50N	1447/733	1.38/0.35	3.20/1.36	16.0/4.08	1.13/0.25
JISU-2-CPC-100N	1423/729	2.42/0.61	5.42/2.12	30.4/7.21	2.38/0.45

wiring diagram

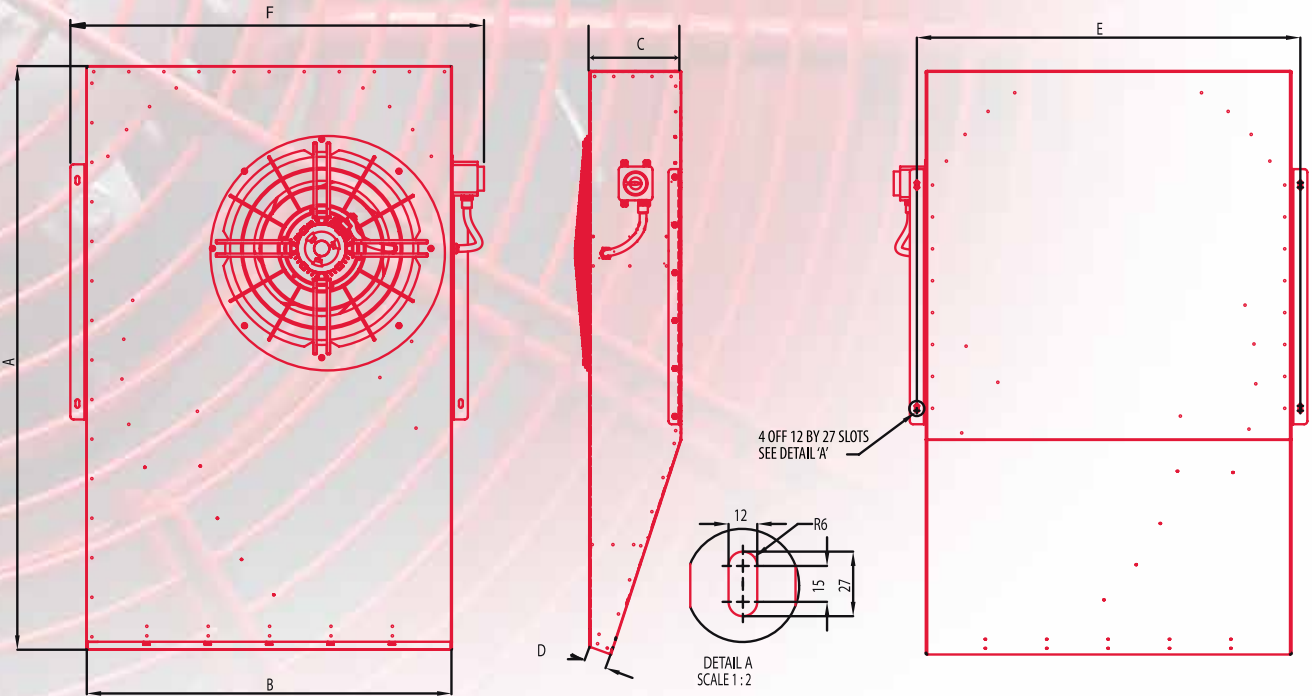


dimensional data

JISU-2-CPC-50N



JISU-2-CPC-100N



Product Code	A	B	C	D	E	F	Weight kg
JISU-2-CPC-50N	1265	784	271	72	836	931	86
JISU-2-CPC-100N	1830	1144	333	70	1203	1297	160

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MIXED FLOW

DELTA FANS
DANGER
CE



Induction **Ventilation**

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MIXED FLOW

specification

The JetVent Mixed Flow induction unit provides 50N of thrust and is suitable for ambient operating temperatures of up to 70°C.

casing

The all metal fan casing provides a long lasting and robust construction.

The integral mounting feet on the casing allow the unit to be mounted directly to the ceiling.

All casing parts are manufactured from pre-galvanised sheet steel and can be powder coated to any RAL colour upon request and at an additional cost.

impeller

Adjustable pitch mixed flow impellers with the blade angle set to meet the required thrust. The impeller construction comprises aluminium spinnings and pressings in natural finish, with steel hub assemblies, suitably zinc plated.

Impellers are dynamically balanced to Grade G6.3.

motors

Motors are highly efficient induction type, protected to IP55 with sealed for life ball bearings, standard industrial paint finish and Class F insulation to EN 60034-5, suitable for operating temperatures of up to 70°C.

Each unit is fitted with a pad lockable external isolator switch, weatherproofed to IP65.

quality management

All JetVent Mixed Flow units are designed and manufactured with procedures as defined in BS EN ISO 9001: 2000.

JetVent Mixed Flow units are tested to ISO 5801:1997 (airside performance) and to BS 848 Pt 2:1985 (sound performance).



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MIXED FLOW

performance, electrical & wiring data

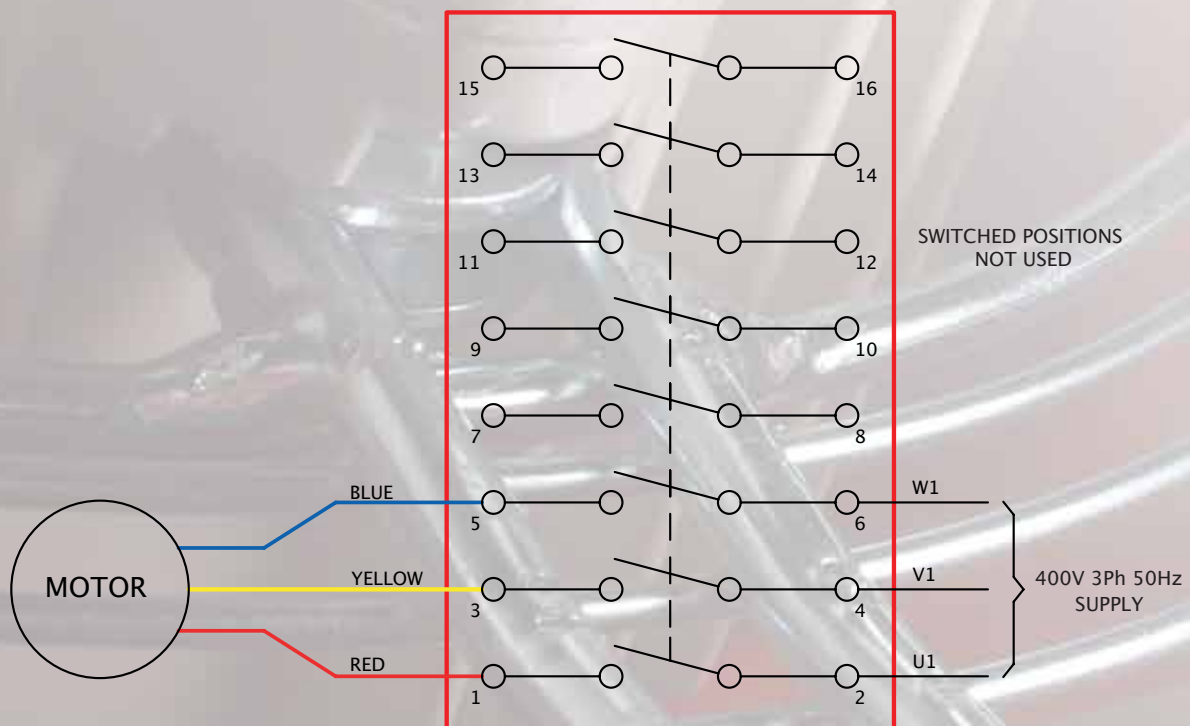
Motors shown below are suitable for the following:-

- A) General use at temperatures (ambient) +40°C
- B) 400Volt / 3 Phase / 50Hz Electrical Supply
- C) All thrust figures are measured under test conditions
- D) Volume flow and velocity figures shown may have been calculated in accordance with test requirements
- E) All the test data shown has been prepared in accordance with ISO 13350 1999 / BS 848-10-1999
- G) dBA figures are free field sound pressure levels at 45° to the outlet

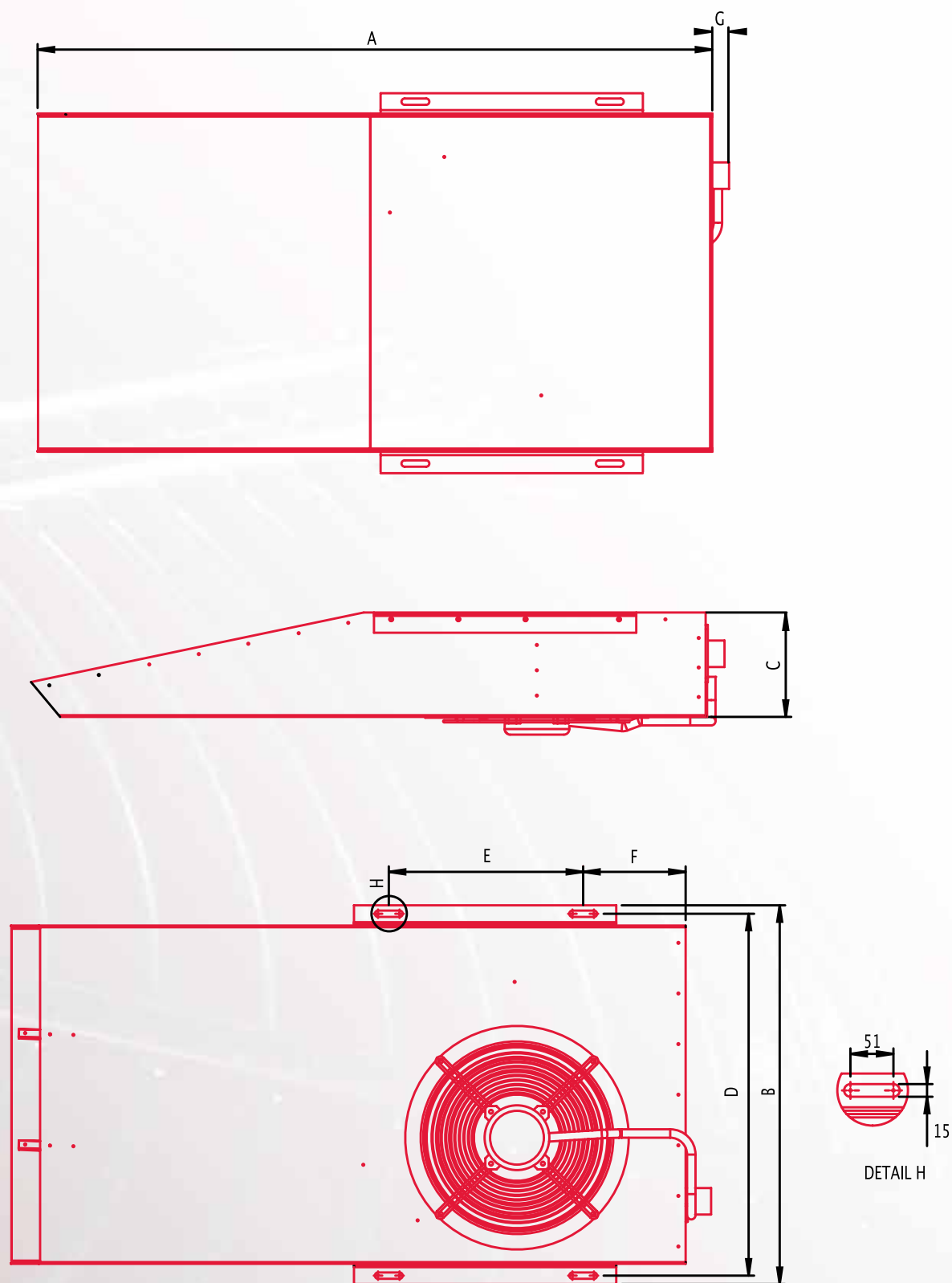
Product Code	Thrust Newtons	Volume Flow Rate m³/s	Velocity m/s	Sound Pressure dBA @1m
JIV-CPMF-50	50/38	1.51/1.28	22.1/18.85	69/65

Product Code	Speed r/min	Motor Power kW	FLC Amps	SC Amps	Absorbed Power kW
JIV-CPMF-50	1378/1173	1.50/0.80	4.30/2.90	15.50	1.24

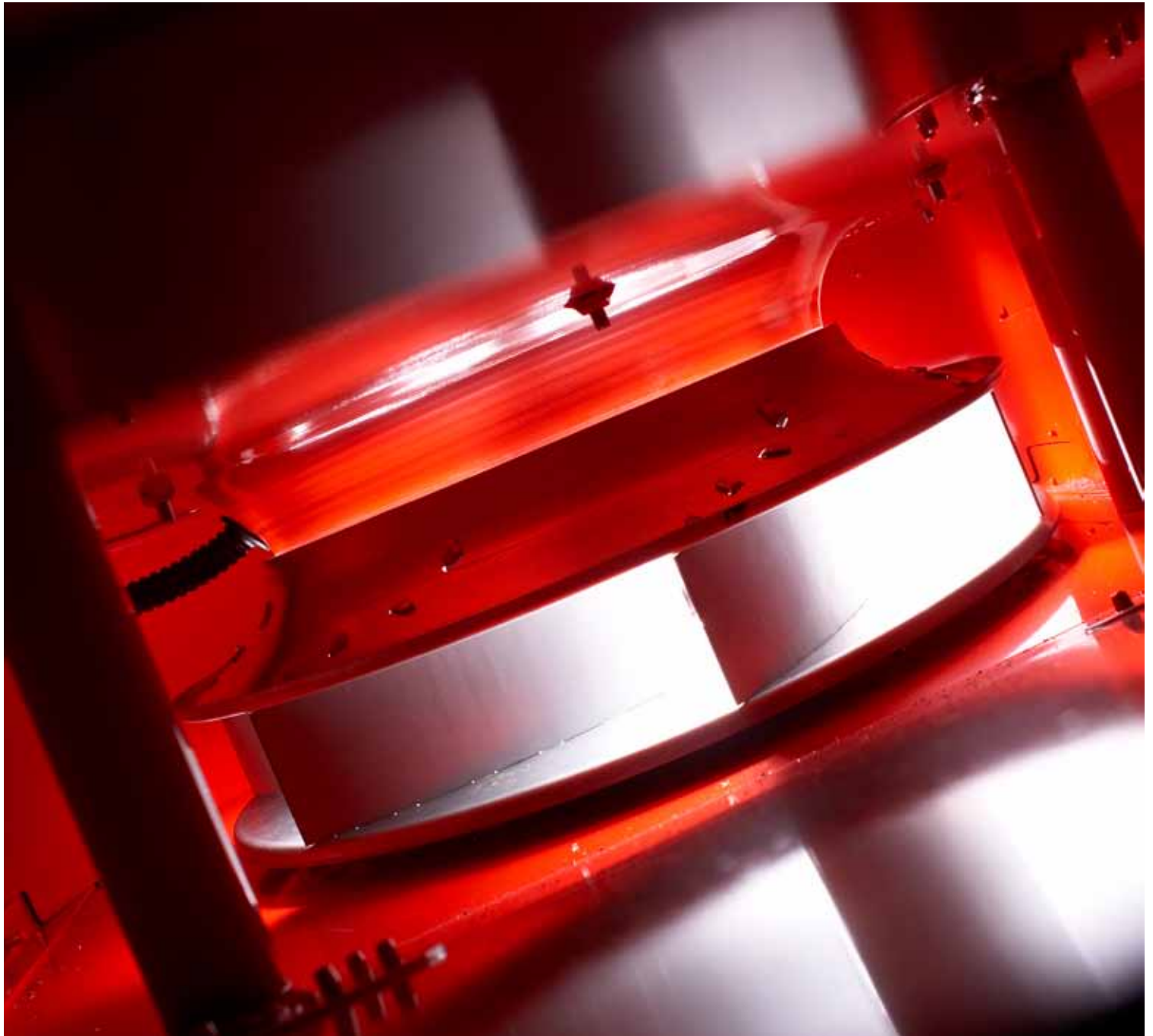
wiring diagram



dimensional data



Product Code	A	B	C	D	E	F	G	Weight kg
JIV-CPMF-50N	1600	898	247	858	461	243	125	81



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Innovation, Application, Determination

Distributed by:
Fantech Ventilation Ltd
Unit 3, Airtown Business Park, Airtown Road,
Tallaght, Dublin 24.

Visit: fantechventilation.com
e-mail: info@fantechventilation.com

Tel: +353 01 452 3211 **Fax:** +353 01 452 8115

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