

Air Flow Solutions



Industrial Fans

Blowers, hot air fans, flue dilution and OEM fans





HOT & COLD



Supplying your cool and hot air requirements



Industrial Fans

Why industrial fans?

Airflow Developments are continuously monitoring changes with regulation requirements for Industrial Fans: Regulation EU327/2011 or ErP for short.

We offer an extensive range of stock fans Ex-stock / Off the shelf.

We can also offer OEM specials to order. All of which incorporate and comply to regulations.

STOCK AND STANDARD

A range of single inlet, double inlet AC and EC, compact and duplex fans and blowers for a wide range of air movement applications.

OEM

A range of bespoke, custom designed fans and blowers to suit specific customer requirements. Competitively priced and available in quantity batches.

FLUE GAS DILUTION

Mild or stainless steel fans for safe dispersal of CO₂.

HOT FANS

High temperature centrifugal fans for hot air applications.



For the latest ventilation news, information, product data and application advice

airflow.com



Industrial Fans Introduction

Introduction

Airflow have been producing high quality air moving equipment and industrial fans for nearly 60 years. During the whole of this period Airflow has been in the forefront developing new techniques and advanced designs. Today the results of this sustained effort can be clearly seen in the variety and quality of products available for all types of industrial air handling requirements.

Most of these industrial fans are available ex-stock direct from Airflow, or through our nationwide dealer network. Variants on the standard range can be made to meet specific needs for customers ordering larger quantities. Please contact Airflow to discuss your requirements.

Performance Testing

Airflow Developments Limited has its own air movement laboratory. Fans are performance tested in accordance with BS EN ISO 5801: 2008 and BS EN 848-1: 2007.

BS EN 13141 - 4 : 2004	-Performance testing of products for residential ventilation
BS EN 60335 – 1: 2012	-Household and similar electrical safety / general requirements
BS EN 13347 – 3 : 2004 +A1: 2010, BS 848-2.3:2004	-Industrial fan sound power levels under standardised lab conditions
BS 848 – Part 2 : 1985	-Fans for general purposes, methods of noise testing

Single inlet fans



This range of fans has been developed to provide reasonable volumes of air against resistances to flow greater than can be achieved from small tube axial fans. As the name denotes these fans feature a single inlet to the fan scroll which enables them to achieve this greater volume performance.

Compact overall dimensions have been achieved using forward curved, centrifugal impellers and two-pole (typically 2800 rev/min.) motors.

The range has fans covering flow rates from 2.8 l/sec to 130 l/sec and static pressures up to 500 Pa for the largest unit.

Double inlet fans



A range of fan units developed from the demands of the Domestic Warm Air Market where large volumes of air at low outlet velocities are required from very compact units.

All the fans feature two large inlets and a generous outlet, which, combined with low impeller speeds ensure that aerodynamic noise is kept to a minimum. Motor noise and mechanical vibration is reduced considerably by using a patented three-point resilient motor mounting.

All the fans in this range can be speed controlled to give a variety of duties, by voltage variation.

EC Single and EC Double inlet fans

A range of High Efficiency EC Motor Driven Single and Double inlet fans that can achieve from 93 l/sec to over 1200 l/sec and are fully compliant to the minimum efficiency regulation rates of ErP 327/2011 – 2013 and 2015. The fans incorporate integrated EC type motors with forward curved impellers dynamically balanced to grade 6.3 Din ISO 1940.



Fan cases are constructed from galvanised mild steel which is then powder coated blue. Impellers are manufactured from galvanised mild steel.

Each fan casing is fitted with an outlet flange incorporating fixing holes for ease of installation.

With a standard 230 V electrical supply and controlled via 0-10V input, varying duty points can be selected for each fan by the user.



Duplex fans

The duplex or twin scroll fan unit is basically two fans driven from a common motor which has a double shaft.

The purpose of the design is to provide air across a broad front, for example a water to air heat exchanger. They have an inherent advantage over the crossflow (or tangential) fan in that the forward curved centrifugal impellers have a better pressure development characteristic.

Compact fans



A range of compact single inlet direct drive fans that can achieve from 83 l/sec to 146 l/sec where space is at a premium. The fans incorporate external rotor motors with integral tab lock constructed forward curved impellers dynamically balanced to grade 6.3 din ISO 1940.



Hot fans

Specifically designed direct drive fans to handle hot air or the products of combustion from gas burning appliances up to temps of 250°C.

There is an intermediate cooling impeller (an Airflow pioneering design) which eliminates the problem of short motor/bearing life which is commonplace when operating at these temperatures. The range covers from 62 l/sec to 120 l/sec.



Flue Gas Dilution fans

With the main advantage of avoiding the use of unsightly or expensive flues

The Institute of Gas Engineers UP 10/part 1 (issue 3) regulations require that if the products of combustion are dispensed at low level then the CO₂ content must be 1% or less. Airflows flue dilution range achieves this by introducing fresh air into the boilers discharge flue duct and diluting these flue gases. In two ranges GBDF and SSDF with 5 sizes in each range allow selection for

industrial and commercial boilers railed up to 650 kW (2,200,000 Btu) singly and can be selected in parallel for boiler sizes exceeding this.

Technical general information

Airflow centrifugal fans are ideal general purpose units for ventilation, cooling and air moving applications where ambient temperatures do not exceed 40°C. The exceptions are Hot fans & Flue Dilution fans

A degree of speed control is possible with these ranges of fans, again excepting the Flue Dilution fans and Hot fan range.

Although more than adequately sealed and protected for general applications, these fans are unsuitable for handling explosive, inflammable, or highly corrosive gases or gas/air mixtures.

Construction

Apart from the three smallest fans in the Single Inlet range the fan casings (scrolls) are manufactured from zinc coated sheet steel components spot-welded together to provide a very rigid construction. They are painted blue using modern powder spraying techniques which give a tough durable finish. The impellers are created from a continuous strip of formed blades which are "roll seamed" and locked into a back plate and inlet ring to provide a rigid, concentric impeller wheel.

Maintenance

The fans are generally designed for use in "normal" air movement conditions. Filters should be used where contaminants and dust burdens. It is an important periodic examination and if necessary, cleaning of the impeller is undertaken. This will avoid dust or dirt build-up on the blades which, if not removed, will impair the capabilities of the fan to move its designed air volume.

A Fan for all Applications

Is your application here?

Our fans have been successfully used in many diverse applications. The following is offered as a typical guide to our industrial fans and their applications. However, we are happy to advise on selecting the correct fan for your application.

HVAC

(Heating, Ventilating & Air Conditioning)



- **Air cleaners and fan/filter units**
Moving air through electrostatic, carbon, HEPA and other filter media
Single inlet and fans 40BTFL to 83F2WL double inlet

- **Air conditioning units**
Distribution of conditioned air
Generally double inlet types



- **Boiler combustion air fans (gas fired)**
Providing air or a gas/air mix to burners
40BTFL

- **Boiler/heater flue fans (gas fired) and gas fired overhead radiant tube heaters**
Assistance for exhausting the products of combustion to atmosphere
45BTFR-HT, 52BTX-HT, 71BTX-HT

- **Dehumidifiers (domestic & commercial)**
Distribution of dehumidified air in homes, timber warehouses etc
Typically impellers or fan parts sizes 27 to 71

- **Door curtains**
Warm air "curtain" at doorways, retail and industrial premises
Double Inlet fans, Duplex fans

- **Fan coil units**
Passing air over heat exchangers for heating, typically offices
Duplex fans

- **Flue dilution fans**
Dilutes combustion products from gas fired boilers to low level discharge
The flue dilution GBDF and SSDF ranges

- **General air handling units (AHU'S)**
"Central" plant for distributing air into a ventilation system, heated, filtered etc
Generally the ranges of double inlet fans



- **General ventilation**
Simple distribution of air through combination of ducts, grilles etc
Generally the ranges of double inlet fans

- **Heat recovery units**
Fans used for supply and extract. Supply fan collects heat from exhaust air
90G2WL (4 and 6-pole) 102H2WL14
- **Industrial warm air heating**
Distribution of warm air lphw, steam and gas fired heat exchangers
Double inlet fans eg. 102H2WL
- **Oil burners**
Provides combustion air for oil fired boilers
Generally impellers only typically 45 and 52 sizes
- **VAV (variable air volume) units**
Mixing of conditioned and re circulated air and distribution into offices
Double Inlet fans 71E2TIXR, 83F2WL, 90G2WL, 102H2WL

Production/process equipment

- **Air conveying**
The transportation of lightweight product along ducts or channels
71 size impellers, ACF 160x62, 57DTLG90



- **Laminar Flow cabinets**
Provide uniform, clean air flow across work stations, electronics mfg. etc.
90G2WL, Duplex etc.

- **Packaging machinery**
Various functions inc. cooling shrink wrap and polythene bag inflation
33BTFL, 40BTFL



- **Plastic bottle manufacturing**
Cooling mass produced plastic bottles used in the soft drinks industry
45CTL, 52B7XL



- **Plastic extrusion machines**
Cooling extrusion barrels
45CTL, 52BTXL

- **Printed circuit board manufacture**
Cooling, testing and solder fume extract
52BXL

- **Tank heaters**
Blowing hot combustion product down tubes for indirect heating of liquids
52BTXL

- **Tunnel ovens**
Heating, cooling and mass produced products
57BXL

- **Vacuum forming machines**
Cooking large plastic components to speed up production cycle time
52BTXL



Electrical, electronics & optical

- **Electronic component cooling, general**
To dissipate heat build up generated by components, within enclosures
21ATXL, 40BT Duplex and larger. Could be any fan size/type
- **Cooling of large motors & transformers**
Forced ventilation through machines to keep temperatures within limits
52BTXL, 52DS, 57DT
- **Photocopiers**
Lamp cooling
33BT or similar
- **Photographic processing equipment**
Drying film, litho plates etc.
45CTL, 52BTXL, 102H2WL
- **Projection equipment, theatre & disco lighting equipment**
Condenser lens cooling for conventional and laser light
ACF 120X62, 45BTFL
- **Telecommunications; mobile phone transmitter cabins**
Ventilation of cabins containing transmitter electronics
90G2WL/6, 90G2WL/4, 102H2WL



Laboratory & medical equipment

- **Environmental chambers**
Circulation of conditioned air
90G2WL, various impeller sizes
- **Laboratory ovens**
Hot air circulation
Radial oven impellers 45BFR hot fans
- **Medical isolation beds**
Supply of sterile air to highly contagious patients
40 Duplex - Single Inlet fans



Leisure

- **Bouncy castles**
Inflation and maintenance of pressure
Impellers for robust and portable fans, typically 52, 57 and 71 sizes - Single Inlet fans
- **Film & theatre special effects**
Smoke effect, flying effects etc.
90G2WL often used Double Inlet fans



- **Swimming pool domes**
Inflates and maintains plastic dome over outside swimming pools
90G2WL Double Inlet fans

Domestic equipment/appliances

- **Cooker fans**
Circulation of hot air around oven cavity
- **Commercial catering ovens**
Circulation of air warming and cooking ovens
26BTC, 52BTXL (hot)
- **Gas fire flue boosters**
Extract combustion products from "open" fires without a flue
40BTFL HT
- **Microwave ovens (commercial)**
Cooling of the microwave magnetron
26BTC, 40BTFL, 45CTL
- **Shower/steam cubicles**
Circulates warm air into shower
21ATXL Single Inlet fans



Miscellaneous

- **Air tables for the clothing manufacturing industry**
Provides an air cushion to allow multiple layers of cloth to be moved for cutting
64ES Stool fan / Double Inlet fans
- **Commercial catering ovens**
Circulation of air warming and cooking ovens
26BTC, 52BTXL (hot)
- **Commercial vehicle ventilation**
Part of the heating and ventilation system in truck cabs, coaches and vans
40B2T Duplex (less motor) 45 impellers
Single Inlet fans
- **Grain conditioning**
Permanent trickle ventilation in grain silos and "spot cooling" with a tube spear
Double Inlet fans and 52BTXL for the spot cooling
- **Hydraulic oil coolers**
Driving air through oil cooling heat exchangers on transport vehicles
Impellers only 52 to 76
- **Laundry equipment**
Ventilation of industry ironing boards
52BTXL fans, 71D impellers
- **Military**
Electronic cooling in sonar, radar equipment etc.
40B2T Duplex, 90G2W Double Inlet
- **Vehicle washers**
Cooling pump motors
57B impellers and cases - Single Inlet fans



Single Inlet

Small centrifugal fans



KEY FEATURES

- Ecodesign ErP 2015 compliant
- Smaller sized direct drive fans
- Excellent air flow / pressure capability for size
- High velocity at discharge from larger models for localised 'spot cooling'
- Easy installation
- Very low maintenance
- Quiet operation

Single Inlet Fans

A comprehensive range of small single inlet fans primarily developed for the electronics market and manufacturing process. Suitable for handling ambient temperature to 40°C. Constructed in die cast metal, ABS plastic, or mild steel depending on model, the range can achieve from 5.1

l/sec up to 128 l/sec . The majority of fans are ex-stock. Variance for OEM applications are available on request against a minimum order normally 100 off. Please apply to customer services for non standard designs.



APPLICATIONS

- Filter units
- Electronic internal component cooling
- IC testing
- Cooling large motors and transformers
- Photocopiers
- Photographic processing equipment

* Note - Fans are not suitable for EEXE, EEXD, ATEX or corrosive atmospheres

- Packaging machinery
- Plastic extrusion
- PCB manufacture
- Solder extraction fumes
- Microwave ovens
- Leisure applications, bouncy castle etc
- Car washers

SPECIFICATIONS

Driven by either open frame shaded pole, ventilated voltage shaded pole or permanent capacitor type motors, very low maintenance is achieved by incorporating 'sealed

for life' bearings typically offering bearing life L10. 25,000 hours in ideal conditions. Test data in accordance with BS 848 Part1/ ISO 5801-2007.

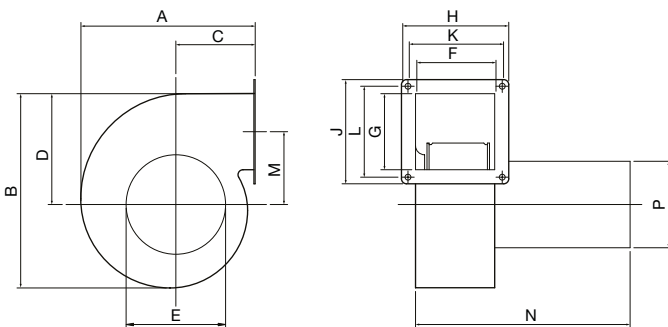
* A degree of speed control is available on models 33BTFL, 40BTFL, 45CTL by voltage variation

TECHNICAL DATA

Fan Model	Supply voltage	Frequency	Capacitor value	Max running current	Start current (approx)	Max input watts	Max air flow	Min static pressure	Noise level	Speed at max air flow	Weight	Max ambient temp
	Volts	Hz	µF	Amperes	Amperes	Watts	Litres/s	Pascal	dBA*	Rev/m	kg	°C
21ATXL	230	50	N/a	0.12	0.155	15	5.1	0	34	2720	0.7	40♦
26BTML	230	50	N/a	0.12	0.155	15.5	18.2	0	40	2230	0.7	40♦
26BTCL	230	50	N/a	0.12	0.155	15	16.2	0	34	2180	0.9	40♦
33BTFL	230	50	N/a	0.20	0.27	29.5	29.3	0	41	2380	1.3	40♦
40BTFL	115 / 230	50	N/a	0.75 / 0.375	1.08 / 0.54	57	49	0	50.5	2500	1.5	40♦
45CTL	115 / 230	50	N/a	1.8 / 0.9	2.4 / 1.2	130	86.5	0	56.5	2330	2.4	40♦
52BTXL	230	50	4	0.63	2.35	144	118.5	0	59	2835	3.5	40♦
57BXL	230	50	4	0.81	155	187	128	0	63.5	2730	4.4	40♦

*at 1 metre ♦Impedance Protection ♦Thermal Protection

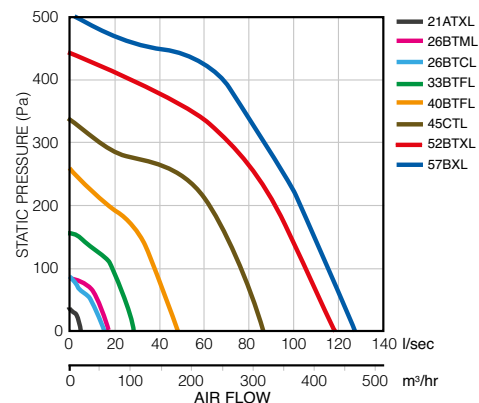
DIMENSIONS



Fan Model	A	B	C	D	OE INLET	F INSIDE	G INSIDE	H	J	K CRS	L CRS	M	N	OP
21ATXL	85	88	43	49	42	28	34	-	-	47	-	30	90	-
26BTML	102	116	46	66	57	52.4	41.3	-	-	-	50.8	-	114	-
26BTCL	102	116	45	73	57	51	41	-	-	-	51	-	112	-
33BTFL	130	135	62	76.5	67	57	46.4	83	72	70	60	53.3	125	-
40BTFL	141	156	64	90	83	57	64	84	90.5	69.8	76.2	58	157	83
45CTL	172	189	79	107	95.5	76	73	103	100	90.5	87.3	70	206	83
52BTXL	195	216	89	124	111	64	89	117.5	117.5	88.9	73	78.5	175	100
57BXL	214	232	98	131	133	64	89	117.5	117.5	88.9	73	85.7	175	100

Dimensions are for guidance only - certified drawings available

PERFORMANCE



CONTROLS AND ACCESSORIES



See accessories for the range of Commercial Speed Controllers

Double Inlet

Higher volume centrifugal fans



KEY FEATURES

- Ecodesign ErP 2015 compliant - depending on model
- Large range of standard fans to suit all applications ex-stock
- Designed for low noise requirements
- Speed controllable
- Greater pressure capability available on some models for higher resistances
- Solution to space critical applications
- In-built thermal protection
- Vertical and horizontal discharge mounting

Double Inlet Fans

This range of fans are designed specifically for applications where low noise levels and/or space is an issue. Both models offer a good range of motor speed via voltage variation. Suitable for ambient temperatures of 40°C with inbuilt thermal protection. Dynamically

balanced to DIN ISO 1940 G. 6.3. OEM Variants are available on request. Please apply to customer services for non-standard design (Minimum order quantities will apply)



APPLICATIONS

- Filter units
- VAV boxes
- Smaller AHUs
- Domestic heat recovery
- General ventilation
- Industrial warm air movement
- Telecommunications / phone transmitter cabins
- Environmental chambers
- Special effects for the film industry
- Swimming pool / tennis court domes
- Clean air flow across workstations

SPECIFICATIONS

Models in this range feature forward curved impellers constructed from aluminium with fan cases fabricated from mild steel. For ease of installation units have fitted outlet flanges which have pre drilled mounting holes. Units can be mounted vertically or horizontally. For ease of electrical connection units are supplied with flying leads or pre

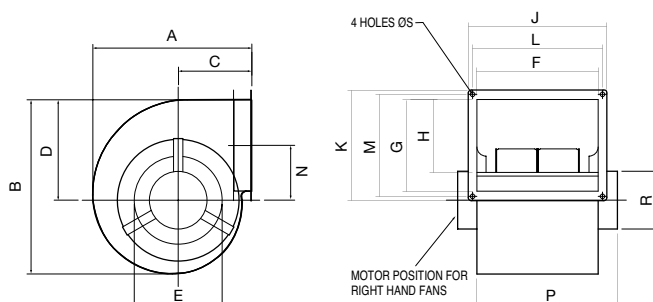
wired capacitor with terminal block. Low maintenance is achieved by using “Sealed for life” type bearings allowing a typical bearing life L10-25,000 hours in ideal conditions. Impellers are balanced at manufacture. Test Data in Accordance with BS 848 part 1/ISO 5801-2007.

TECHNICAL DATA

Fan Model	Supply voltage	Frequency	Capacitor value	Max running current	Start current (approx)	Max input watts	Max air flow	Min static pressure	Noise level	Speed at max air flow	Weight	Max ambient temp
	Volts	Hz	µF	Amperes	Amperes	Watts	Litres/s	Pascal	dBA*	Rev/m	kg	°C
57FTQR/4	230	50	N/a	0.53	0.75	92	175	0	48.5	1150	3.2	40●
71E2TIXR/6	230	50	2	0.5	0.81	105	235	0	45.5	850	6.7	40●

*at 1 metre ●Thermal Protection

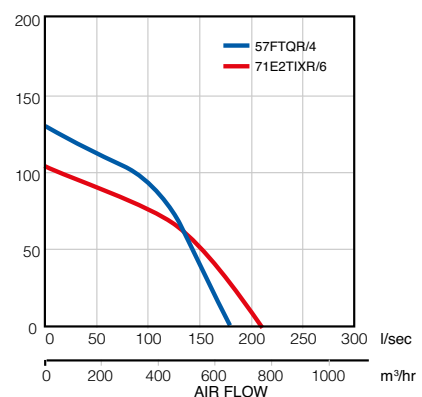
DIMENSIONS



Fan Model	A	B	C	D	ØE INLET	F INSIDE	G INSIDE	H	J	K CRS	L CRS	M	N	P	ØR	ØS
57FTQR	224	248	102	142	127	127	95	-	166	136	149	119	94.5	140	-	5.6
71E2TIXR	278	305	129	175	140	210	127	-	250	167	232	149	110	255	105	9.6

Double width double inlet fans

PERFORMANCE



CONTROLS AND ACCESSORIES



See accessories for the range of Commercial Speed Controllers

Compact Fans

Narrow, high performance centrifugal fans



KEY FEATURES

- Ecodesign ErP 2015 compliant - depending on fan size
- 'Compact' Direct drive fans
- External rotor motor
- Engineered for significant benefits in performance and pressure development
- Designed for handling air within 'space critical' equipment
- Temperature up to 65°C

ACF compact Fans

Airflow Development's compact direct drive fan can achieve 83 l/sec. This fan is specifically suited where space is at a premium. The fan incorporates an external rotor motor with integral tab lock constructed forward curved impeller. Impellers are dynamically balanced to grade 6.3 DIN ISO 1940. Fan casings are manufactured

from mild steel which is coated with a robust paint finish. Casings incorporate an output flange with integral fixing holes for ease of installation. OEM variant are available on request. Please apply to customer services for non-standard design (Minimum order quantities will apply).



APPLICATIONS

- Compact cooling in electronics / server cabinets
- Lighting and cinema equipment
- Smaller air conveying systems
- Fume cupboards

* Note - Fans not suitable for EEXE, EEXD, ATEX or corrosive atmospheres

- Museum interactive displays
- Plastic manufacturing
- Any application demanding 'space critical' air movement
- Car washers

SPECIFICATIONS

This fan is eminently suitable for speed control via voltage variation due to the use of an external rotor motor. For ease of electrical connection the unit is supplied with flying leads. Very low maintenance is achieved by the use of

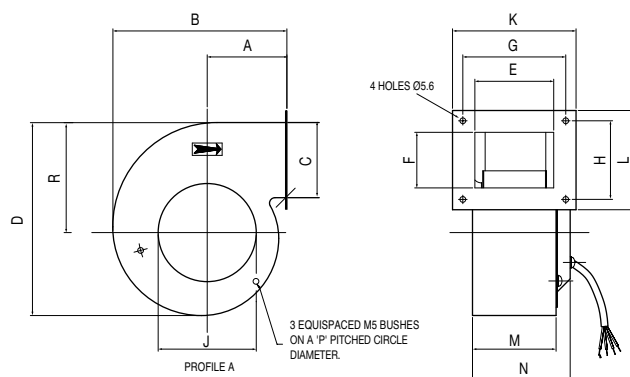
sealed for life bearings, typically offering a bearing life L10-25,000 hours in ideal conditions. Fans are suitable for any plane mounting. Test data in accordance with BS 848 Part 1/ISO 5801-2007

TECHNICAL DATA

Fan Model	Supply voltage	Frequency	Capacitor value	Max running current	Start current (approx)	Max input watts	Max air flow	Min static pressure	Noise level	Speed at max air flow	Weight	Max ambient temp
	Volts	Hz	µF	Amperes	Amperes	Watts	Litres/s	Pascal	dBA*	Rev/m	kg	°C
ACF120X62 L2	230	50	2	0.38	0.6	90	83	0	58	2020	1.95	65●

*at 1 metre ●Thermal Protection

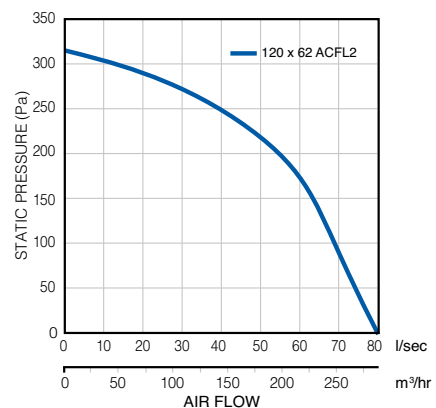
DIMENSIONS



Fan Model	Stock No.	A	B	C	D	E	F	G	H	I	K	L	M	N	P	R
120x62 L2	72371701	77	170	74	189	77	70	100	92	95	120	112	83	97	134	106

Dimensions are for guidance only - certified drawings available

PERFORMANCE



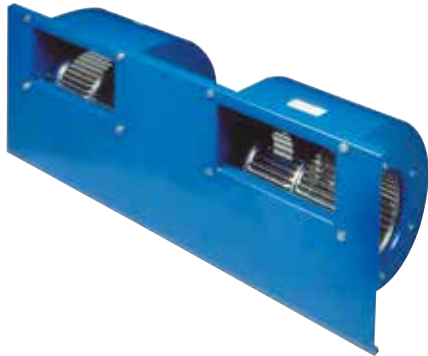
CONTROLS AND ACCESSORIES



See accessories for the range of Commercial Speed Controllers

Duplex Blower

Wider discharge centrifugal fan



KEY FEATURES

- Ecodesign ErP 2015 compliant
- Twin scroll duplex arrangement
- Designed to deliver a volume where a wider discharge footprint is required
- Higher volumes achieved with quiet sound level from 55.5 dB(A)
- Low fan profile
- Excellent air velocity for process and electrical cooling

Duplex Fans

The duplex or twin scroll fan is driven by a common motor with two drive shafts. This fan is designed to provide air across a wider discharge footprint at a much larger volume but with a smaller physical profile, for example across each surface of a heat exchanger. Variance for OEM applications is available on request

against a minimum order normally 100 off. Please apply to customer services for non standard designs.

The duplex fan covers up to 160 l/sec giving a definitive profile / volume advantage. Suitable for ambient air temperatures to 40°C.



APPLICATIONS

- Air curtains
- Laminar flow / clean air cabinets
- Fan coil units / heat exchangers
- Air convection systems
- Filtration systems

* Note - Fans not suitable for EEXE, EEXD, ATEX or corrosive atmospheres

- Military applications
- Medical applications
- Clean room environment
- Fabric conditioning / drying

SPECIFICATIONS

Driven by 2 pole dual voltage, motor, with impeller constructed from aluminium within mild steel casing. Electrical connection is via flying lead on terminal block for ease of installation, normally via the pre-drilled outlet

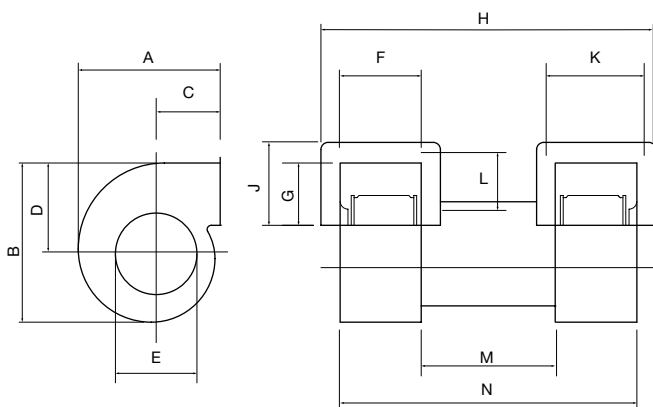
flanges, very low maintenance achieved by use of sealed for life bearings allowing a typical bearing life L10 – 25,000 hours in ideal conditions. Test data in accordance with BS 848 Part1/ ISO 5801-2007.

TECHNICAL DATA

Fan Model	Supply voltage	Frequency	Capacitor value	Max running current	Start current (approx)	Max input watts	Max air flow	Min static pressure	Noise level	Speed at max air flow	Weight	Max ambient temp
	Volts	Hz	µF	Amperes	Amperes	Watts	Litres/s	Pascal	dBA*	Rev/m	kg	°C
40B2TX/2DUP	230	50	N/a	1.12	1.6	154	151	0	55.5	2200	3.2	40●

*at 1 metre ●Thermal Protection

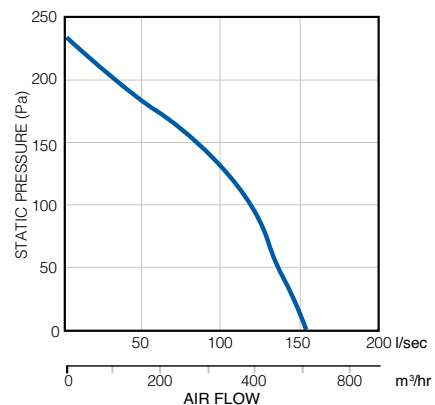
DIMENSIONS



Fan Model	A	B	C	D	ØE INLET	F INSIDE	G INSIDE	H	J	K	L	M	N
40B2X/2/DUP	129	157	57	90	83	105	64	336	78	118	57	98	310

Dimensions are for guidance only - certified drawings available

PERFORMANCE



CONTROLS AND ACCESSORIES



See accessories for the range of Commercial Speed Controllers

A Fan for all Applications



Why Buy EC Fans?

ErP "Ecodesign" Directive EU 327 / 2011
- A few questions and choices explained

The European Union has adopted the Kyoto agreement and through the Regulation of Energy Related Products (ErP) and environmentally friendly design (Ecodesign) aims to reduce CO₂ emissions from their 1990 level by 20% by 2020.

WHAT DOES THE REGULATION COVER?

Minimum efficiency levels for commercial fans with an input power of between 125 Watts and 500 Kilowatts in the EU marketplace.

WHAT IS EFFICIENCY?

If you imagine you have to blow some air into a room with a standard AC fan (current technology), you have to use a certain amount of energy to do it. This is how to explain how efficient the fan is. With an EC fan (new technology) you use a lot less energy to do the same job and are therefore MORE efficient!

WHICH COMMERCIAL FANS ARE AFFECTED?

Fans and motors of all types (axial, centrifugal with forward or backward curved impellers, and mixed flow fans) with an input power between 125 W and 500 kW are affected.

WHEN DOES ErP COME INTO FORCE?

It's already here

1st Tier started in January 2013 with a set level of efficiency requirements.

2nd started January 2015 with a higher level of efficiency required.

WHAT ARE AC AND (DC) EC MOTORS?

Electric motors can be divided into two types:

Alternating current (AC) electric motors and direct current (DC) electric motors. A DC electric motor will not run when supplied with AC current, nor will an AC motor run with DC current. However if you Electrically Commutate (EC) a DC motor will operate, hence the term EC motor.

AC type fans – use AC or Alternating Current motors.

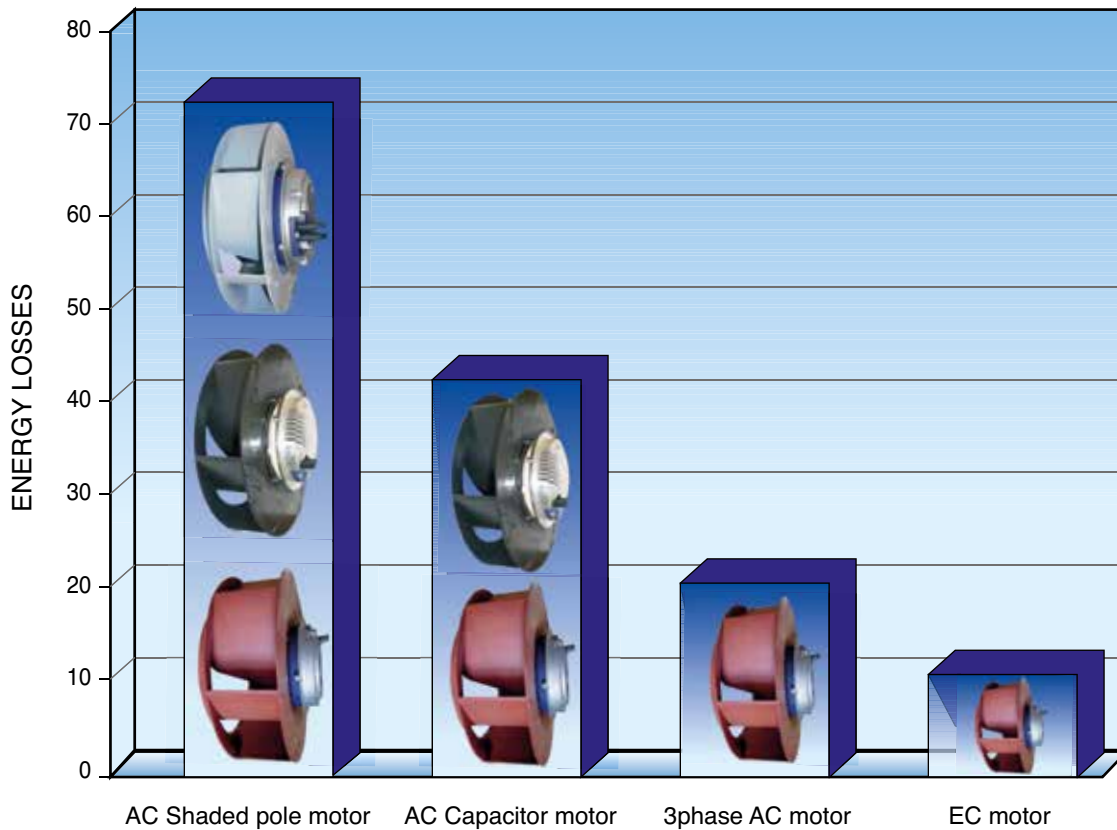
Of these types, brush electric motors are by far the most common. They are easy to build and very cost effective. Their major drawback is that they use carbon brushes to physically transfer electrical current to the rotating parts. In this transfer typical AC motors have losses in terms of power consumption (copper + iron losses), slippage and frictional losses (mechanical power). They are fairly in-efficient because they have to use more power to overcome these losses to maintain their performance.

EC type fans – use Electrically Commutated motors.

EC stands for Electronically Commutated and it combines AC and DC voltages, bringing the best of both technologies. A permanent-magnet brushless DC motor within the rotor is driven by electronic switches (which replace the carbon brushes), controlled by a microcontroller, and as such are electrically commutated. EC motors have no slippage thereby reducing losses and increasing efficiency to a high level.



MOTOR EFFICIENCY COMPARED AC / EC



AIRFLOWS EC FANS

Our new EC range of single and double inlet fans are fully compliant with the regulation and use up to 80% less energy than standard AC fans would for the same job.

So you can now replace your existing single or double Inlet AC fan easily, with one of the range of NEW Airflow EC fans, or you can simply choose an EC fan for your new application.

Whichever way you choose to use our EC fans as you would expect from Airflow, thanks to the union of high efficiency EC motors and impeller design you can be assured of finding the correct Industrial ErP compliant fan for your application from our range, making Airflow the "natural" choice.

EC Single Inlet Fans

Small voltage controlled EC centrifugal fans



KEY FEATURES

- Ecodesign ErP 2015 compliant
- Compact size direct drive fans
- EC high efficiency motor
- Engineered for significant benefits in performance and pressure development
- Designed for handling air within 'space critical' equipment
- Tachometer output 0-10V
- Temperature up to 40°C
- EC motor variable speed control via voltage 0-10V Input
- Range of EC single fans - ex-stock

EC Single Inlet Fans

A range of compact high efficiency driven EC fans that achieve from 83 l/s to 115 l/s and fully comply to the minimum efficiency regulation rates of ErP 327/2011 – 2013 and 2015. The fans incorporate integrated EC type motors with tablock constructed forward curved impellers dynamically balanced to grade 2.5 DIN ISO 1940. Constructed from mild steel with a robust paint finish, each fan casing is fitted with an outlet flange

incorporating fixing holes for ease of installation. Simply choose a compliant EC fan for your new high efficiency application.

OEM variants are available on request. Please apply to customer services for non-standard design (minimum order quantities will apply).



APPLICATIONS

- Compact cooling in electronics / server cabinets
- Lighting and cinema equipment
- Smaller air conveying systems
- Fume cupboards

* Note - Fans not suitable for EEXE, EEXD, ATEX or corrosive atmospheres

- Museum interactive displays
- Plastic manufacturing extrusions
- Any application demanding 'space critical' air movement

SPECIFICATIONS

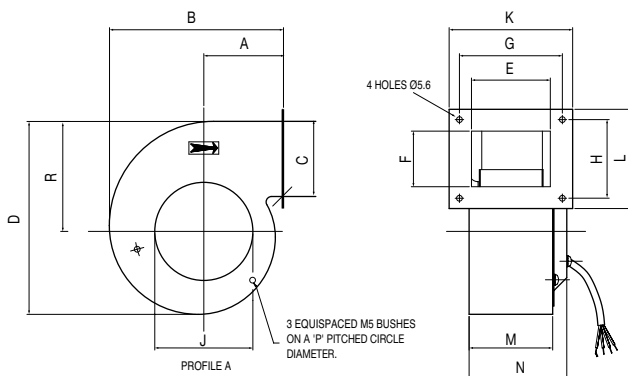
The fans in this range are eminently suitable for speed control via voltage variation 0-10V input and come supplied with direct flying lead 230V and 0-10V connection to the motor. Very low maintenance achieved by use of sealed

for life bearings in the EC motors, typically offering bearing life L10. 25,000 hours in ideal conditions and can be universally mounted via flange. Test data in accordance with BS 848 Part1/ ISO 5801-2007.

TECHNICAL DATA

Fan Model	Supply voltage	Frequency	Control voltage	Speed at Max input watts	Max input watts	Noise level	Min static pressure	Max air flow	Weight	Max ambient temp	IP	ErP 2013/2015
	Volts	Hz	Volts	Rpm	W	dBA*	Pascal	L/S	kg	°C		
SIEC 120x x 62	230	50 / 60	0-10	2800	55	58	0	78	2.1	40	IP 24	✓
SIEC 133x x 46	230	50 / 60	0-10	2200	75	54	0	90	2.2	40	IP 24	✓
SIEC 160x x 62	230	50 / 60	0-10	1310	80	58	0	115	3.2	40	IP 24	✓

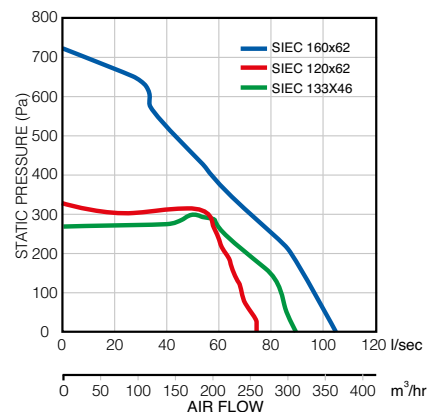
DIMENSIONS



Fan Model	Stock No.	A	B	C	D	E	F	G	H	J	K	L	M	N	P	R
120 x 62 L2	9000365	78	174	75	192	82	75	100	92	94	120	112	85	127	134	107
133 x 46 L2	9000366	81	197	92	230	73	92	85	110	108	105	130	75	115	146	119
160 x 62 L2	9000367	104	231	97	268	83	97	100	112	138	120	132	86	127	168	142

Dimensions are for guidance only - certified drawings available

PERFORMANCE



EC Double Inlet Fans

Higher volume voltage controlled EC centrifugal fans

KEY FEATURES

- Ecodesign ErP 2015 compliant
- Large range of standard fans to suit many applications - ex-stock
- EC high efficiency motor
- Designed for low noise requirements
- Speed controllable 0-10V input
- Excellent pressure capability throughout the range
- Solution to space critical applications
- Tachometer output 0-10V
- Vertical and horizontal discharge mounting



EC Double Inlet Fans

A large range of high efficiency EC fans designed specifically for applications where low noise levels and/or space criticality are an issue. All models offer a good range of volume control via 0-10V input, due to the high efficiency EC motor. Exceeding minimum regulation efficiency requirements for EU 327/2011 - 2013 and 2015. These fans allow you to choose a high efficiency

EC fan for your new application or replace a less efficient model in your existing application. See technical data table for replacement comparison.

OEM variants are available on request. Please apply to customer services for non-standard design (minimum order quantities will apply)



APPLICATIONS

- VAV boxes
- Waste recycling
- General ventilation
- Industrial warm air movement
- Telecommunications / phone transmitter cabins
- Environmental chambers
- Special effects for the film industry
- Swimming pool / tennis court domes
- Clean air flow across workstations

SPECIFICATIONS

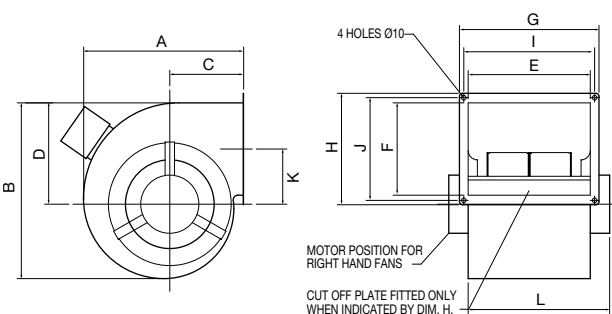
These fans feature EC driven forward curved impellers constructed from mild steel with cases fabricated from mild steel. For ease of installation all units have fitted outlet flanges, and can be mounted vertically or horizontally. Supplied with connection to terminal box from electrical

supply. Low maintenance achieved by 'sealed for life' type bearings allowing a typical bearing life L10 – 25,000 hours at ideal conditions. Impellers balanced to ISO DIN 1940 Grade 2.5. Test data in accordance with BS 848 Part1/ ISO 5801-2007.

TECHNICAL DATA

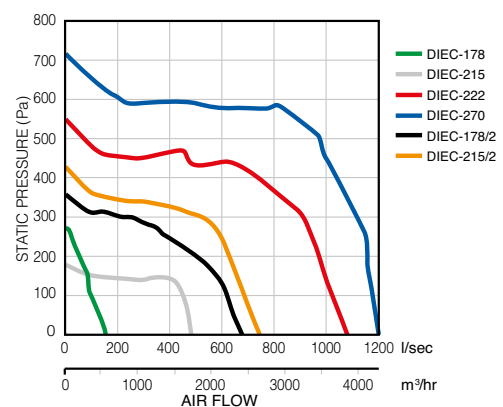
Fan Model	Supply voltage	Frequency	Control voltage	Speed at Max input watts	Max input watts	Noise level	Min static pressure	Max air flow	Weight	Max ambient temp	IP	ErP 2013/2015	Replaces Airflow Fan
	Volts	Hz	Volts	Rpm	Watts	DBA	Pascals	l/sec	Kg	°C			
DIEC-178	230	50/60	0-10	1600	55	47	0	165	6.8	45	IP 24	✓	64E2SR 71E2TIXR
DIEC-215	230	50/60	0-10	1050	200	50	0	465	9	50	IP 20	✓	83F2WL/6
DIEC-222	230	50/60	0-10	1550	550	60	0	1020	14	40	IP 20	✓	90G2WL/6 90G2WL/4
DIEC-270	230	50/60	0-10	1550	1100	65	0	1200	22	40	IP 20	✓	102H2WL/6 102H2WL/4
DIEC-178/2	230	50/60	0-10	1550	550	57	0	668	7	40	IP 20	✓	76E2WL/4
DIEC-215/2	230	50/60	0-10	1550	550	65	0	750	7	40	IP 20	✓	83F2WL/4

DIMENSIONS



Fan Model	A	B	C	D	E	F	G	H	I	J	K	L
DIEC 178	277	302	138	176	204	103	250	164	232	146	83	265
DIEC 215	332	366	149	207	249	256	300	276	270	212	138	324
DIEC 222	364	392	167	219	284	255	347	286	319	257	142	357
DIEC 270	422	442	202	246	329	281	409	346	384	270	173	409
DIEC 178/2	309	322	147	182	228	217	296	265	272	241	132	320
DIEC 215/2	332	366	149	207	245	252	300	276	270	212	138	353

PERFORMANCE



Flue Gas Dilution

CO₂ safe dispersal ventilation



KEY FEATURES

- Multi size flue dilution fans
- Ecodesign ErP 2015 compliant
- Easy electrical installation
- Safe operation - internal differential pressure switch for boiler shut off
- Avoid unsightly or expensive discharge flues
- Quiet and efficient
- 1% CO₂ content at outlet
- High levels of corrosion resistance allow use with condensation boilers
- Ecodesign EuP compliant IE2
- Dynamically balanced to DIN ISO 1940 - Grade 6.3

Flue Dilution GBDF & SSDF Fans Safety

Their main advantage is avoiding the use of unsightly and expensive flues as shown below. The 1993 Clean Air Act and Institute of Gas Engineers UPE 10/Part 1 (issue 3) Regulations requires that if the products of combustion are dispensed at low level then the CO₂ content must be 1% or less. Airflows' flue dilution range achieves this by introducing fresh air into the boilers discharge flue duct and diluting these flue gases. All fans dynamically balanced to ISO DIN 1940 – Grade 6.3.

A differential pressure safety switch ensures boiler shutdown in the event of fan failure on blocked flue, the switch consists of a relay circuit which will fall safe and prevent operation of the gas burner under the following conditions.

- Loss of fan air supply (blocked intake / fan motor inlet)
- Stalled fan motor
- Interrupted power supply



APPLICATIONS

- Flue dilution
- Condensate air handling

The range of dilution fans come in two variations, GBDF for standard atmospheric installations and SSDF for enhanced corrosion resistance especially in use with high condensate content and or condensation boilers. 5 sizes in each range allow selection for industrial and commercial boilers rated up to 650 Kw (2,200,000 Btu).

CHOOSING THE CORRECT TYPE OF FAN

These fans feature EC driven forward curved impellers constructed from mild steel with cases fabricated from mild steel. For ease of installation all units have fitted outlet flanges, and can be mounted vertically or horizontally. Supplied with connection to terminal box from electrical

PERFORMANCE TABLE AT 20°C

Where possible there should be at least 2 metres of flue ducting from the fan to the outlet. To ensure a maximum of 1% CO₂ content at the outlet, the volume flow rate of diluted flue gases necessary for a given boiler can be calculated as follows:

Flow rate in l/sec = 2.69 x rated input of boiler in kW.

Where 2 metres of discharge ducting is not possible then the calculation is:

Flow rate in l/sec = 4.44 x rated input of boiler in kW.

When the specification of regulations call for stainless steel ducting and when higher efficiency condensate boilers on modular burners are more likely to produce condensation the SSDF range should be selected due to its Aisi 316 stainless steel case construction. Test data in accordance with BS 848 Part 1/ ISO 5801-2007.

supply. Low maintenance achieved by 'sealed for life' type bearings allowing a typical bearing life L10 – 25,000 hours at ideal conditions. Impellers balanced to ISO DIN 1940 Grade 2.5. Test data in accordance with BS 848 Part1/ ISO 5801-2007.

The volume flow rate provided by the fan will depend on the static pressure imposed by the size and length of flue ducting and the number of bends, louvres etc. comprising the installation. The performance table below enables selection of the correct dilution fan based on the flow rate requirement and the fans ability to overcome duct system resistance.

(Note: if LPG or Butane are being used then the factors above should be increased to 3.23 and 5.33 respectively. These flue dilution fans must not be used for any other fuels).

Fan size	Static Pressure (Pascals)	Free Air	10	20	30	40	50	60	70	80	90	100	110	120	130	140	160	180	200	225	250	275	300	325	350	375	
GBDF 2 SSDF 2	Volume Litre/s	300	290	280	260	250	240	230	220	190	140	80	40	0													
GBDF 3 SSDF 3	Volume Litre/s	600	580	570	560	540	520	510	500	480	460	440	410	380	320	280	120	40	0								
GBDF 4 SSDF 4	Volume Litre/s	1000	985	970	950	935	920	900	880	860	840	815	780	760	740	710	640	520	340	200	80	0					
GBDF 5 SSDF 5	Volume Litre/s	← NOT SUITABLE DO NOT USE →										1400	1370	1350	1325	1300	1260	1200	1150	1075	975	850	450	200	80	0	
GBDF 6 SSDF 6	Volume Litre/s	← NOT SUITABLE DO NOT USE →															1750	1675	1570	1420	1280	1085	850	625	460		

Dimensions are for guidance only - certified drawings available

Fan size	Units	GBDF 2 SSDF 2	GBDF 3 SSDF 3	GBDF 4 SSDF 4	GBDF 5 SSDF 5	GBDF 6 SSDF 6
Maximum boiler input rating	kW	80	160	270	425	650
Minimum inlet duct diameter	mm	254	305	305	457	457
Minimum inlet louvre size	mm	300x300	400x400	400x400	600x600	600x600
Maximum discharge duct diameter	mm	225	275	345	370	457
Minimum discharge grille size	mm	300x300	400x400	450x450	500x500	600x600
Diluted flue gas volume	l/s	215	430	730	1145	1750
Total static pressure loss in system	Pa	70	93	130	160	180
Maximum flue velocity	m/s	5.5	7.3	7.9	10.7	10.7

Fan size	Min. Duct resistance	Max. Line current
GBDF 5 SSDF 5	90 Pa	2.6 Amps
GBDF 6 SSDF 6	180 Pa	2.9 Amps

Minimum duct resistance required on model size 5 and 6 to avoid overloading motors.

ELECTRICAL INSTALLATION

In all classes of installation, it is essential that the pressure safety switch is connected into the supply circuit of the appliance gas valve so that the gas valve is shut off in the event of a fan failure or flue system blockage. After the fan has been installed and electrically connected, a check should be made to ensure that the pressure safety switch causes the boiler to be switched off when failure or blockage is simulated.

FLUE ASSISTANCE

The GBDF range can also be used for flue assistance rather than flue dilution (ie: the fan handles all the products of combustion). It is important that the air into the motor side of the fan is ducted from outside the building. The maximum temperature allowed at the inlet of the non drive side of the fan is 110°C (230°F) to maintain acceptable motor bearing and winding temperature. Experience has shown that if a fan is chosen to give a maximum CO₂ concentration of 2% that this maximum temperature will not be exceeded.

Should you wish to use any of our fans purely as an induction fan WITHOUT dilution then the volume rate needed will be :

Flow rate (induction only) in l/sec = 1.35 x rated input of boiler in Kw.

SAFETY AND EASE OF USE



Pressure Safety Switch

- Differential pressure safety switch which will activate if the fan stops operating or if the duct system becomes blocked, thus shutting down the boiler.



Easier electrical connections

- 6 or 10 pole plug and socket for easy wiring and installation.

THE RANGE

The Airflow range of Ecodesign ErP 2013/2015 Compliant flue dilution fans is available in 5 sizes to satisfy the dilution needs of industrial and commercial boilers rated up to 650 kW (2,200,000 Btu) input.

Each size is available in standard form (GBDF series) for atmospheric boilers and water heaters of circa 75% efficiency. If excessive corrosion causing the failure of a GBDF series unit is due to the presence of residual condensate, then this will not be covered by our warranty.

Enhanced corrosion resistance versions (SSDF series) with stainless steel fan cases are also available for installation where regulations or the specification calls for stainless steel ducting, and when higher efficiency boilers such as modular designs are likely to produce condensation. SSDF's are therefore recommended for installations where condensation will occur.



TYPICAL INSTALLATIONS

Important when designing and installing a dilution system incorporating Airflow flue dilution fans, attention should be paid to the latest edition of the following standards and guides.

- BS 6644: 2005 Installation of gas fired hot water boilers of rated input between 60 kW and 2 MW.
- The institute of Gas Engineers and Managers Utilization procedure IGE/UP/10-Edition 3. Installation of Gas Appliances in Industrial & Commercial premises.

The boiler is connected by a vertical flue to a header which is open to the "outside" air at both ends. One end of the header acts as the primary air intake for the dilution air and the other as the discharge. The fan is located on the discharge side of the header duct.

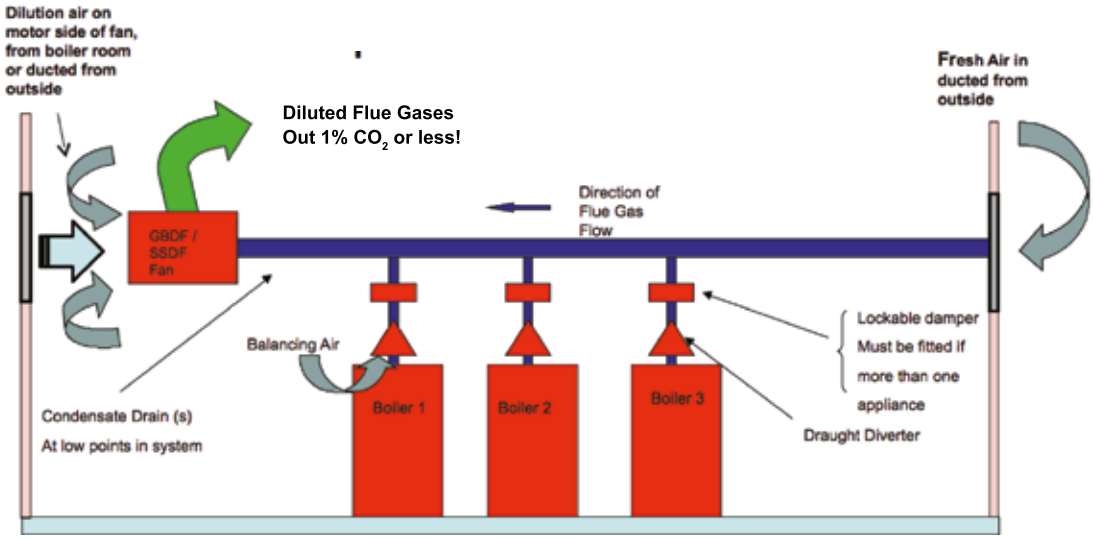


Figure 1.
GBDF/SSDF
Flue Dilution Fan
Multiple Boiler
Installation

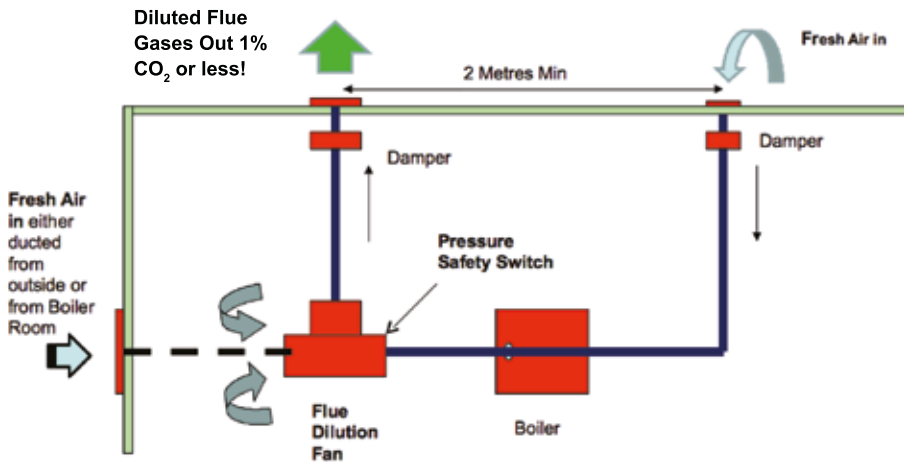
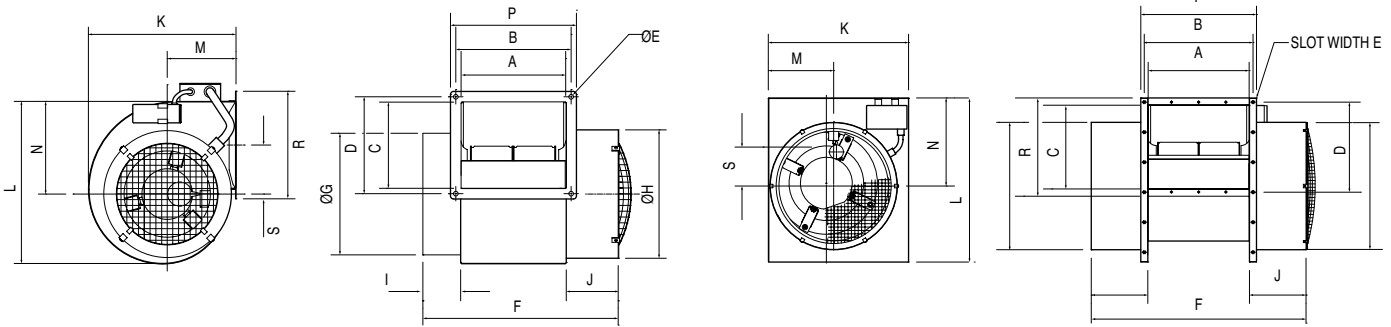


Figure 2.
GBDF/SSDF Flue
Dilution Fan
Single Boiler In-
stallation

DIMENSIONS



Fan size	Weight Kg	Electrical supply V/Ph/Hz	Start current Amps	Full load running current Amps	Motor power Watts	Normal Imp. speed RPM	Max ambient Temp.	Fan size	Minimum clearance
									mm in.
GBDF 2	9.1	230/1/50						GBDF 2	250 10
SSDF 2	8.8	230/1/50	1.2	0.64	75	900	40°C		
GBDF 3	12.1	230/1/50	2.5	1.45	120	860	40°C	GBDF 3	300 12
SSDF 3	12.0	230/1/50							
GBDF 4	22.5	230/1/50	8.4	2.8	335	930	40°C	GBDF 4	460 18
SSDF 4	23.4	230/1/50							
GBDF 5	42.8	415/3/50	12.0*	2.8*	900	940	40°C	GBDF 5	500 20
SSDF 5	44.0	415/3/50	(line)	(MAX)					
GBDF 6	46.7	415/3/50	12.0*	2.9*	900	900	40°C	GBDF 6	630 25
SSDF 6	47.5	415/3/50	(line)	(MAX)					

Fan size	A	B	C	D	E	F	G	H	I	J	K	L	M	N	P	R	S
2	218	238	179	200	9.5	402	251	265	78	106	304	335	140	191	260	222	101
3	250	270	236	257	9.5	440	302	302	78	109	359	394	175	222	294	281	109
4	352	384	263	295	9.5	578	302	340	78	141	408	445	194	256	409	321	121
5	360	386	298	321	7	761	454	454	200	200	500	585	233	314	411	350	145
6	490	517	332	355	7	892	454	454	200	200	500	585	232	336	542	348	145

*Line current
Minimum clearance for servicing motor and impeller (between motor side inlet and any obstruction)

HT Fans

High temperature centrifugal fans



KEY FEATURES

- Can move air at temperature up to 250°C
- Ecodesign ErP 2015 compliant
- Wide range of installation positions
- Intermediate cooling impeller minimises heat to motor and bearings ensuring long life
- Polyester high temperature paint
- Gas 'Tight' casing option available

High Temperature Fans

Specifically designed direct drive fans to handle hot air or the products of combustion from gas burning appliances up to temperature of 250°C. The intermediate cooling impeller, an Airflow pioneering design, eliminates the problem of short motor/bearing life. The range covers

from 62 l/sec to 120 l/sec. Variant OEM Applications – are available on a made to order basis, (depending on quantities required) please apply to customer services for non standard designs.



APPLICATIONS

- Overhead radiant tube heating
- Domestic and commercial ovens
- Boiler / heater flue fans
- Gas fire flue boosters

* Note - Fans not suitable for EEXE, EEXD, ATEX or corrosive atmospheres

- Hot air extraction
- UV lamp cooling for printing
- Tunnel curing

SPECIFICATIONS

Aluminium or mild steel impellers, housed in Zintec mild steel casing, finished in black polyester high temperature paint. Totally enclosed motors with integrated cooling impeller ensuring extended trouble free motor life, fitted with motor guard arrangement as standard. Able to be mounted from outlet flange or threaded inserts incorporated

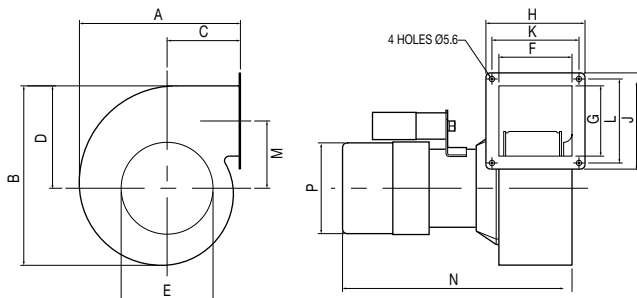
into the inlet face of the fan casing. Motors either shaded pole or permanent capacitor type using low maintenance sealed for life bearings ensuring a typical bearing life L10 – 25,000 in ideal conditions. Electrical connection is via 3 core cable for ease of installation. Test data in accordance with BS 848 Part 1/ ISO 5801-2007.

TECHNICAL DATA

Fan Model	Supply voltage	Frequency	Capacitor value	Max running current	Start current (approx)	Max input watts	Max air flow	Min static pressure	Noise level	Speed at max air flow	Weight	Max ambient temp
	Volts	Hz	µF	Amperes	Amperes	Watts	Litres/s	Pascal	dBA*	Rev/m	kg	°C
45BTFHT	230	50	N/a	0.55	0.75	85	60	25	53	2330	2.4	40●
52BTXHT	230	50	2	0.53	1.03	125	102	54	58	2600	3.3	40●

*at 1 metre ●Thermal Protection

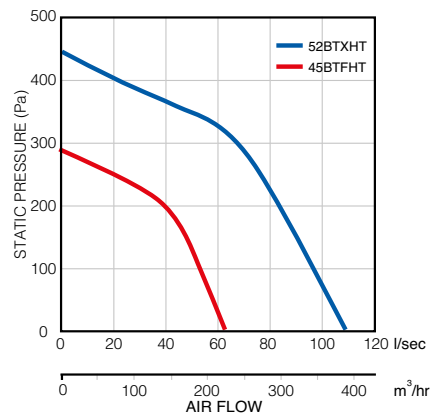
DIMENSIONS



Fan Model	A	B	C	D	ØE INLET	F INSIDE	G INSIDE	H	J	K CRS	L CRS	M	N	ØP
45BTFRHT	172	189	79	107	95.5	60	70	103	113	87	97	70	198	100
52BTRHT	195	216	89	124	111	64	89	117.5	117.5	88.9	73	78.5	216	100

Dimensions are for guidance only - certified drawings available

PERFORMANCE



Air Flow Solutions



Always Innovating

Our constant search for new and better ways to save energy, improve the indoor environment and provide you with high quality, reliable and easy to use products that contribute to a low carbon future continues.

visit: airflow.com

for the latest, products, data sheets, application advice and information

Customer Services : 01494 560800

Technical Support : 01494 560950

CI/SfB
(57)



Call: 01494 560800

Visit: airflow.com



Airflow Developments Limited
Aidelle House, Lancaster Road,
Cressex Business Park,
High Wycombe, Buckinghamshire,
United Kingdom, HP12 3QP

E-mail: info@airflow.com
Telephone: +44 (0) 1494 525252

airflow.com

© Airflow Developments Limited. Airflow Developments Limited reserve the right, in the interests of continuous development, to alter specifications without prior notice. All orders are accepted subject to our conditions of sale which are available on request



80000698 Issue 1 06/07

**We represent this supplier.
For more information contact
Observator Instruments:**

**T: +31 (0)180 463411
E: info@observator.com**

Rietdekkerstraat 6
2984 BM Ridderkerk
The Netherlands

Welcome to the world of Observator

Since 1924 Observator has evolved to be a trend-setting developer and supplier in a wide variety of industries. Originating from the Netherlands, Observator has grown into an internationally

oriented company with a worldwide distribution network and offices in Australia, Germany, the Netherlands, Singapore and the United Kingdom.

www.observator.com