Breathing Buildings

Natural, Hybrid and Mechanical Ventilation Specialist

B-Series

Uses less energy than traditional options, with reduced ventilation losses during partial occupancy. It offers a longer lifespan, lower operating and maintenance costs, and is easy to install.

www.breathingbuildings.com/b-series

Key Points

- Ideal for multi-occupancy and intermittently used rooms
- System only runs to level required
- Avoids over-ventilation
- Reduces energy use

B-Series is a range of ventilation systems for multi-occupancy and intermittently used rooms. Using energy efficient ducted fans with intelligent sensing and control, the system meets the ventilation requirements of both new builds and refurbishment projects.

Ideal for applications where rooms are used at different times of the day by a variable number of people, the B-Series system will monitor occupancy, ventilation rate and air quality, and respond accordingly to maintain the atmosphere within preset limits.

Typical Applications

A network of hotel bathrooms, flats or apartments, which require ventilation, but are only used in limited periods particularly in the morning and in the evening.

School classrooms and lecture theatres which are only occupied during lesson time by a variable number of students, but when used must keep CO_2 levels within prescribed limits.

Office meeting rooms or open plan areas which are used periodically during the day by a variable number of staff and visitors, but when occupied must meet required airflow rates.

Automatic sensing and control runs the system according to the maximum demand requirements of the building zone, whether it be carbon dioxide levels, temperature, humidity or air quality – triggered by people entering or leaving the rooms. Common configurations include Electronic Static Pressure (ESP) controllers for constant pressure systems.

System Control

The precise control of the B-Series system, driven by the ventilation requirements of the room means that the system is only running to the level required and only using energy when it is needed. A range of sensors are employed to determine the occupancy of the rooms and manage the system ventilation rates accordingly. This optimises the use of energy whilst meeting the legislation requirements of the building.

This compares to a ‘traditional’ fixed volume system, which in general is either ‘ON’ or ‘OFF’ often using energy to ventilate an empty or half occupied room, over ventilating and wasting energy.

System Overview

The B-Series System is made up of 3 parts: EC/DC Fan Motor, B-Series Integral Control Unit, Sensors and Controls.

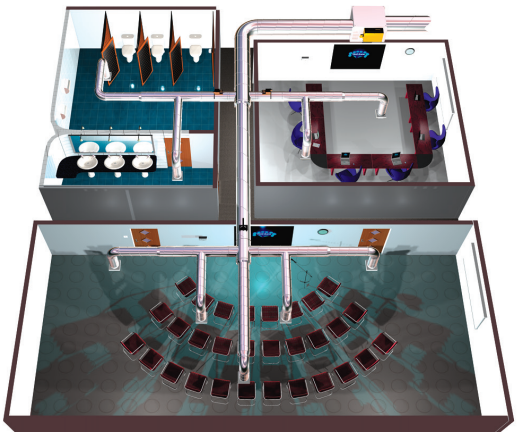
The ventilation demands of the room are detected by the wall, ceiling or duct mounted B-Series sensors/switches. These communicate with the B-Series control unit, which in turn drives the fan to the required speed to deliver the airflow. As the ventilation is provided to the room the sensors continuously feedback to the control unit, driving the fan motor to the exact level required in the room at any one time.

Accessories

For duct accessories refer to Accessories Section.

Typical network of hotel bathrooms/flats/apartments

Typical school classroom



Typical office plan with conference facilities

System Technology

B-Series demand ventilation is a closed loop controlled ventilation system. Employing a range of sensors to manage the system, demand is sensed by PIR, temperature, humidity, air quality or carbon dioxide sensors. Depending on the levels in the rooms, B-Series's fan speed is ramped up or down to control the parameters within the required limits. If the room is unoccupied, the system switches off, saving energy and cost to the business. Available in single or twin fan configurations, with twin allowing for load sharing or 'standby' for extra reliability.

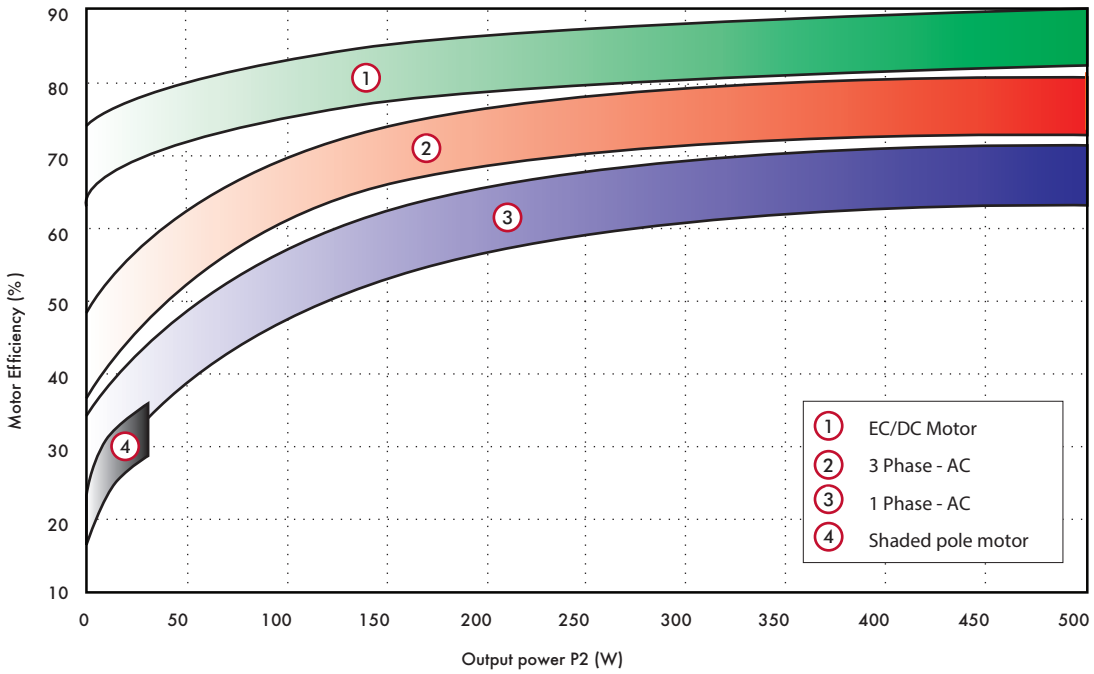
EC/DC Energy Saving Fan Motor Technology

B-Series utilises the latest EC/DC motor technology, which provides energy saving benefits even over DC motors.

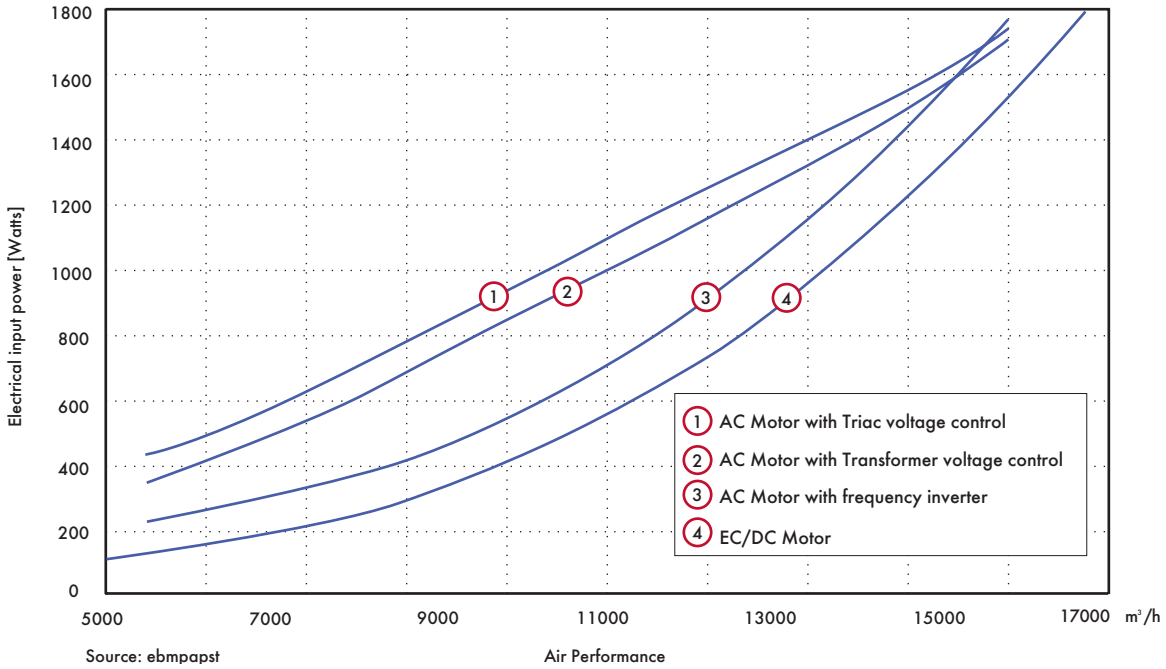
This technology is also infinitely speed controllable and offers increased energy savings across the complete speed control range when compared with conventional inverter drive solutions. The result is higher efficiency, reduced noise, accurate controllability, better speed control drawing less power and as a result better overall system performance.

B-Series can be used in a hierarchal system where maximum demand, for example temperature and/or CO_2 gives priority control of the fan speed or a constant pressure system with room mounted PIR/grilles or in-line damper control.

Highest Motor Efficiency



Typical EC/AC Motor Speed Control Comparison



Source: ebmpapst

As can be seen from above motor comparisons, the EC/DC motor offers higher efficiencies when compared to AC motors, and also consumes less power under speed control, giving both the highest motor efficiency and lowest power consumption across the speed control range.

Hierarchal Control

The system is controlled by on-board electronics, with an LCD display showing fan status and allowing for simple commissioning and installation, whether as a local sensor control unit or linked into a building management system.

1. Switched on/off or minimum/maximum level control
In an environment such as an office the system is activated and runs between minimum and maximum levels by a choice of sensors.

- AQS – Air Quality Sensor
- PIR Detector
- Thermostat
- Humidistat
- Time Clock
- BMS (remote enable)

2. Hierarchical – maximum demand multi-sensor input
Used with a combination of sensors, with a defined level of priorities to simultaneously control a number of atmospheric conditions within a room, such as a meeting room.

- CO_2/temperature – room mounted
- CO_2 – duct mounted
- Manual speed adjuster
- Building Management System (0-10V)

Constant Pressure Extract
Applied in a discreet central extract system, such as hotel bathrooms or apartment blocks, the system grilles and/or duct dampers are controlled by the presence of a person in the room or by achieving required levels of humidity. The central system will respond to the demand depending on the number of active rooms.

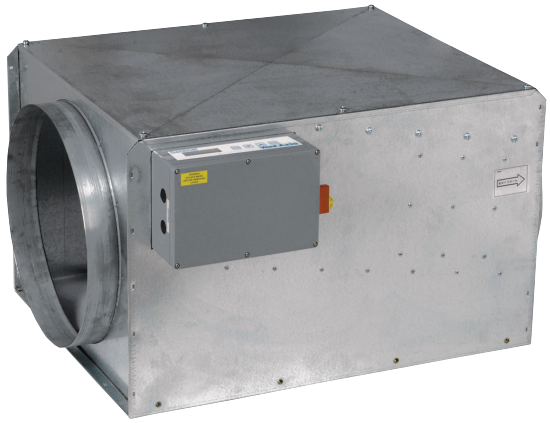
- PIR/Humidity Extract Grille 125mm
- PIR 12 - 70m3/h
- Humidity: 12m3/h @ 30% RH
  70m3/h @ 75% RH
- Motorised Duct Dampers 100mm - 315mm Dia
- Built in end stop adjustment for setting minimum and maximum volume
- Motorised Duct Dampers – Sensor Control options
- Each 24V powered extract damper can by controlled by one of the following sensors:-

Min-Max (DVDxxx/MM)
- AQS - Air Quality Sensor – Room (432953)
- PIR Detector – Room (433162)
- Thermostat - Room (8802932)
- Humidistat - Room (8802931)

Proportional 0-10V (DVDxxx/PC)
- Carbon Dioxide Sensor – Room (8802880)
- Carbon Dioxide Sensor – Duct (8802880)
- Temperature Sensor - Room (434749)

Note Local 24V power supply required to power dampers & sensors (426526)

B-Series Single Fan



- Duct size 100 to 500mm
- Performance - Airflow 0.01 to 1.6m³/s
- Pressure up to 650Pa
- B-Series demand ventilation fan controller with lockable isolator
- Aluzinc contstruction suitable for Internal or External mounting
- Performance tested to BS848 parts 1 & 2

The B-Series single in-line duct fans are manufactured from Aluzinc, B-Series fan units are internally treated with an 'O' class rated, BS476 part 6 & 7 acoustic foam which offers the benefits of high sound absorption, good thermal insulation properties, in addition to self extinguishing properties and resistance to ignition.

The casing includes an inclined inlet and bellmouth entry which directs the incoming air to the impeller with minimal turbulence. The result is better air management through the unit, less noise, higher efficiency and an increased performance.

The housing is designed to be as compact as possible for concealed false ceiling applications and B-Series casings are specially designed to allow the unit to be mounted via its unique mounting bracket, ensuring a quick and easy solution to installation.

Impellers

All B-Series units feature a low energy, Class 1, EC/DC external rotor motor and backward curved impeller assembly specifically chosen for performance and non-overloading characteristics. The assembly is dynamically balanced to DIN ISO 1940 Grade 6.3, duct size 500mm rated IP54, all other sizes IP44 according to BS EN 60529. Ball bearings are greased for life. Insulation is Class 'B' (from -25°C to +60°C). All models incorporate internal electronic overload protection and soft start function.

Electrical

Every B-Series unit is fitted with a purpose designed common PCB controller incorporating a 16-character backlit alphanumerical x 2 line display with 4 button membrane keypad for fan status and commissioning set up. The enclosure is fitted with a 4-pole 10A isolator that is suitable for fitting a locking device to prevent accidental operation.

Motors are single phase 230V +/- 10% / 50/60Hz / 1ph (size 100-400mm) or 400V +/- 10% / 50/60Hz / 3ph (size 500mm), (4 wire systems only).

24V DC power is provided from the controller for powering the matched range of B-Series switches and sensors.

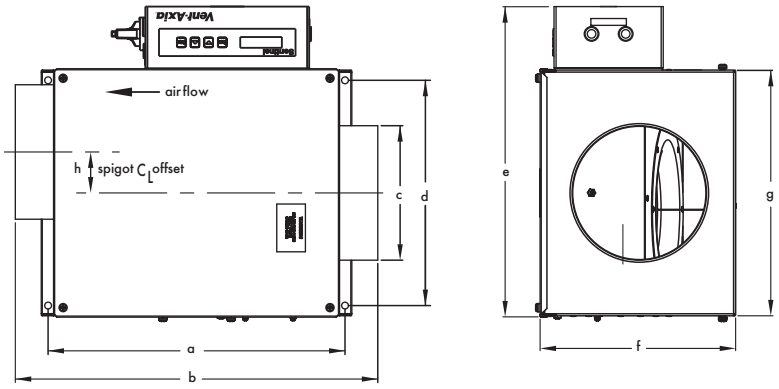
Performance/Sound

Extensively tested to BS848 parts 1 & 2. Published dB(A) figures are free field sound pressure levels at 3m with spherical propagation at reference level of 2 x 10^{-5} Pa. The inlet/outlet sound power level spectra figures are dB with a reference of 10^{-12} Watts.

Accessories

For duct accessories see Ducting and Fitting Section.

Dimensions (mm)



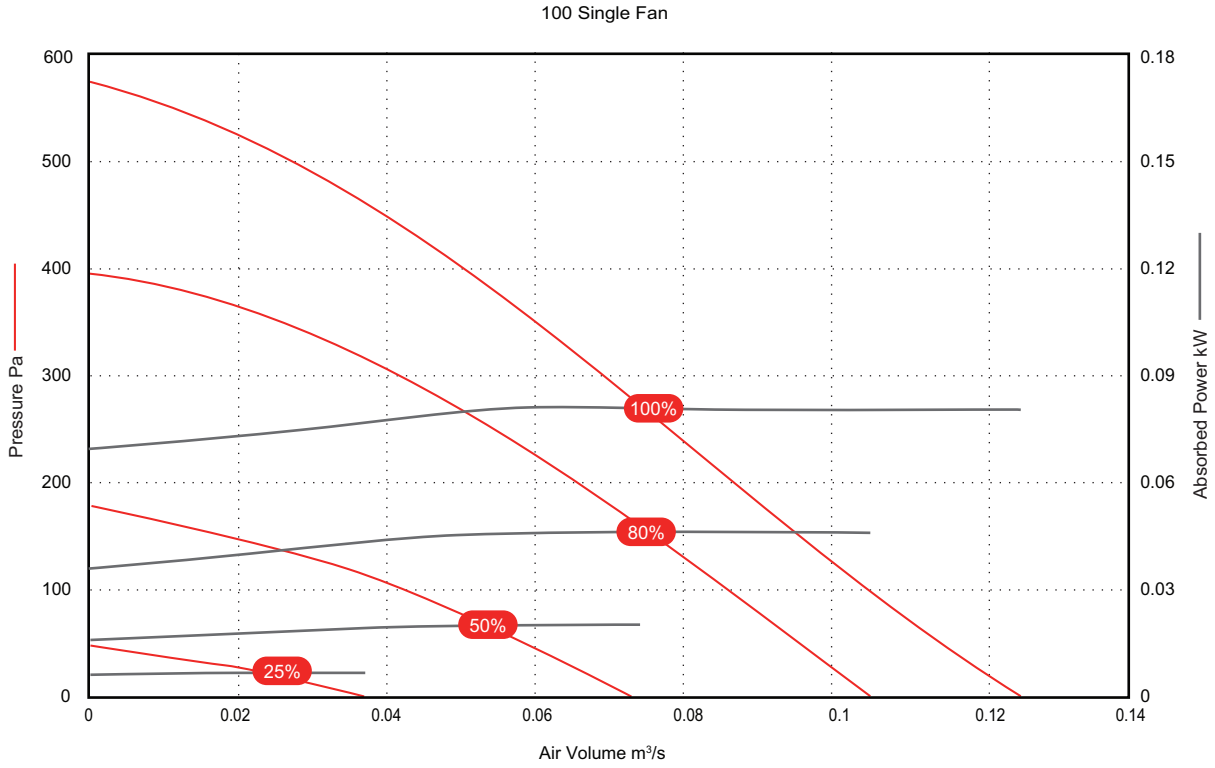
Model	a	b	c	d	e	f	g	h	kg
B100S	380	443	100	275	400	192	306	62	8.5
B125S	380	443	125	275	400	192	306	62	8.5
B150S	380	443	150	275	400	192	306	62	8.5
B200S	435	531	200	330	453	287	360	60	12.5
B250S	435	531	250	330	453	287	360	35	13
B315S	710	808	315	540	661	458	568	43	34
B400S	710	808	400	540	661	458	568	43	36
B500S	898	996	500	735	858	577	765	59	55

Accessories

Hierarchy		Anti-Vibration Mounts	Duct air heater	Filter cassette	Bag filter cassette
Model	**Model**	**Stock Ref**	**Stock Ref**	**Stock Ref**	**Stock Ref**
B100S	B100S/CP	AVM-Box	EHB-B100	PFC-B100	BFC-B100
B125S	B125S/CP	AVM-Box	EHB-B125	PFC-B125	BFC-B125
B150S	B150S/CP	AVM-Box	EHB-B150	PFC-B150	BFC-B150
B200S	B200S/CP	AVM-Box	EHB-B200	PFC-B200	BFC-B200
B250S	B250S/CP	AVM-Box	EHB-B250	PFC-B250	BFC-B250
B315S	B315S/CP	AVM-Box	EHB-B315-SP EHB-B315-TP	PFC-B315	BFC-B315
B400S	B400S/CP	AVM-Box	EHB-B400	PFC-B400	BFC-B400
B500S	B500S/CP	AVM-Box	EHB-B500	PFC-B400	BFC-B400

	Flexible Connectors	Backdraught Shutter	Fast Clamp	Duct Attenuator		
				300mm	600mm	900mm
Size	Stock Ref	Stock Ref	Stock Ref	Stock Ref	Stock Ref	Stock Ref
100	FCZ-B100	SHU-B100	CLA-B100	ATT300-B100	ATT600-B100	ATT900-B100
125	FCZ-B125	SHU-B125	CLA-B125	ATT300-B125	ATT600-B125	ATT900-B125
150	FCZ-B150	SHU-B150	CLA-B150	ATT300-B150	ATT600-B150	ATT900-B150
200	FCZ-B200	SHU-B200	CLA-B200	ATT300-B200	ATT600-B200	ATT900-B200
250	FCZ-B250	SHU-B250	CLA-B250	ATT300-B250	ATT600-B250	ATT900-B250
315	FCZ-B315	SHU-B315	CLA-B315	ATT300-B315	ATT600-B315	ATT900-B315
400	FCZ-B400	SHU-B400	CLA-B400	ATT300-B400	ATT600-B400	ATT900-B400
500	-	-	-	-	-	ATT900-B500

Performance Guide



m³/s @ Pa

Speed	Motor Phase		0	50	100	200	300	400	500	F.L.C Amps
25	1	m³/s	0.04							0.08
		SFP	0.18							
		Watts	0.01							
50	1	m³/s	0.07	0.06	0.04					0.15
		SFP	0.29	0.33	0.50					
		Watts	0.02	0.02	0.02					
80	1	m³/s	0.11	0.10	0.09	0.07	0.04			0.5
		SFP	0.42	0.47	0.52	0.66	1.13			
		Watts	0.05	0.05	0.05	0.05	0.05			
100	1	m³/s	0.13	0.12	0.11	0.09	0.07	0.05	0.03	0.72
		SFP	0.62	0.68	0.74	0.90	1.16	1.60	2.53	
		Watts	0.08	0.08	0.08	0.08	0.08	0.08	0.08	

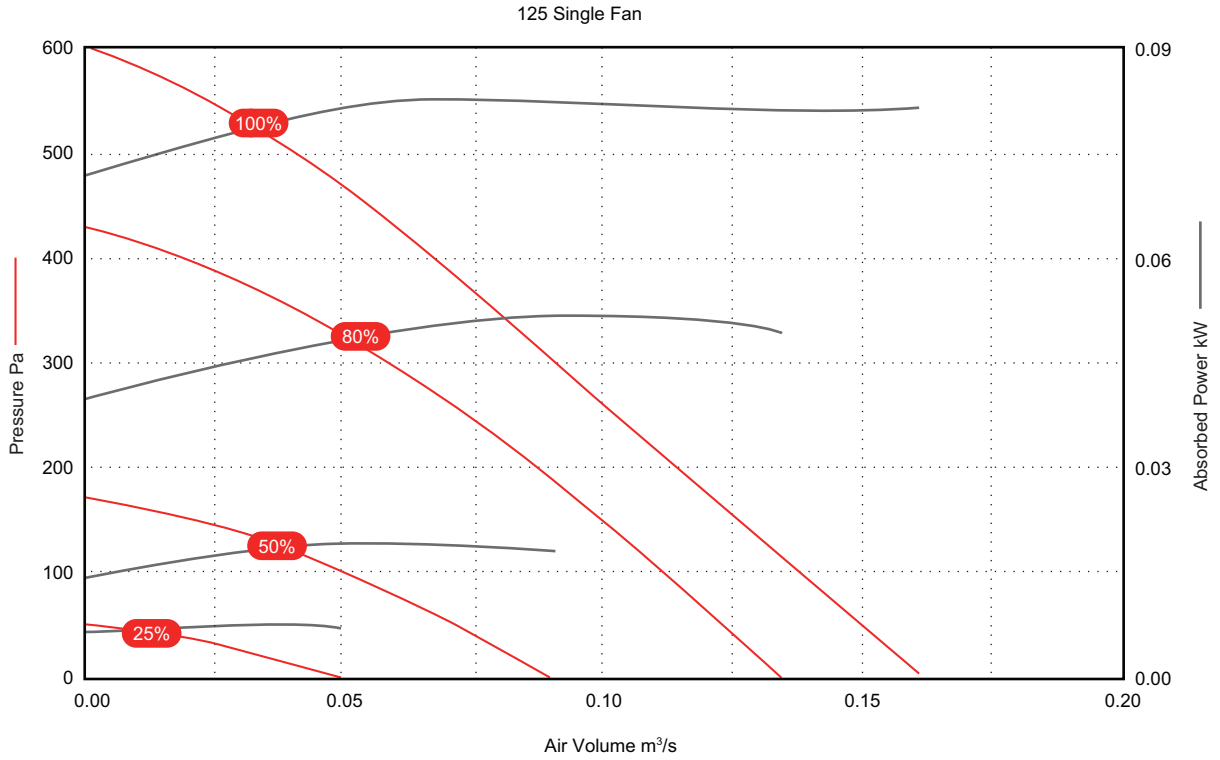
Sound Data

Sound Data

Octave Band Frequency SWL

Speed	Test Mode	63	125	250	500	1k	2k	4k	8k	dB(A) @ 3m
25	Breakout	44	39	35	27	24	22	23	29	17
	Inlet	43	43	40	35	26	22	22	29	19
	Outlet	46	40	41	35	29	23	22	30	20
50	Breakout	50	48	47	37	32	29	26	30	23
	Inlet	48	52	62	54	41	34	28	30	35
	Outlet	49	52	67	57	48	44	38	31	39
80	Breakout	55	58	56	48	42	41	38	33	31
	Inlet	55	58	67	67	53	47	41	35	45
	Outlet	56	59	68	68	61	56	51	42	47
100	Breakout	64	63	60	55	47	46	44	38	36
	Inlet	57	62	68	71	58	52	47	41	48
	Outlet	57	63	71	72	66	62	55	48	52

Performance Guide



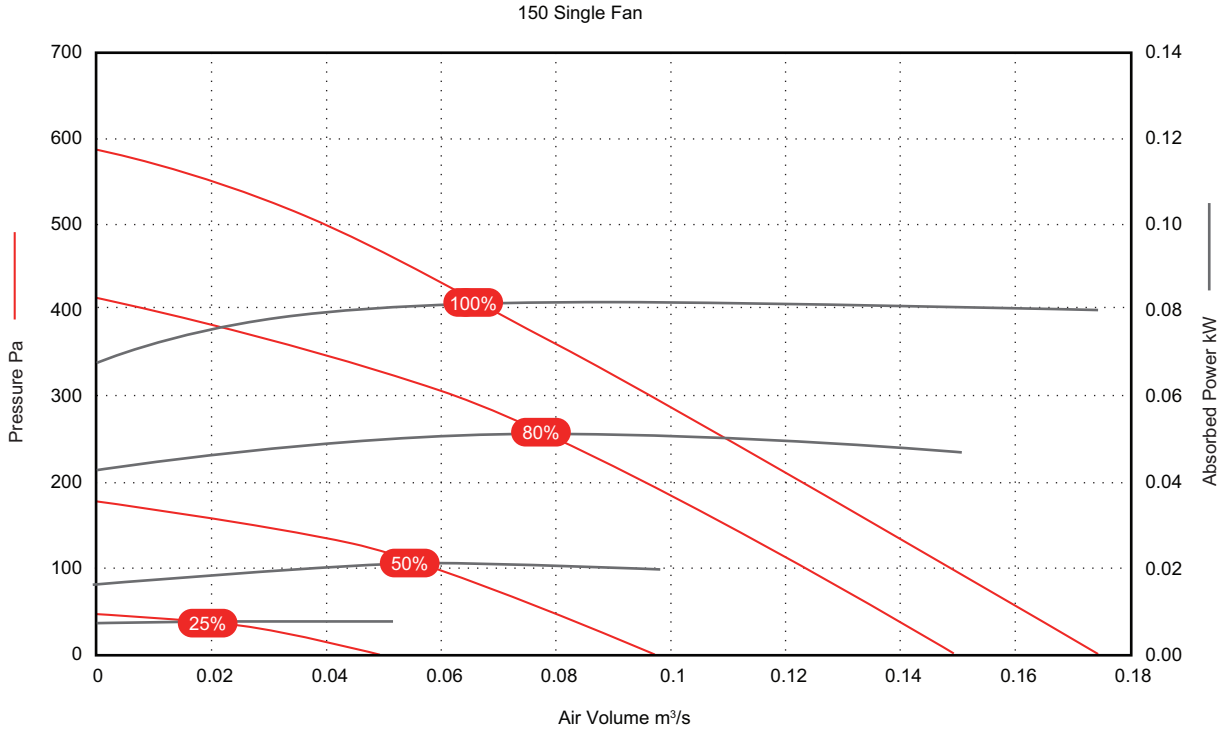
			Airflow, m³/s @ Pa							
Speed	**Motor Phase**		**0**	**50**	**100**	**200**	**300**	**400**	**500**	**F.L.C Amps**
25	1	m³/s	0.05							0.09
		SFP	0.14							
		Watts	0.01							
50	1	m³/s	0.09	0.07	0.05					0.18
		SFP	0.21	0.27	0.38					
		Watts	0.02	0.02	0.02					
80	1	m³/s	0.14	0.13	0.11	0.09	0.06	0.02		0.51
		SFP	0.35	0.39	0.47	0.58	0.83	2.20		
		Watts	0.05	0.05	0.05	0.05	0.05	0.04		
100	1	m³/s	0.16	0.15	0.14	0.11	0.09	0.07	0.04	0.72
		SFP	0.51	0.54	0.58	0.75	0.92	1.17	2.00	
		Watts	0.08	0.08	0.08	0.08	0.08	0.08	0.08	

Sound Data

Sound Data

		Octave Band Frequency SWL								
Speed	**Test Mode**	**63**	**125**	**250**	**500**	**1k**	**2k**	**4k**	**8k**	**dB(A) @ 3m**
25	Breakout	49	40	34	28	26	24	23	29	18
	Inlet	46	44	41	35	27	22	22	28	20
	Outlet	47	47	42	36	33	27	22	29	21
50	Breakout	53	49	49	39	34	28	23	29	24
	Inlet	50	56	58	53	43	37	31	29	33
	Outlet	50	56	58	53	43	37	31	29	37
80	Breakout	55	55	58	50	46	39	31	31	33
	Inlet	54	64	68	64	55	49	43	36	44
	Outlet	56	67	72	66	64	60	55	45	49
100	Breakout	62	58	59	57	52	46	37	33	37
	Inlet	58	69	70	70	60	56	48	42	49
	Outlet	58	70	71	73	70	67	60	52	54

Performance Guide

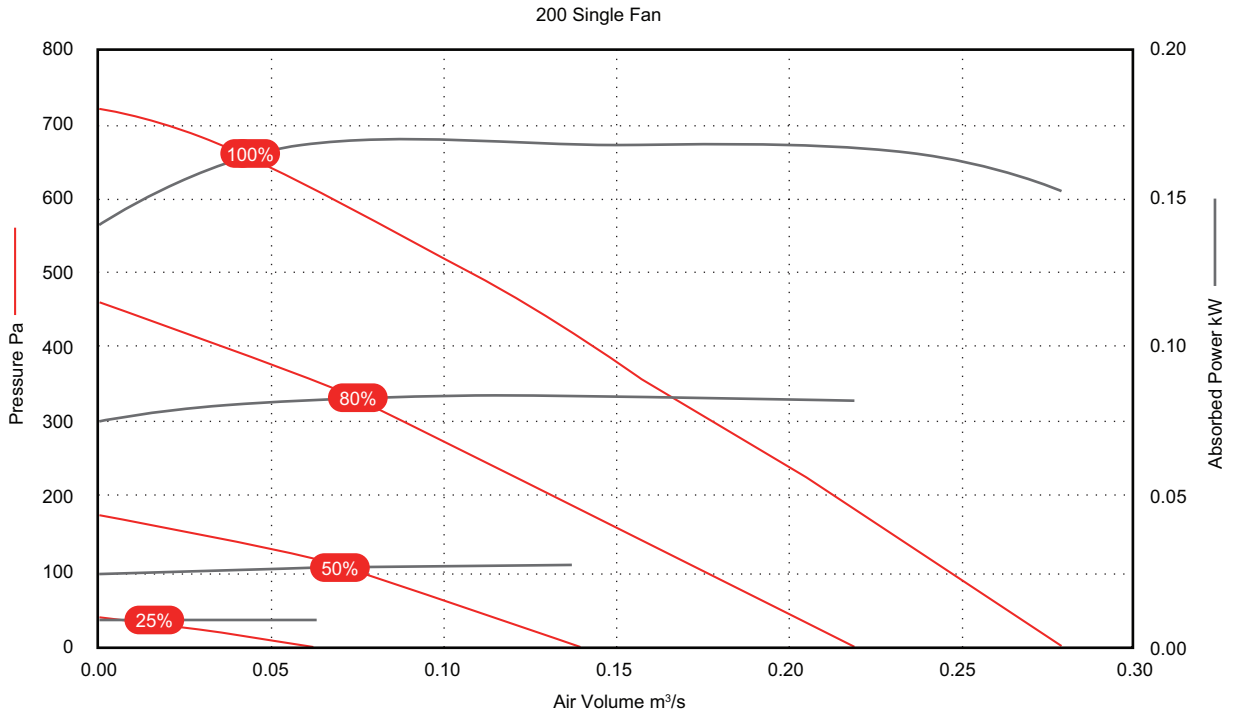


			Airflow, m³/s @ Pa							
Speed	**Motor Phase**		**0**	**50**	**100**	**200**	**300**	**400**	**500**	**F.L.C Amps**
25	1	m³/s	0.05							0.08
		SFP	0.14							
		kW	0.01	0.01						
50	1	m³/s	0.10	0.08	0.06					0.16
		SFP	0.19	0.25	0.35					
		kW	0.02	0.02	0.02					
80	1	m³/s	0.15	0.14	0.12	0.10	0.06	0.01		0.48
		SFP	0.31	0.34	0.41	0.51	0.85	4.50		
		kW	0.05	0.05	0.05	0.05	0.05	0.05		
100	1	m³/s	0.17	0.16	0.15	0.12	0.10	0.07	0.04	0.74
		SFP	0.47	0.51	0.54	0.68	0.81	1.16	2.00	
		kW	0.08	0.08	0.08	0.08	0.08	0.08	0.08	

Sound Data

		Octave Band Frequency SWL								
Speed	**Test Mode**	**63**	**125**	**250**	**500**	**1k**	**2k**	**4k**	**8k**	**dB(A) @ 3m**
25	Breakout	46	43	36	28	26	23	24	29	18
	Inlet	46	45	42	37	30	24	23	29	21
	Outlet	43	45	42	37	35	31	22	28	22
50	Breakout	50	50	50	40	35	28	24	29	25
	Inlet	50	56	60	56	46	41	36	30	35
	Outlet	51	59	61	56	53	51	46	33	38
80	Breakout	53	57	57	51	48	42	36	31	33
	Inlet	57	65	71	66	58	52	44	42	46
	Outlet	56	67	75	67	65	63	56	50	50
100	Breakout	62	61	59	60	54	49	43	37	39
	Inlet	59	68	72	76	64	58	51	48	54
	Outlet	59	70	74	76	71	70	64	58	56

Performance Guide

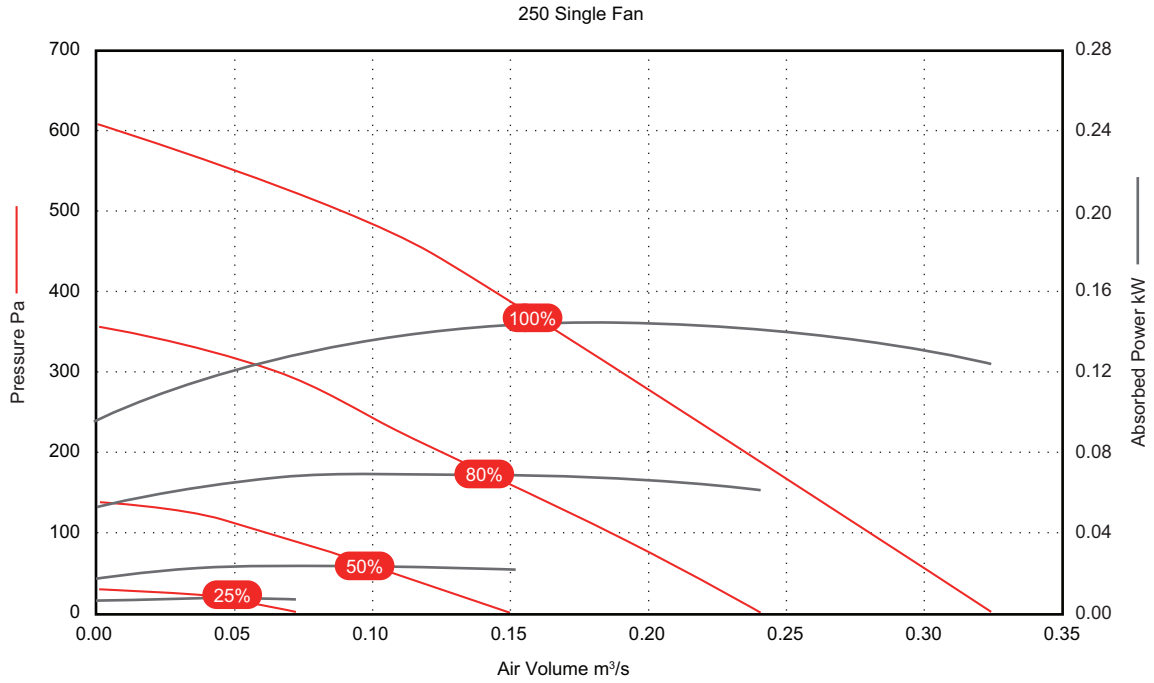


Speed	Motor Phase		Airflow, m³/s @ Pa 0	50	100	200	300	400	500	600	700	F.L.C Amps
25	1	m³/s	0.06									0.08
		SFP	0.13									
		kW	0.01									
50	1	m³/s	0.14	0.11	0.08							0.16
		SFP	0.19	0.25	0.34							
		kW	0.03	0.03	0.03							
80	1	m³/s	0.22	0.20	0.18	0.13	0.09	0.04				0.5
		SFP	0.37	0.42	0.46	0.65	0.88	2				
		kW	0.08	0.08	0.08	0.08	0.08	0.08				
100	1	m³/s	0.28	0.26	0.25	0.21	0.18	0.14	0.11	0.07	0.02	0.72
		SFP	0.54	0.61	0.65	0.80	0.93	1.20	1.54	2.41	7.75	
		kW	0.15	0.16	0.16	0.17	0.17	0.17	0.17	0.17	0.16	

Sound Data

Speed	Test Mode	Octave Band Frequency SWL 63	125	250	500	1k	2k	4k	8k	dB(A) @ 3m
25	Breakout	48	41	39	30	29	26	24	31	20
	Inlet	50	52	49	43	34	32	24	30	26
	Outlet	46	55	48	43	39	42	29	30	28
50	Breakout	55	53	55	42	41	37	34	32	29
	Inlet	54	57	67	62	51	44	47	40	41
	Outlet	55	59	67	62	58	56	55	46	44
80	Breakout	66	63	63	52	47	46	45	44	37
	Inlet	63	66	68	77	64	57	56	53	54
	Outlet	65	68	66	76	71	69	65	61	56
100	Breakout	63	69	66	60	53	51	50	50	42
	Inlet	68	71	72	77	70	63	61	57	56
	Outlet	70	72	69	80	76	76	72	65	62

Performance Guide

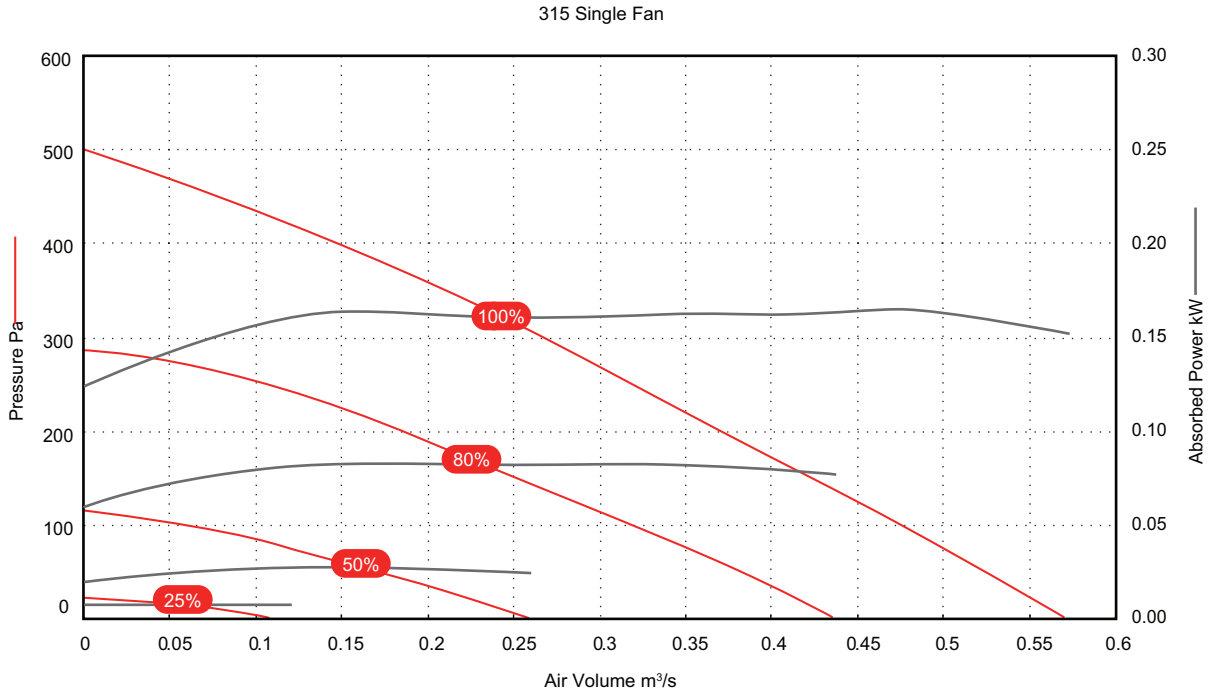


			Airflow, m³/s @ Pa								
Speed	**Motor Phase**		**0**	**50**	**100**	**200**	**300**	**400**	**500**	**600**	**F.L.C Amps**
25	1	m³/s	0.07								0.07
		SFP	0.11								
		kW	0.01								
50	1	m³/s	0.15	0.11	0.07						0.2
		SFP	0.15	0.22	0.34						
		kW	0.02	0.02	0.02						
80	1	m³/s	0.24	0.22	0.19	0.13	0.07				1
		SFP	0.26	0.30	0.36	0.52	1				
		kW	0.06	0.07	0.07	0.07	0.07				
100	1	m³/s	0.33	0.30	0.28	0.24	0.19	0.15	0.09	0.01	1.38
		SFP	0.37	0.44	0.49	0.59	0.77	0.97	1.48	3.70	
		kW	0.12	0.13	0.14	0.14	0.15	0.15	0.13	0.04	

Sound Data

		Octave Band Frequency SWL								
Speed	**Test Mode**	**63**	**125**	**250**	**500**	**1k**	**2k**	**4k**	**8k**	**dB(A) @ 3m**
25	Breakout	42	42	37	31	29	26	25	31	19
	Inlet	48	49	42	38	35	24	24	29	22
	Outlet	47	46	41	37	41	29	24	29	24
50	Breakout	52	48	53	43	37	36	34	30	27
	Inlet	55	57	65	58	49	43	45	38	39
	Outlet	53	57	62	58	54	55	51	36	41
80	Breakout	54	56	57	57	48	46	45	36	36
	Inlet	63	65	69	76	62	54	53	49	53
	Outlet	63	66	69	72	69	68	62	55	54
100	Breakout	61	63	62	62	55	54	52	45	42
	Inlet	68	71	72	80	68	62	59	56	58
	Outlet	68	71	70	78	75	75	68	63	60

Performance Guide

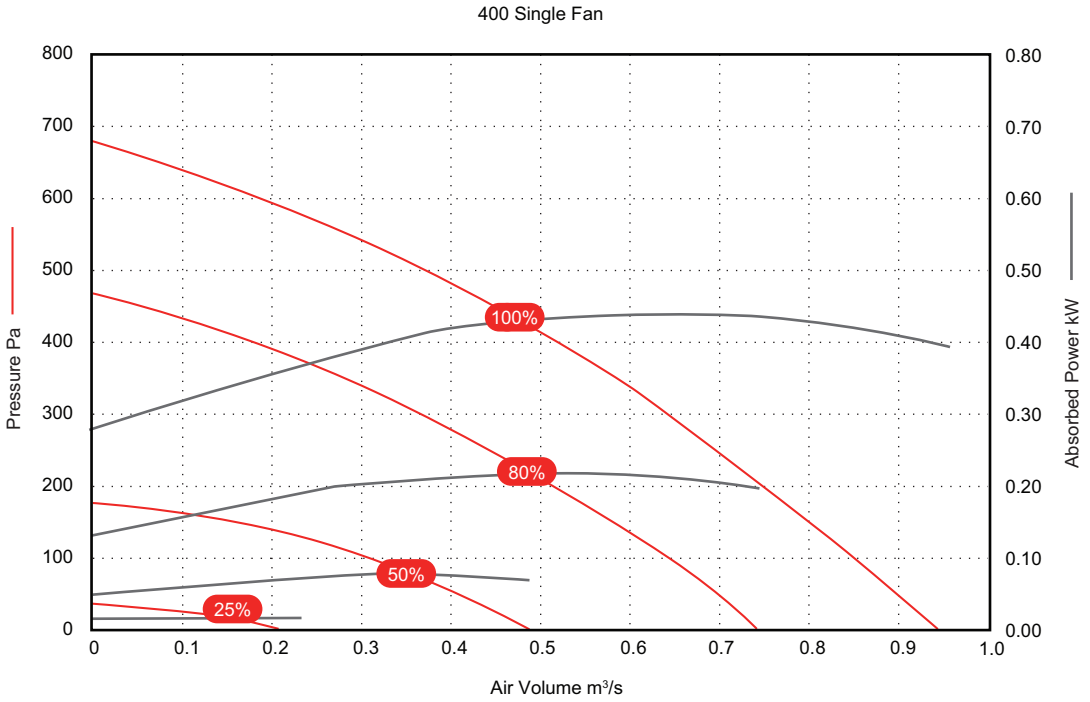


			Airflow, m³/s @ Pa						
Speed	**Phase**		**0**	**50**	**100**	**200**	**300**	**400**	**F.L.C Amps**
25	1	m³/s	0.12						0.08
		SFP	0.06						
		kW	0.01						
50	1	m³/s	0.26	0.17	0.06				0.19
		SFP	0.10	0.16	0.42				
		kW	0.03	0.03	0.03				
80	1	m³/s	0.44	0.39	0.32	0.18			0.50
		SFP	0.18	0.21	0.26	0.46			
		kW	0.08	0.08	0.08	0.08			
100	1	m³/s	0.57	0.53	0.48	0.37	0.26	0.15	1.36
		SFP	0.27	0.30	0.34	0.44	0.62	1.09	
		kW	0.15	0.16	0.16	0.16	0.16	0.16	

Sound Data

		Octave Band Frequency SWL								
Speed	**Test Mode**	**63**	**125**	**250**	**500**	**1k**	**2k**	**4k**	**8k**	**dB(A) @ 3m**
25	Breakout	45	42	44	32	30	26	25	31	21
	Inlet	47	43	40	31	28	22	23	29	19
	Outlet	47	44	42	37	33	27	25	29	21
50	Breakout	54	56	48	46	36	30	26	31	27
	Inlet	61	63	54	47	44	39	32	30	31
	Outlet	60	63	55	55	51	49	42	31	37
80	Breakout	57	68	60	49	45	42	36	32	38
	Inlet	62	78	67	59	55	51	45	40	44
	Outlet	62	82	68	66	64	61	55	46	50
100	Breakout	62	69	69	56	53	47	43	36	44
	Inlet	67	78	79	66	61	58	53	45	51
	Outlet	66	78	78	73	70	68	63	55	56

Performance Guide

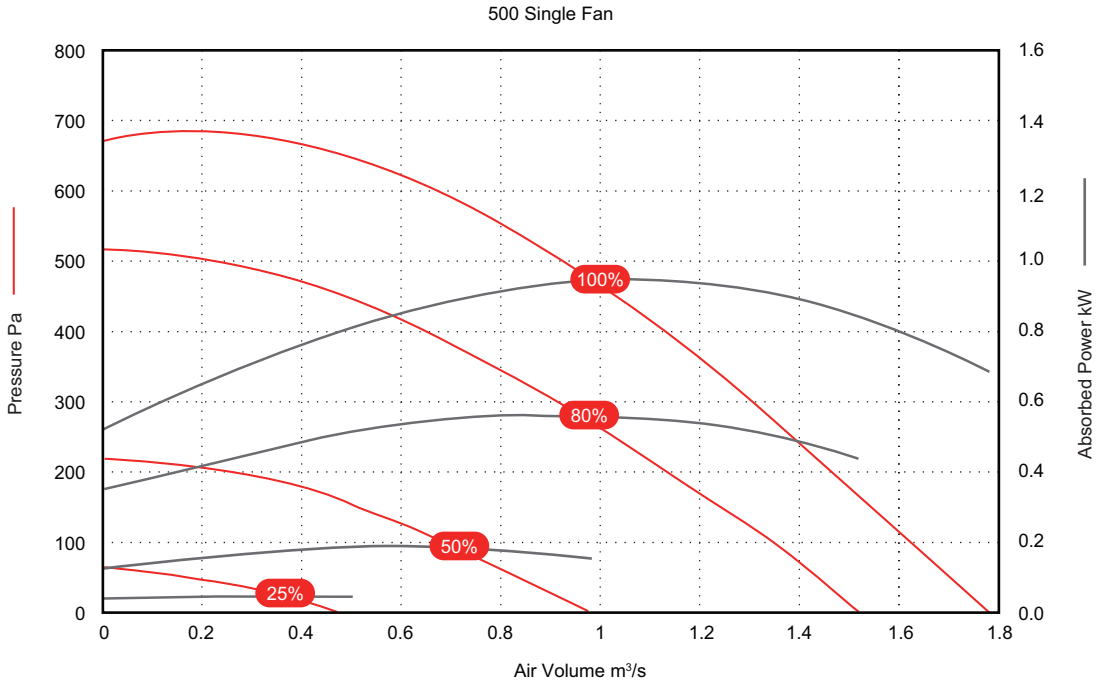


Speed	Phase		Airflow, m³/s @ Pa 0	50	100	200	300	400	500	600	F.L.C Amps
25	1	m³/s	0.24								0.13
		SFP	0.07								
		kW	0.02								
50	1	m³/s	0.50	0.42	0.32						0.59
		SFP	0.14	0.19	0.25						
		kW	0.07	0.08	0.08						
80	1	m³/s	0.74	0.71	0.65	0.51	0.37	0.19			1.80
		SFP	0.27	0.29	0.33	0.43	0.58	0.96			
		kW	0.20	0.21	0.21	0.22	0.21	0.18			
100	1	m³/s	0.95	0.90	0.85	0.75	0.64	0.52	0.38	0.20	2.47
		SFP	0.42	0.45	0.49	0.58	0.69	0.84	1.09	1.79	
		kW	0.40	0.41	0.42	0.44	0.44	0.44	0.42	0.36	

Sound Data

Speed	Test Mode	Octave Band Frequency SWL 63	125	250	500	1k	2k	4k	8k	dB(A) @ 3m
25	Breakout	44	40	46	35	29	26	24	31	21
	Inlet	50	48	48	39	30	23	24	30	23
	Outlet	51	48	47	42	38	28	25	29	25
50	Breakout	56	68	54	45	41	34	26	30	33
	Inlet	69	74	65	56	52	48	38	33	41
	Outlet	68	72	65	62	61	57	48	39	45
80	Breakout	63	73	68	57	52	44	38	32	42
	Inlet	74	82	78	68	64	61	56	47	53
	Outlet	75	87	77	75	73	70	64	55	58
100	Breakout	67	73	76	63	58	50	44	40	48
	Inlet	78	83	87	73	69	66	61	54	59
	Outlet	78	85	92	80	79	75	69	61	65

Performance Guide



Speed	Phase		Airflow, m³/s @ Pa 0	50	100	200	300	400	500	600	F.L.C Amps
25	3	m³/s	0.50	0.20							0.32
		SFP	0.08	0.21							
		kW	0.04	0.04							
50	3	m³/s	0.99	0.83	0.68	0.27					0.5
		SFP	0.15	0.20	0.26	0.59					
		kW	0.15	0.17	0.18	0.16					
80	3	m³/s	1.53	1.45	1.37	1.14	0.92	0.65	0.23		0.9
		SFP	0.28	0.32	0.37	0.47	0.60	0.83	1.89		
		kW	0.43	0.47	0.50	0.54	0.56	0.54	0.43		
100	3	m³/s	1.79	1.71	1.63	1.47	1.31	1.13	0.93	0.67	1.2
		SFP	0.38	0.43	0.48	0.58	0.70	0.84	1.02	1.31	
		kW	0.68	0.73	0.78	0.86	0.92	0.95	0.94	0.88	

Sound Data

Speed	Test Mode	Octave Band Frequency SWL 63	125	250	500	1k	2k	4k	8k	dB(A) @ 3m
25	Breakout	44	39	35	27	24	22	23	29	17
	Inlet	43	43	40	35	26	22	22	29	19
	Outlet	46	40	41	35	29	23	22	30	20
50	Breakout	50	48	47	37	32	29	26	30	23
	Inlet	48	52	62	54	41	34	28	30	35
	Outlet	49	52	67	57	48	44	38	31	39
80	Breakout	55	58	56	48	42	41	38	33	31
	Inlet	55	58	67	67	53	47	41	35	45
	Outlet	56	59	68	68	61	56	51	42	47
100	Breakout	64	63	60	55	47	46	44	38	36
	Inlet	57	62	68	71	58	52	47	41	48
	Outlet	57	63	71	72	66	62	55	48	52

B-Series Twin Fan

- Duct Sizes 100 – 500mm
- Performance - Airflow 0.01 to 1.3m³/s, Pressure up to 650Pa
- B-Series demand ventilation fan controller with lockable isolator
- Latest energy saving EC/DC motors
- Aluzinc construction suitable for internal or external mounting
- Manufactured controlled to BS EN ISO 9001
- Performance tested to BS848 Part 1 & 2

The B-Series twin in-line duct fans are manufactured from Aluzinc, B-Series fan units are internally treated with an 'O' class rated, BS476 part 6 & 7, acoustic foam which offers the benefits of high sound absorption, good thermal insulation properties in addition to self extinguishing properties and resistant to ignition.

Weatherproof external units incorporate an additional controller shroud.

The housing is designed to be as compact as possible for concealed false ceiling applications and B-Series casings are specially designed to allow the unit to be mounted via its unique mounting bracket, ensuring a quick and easy solution to installation.

The unit is suitable for ceiling or floor mounting, non-return dampers can be easily rotated on site to suit.

Impellers

All B-Series units feature a low energy, Class 1, EC/DC external rotor motor and backward curved impeller assembly specifically chosen for performance and non-overloading characteristics. The assembly is dynamically balanced to DIN ISO 1940 Grade 6.3, duct size 500mm rated IP54, all other sizes, IP44 according to BS EN 60529. Ball bearings are greased for life. Insulation is Class 'B' (from -25°C to +60°C).

All models incorporate internal electronic overload protection and soft start function.

Electrical

Every B-Series unit is fitted with a purpose designed common PCB controller incorporating a 16-character backlit alphanumerical x 2 line display with 4 button membrane keypad for fan status & commissioning set up. The enclosure is fitted with a 4-pole 10A isolator that is suitable for fitting a locking device to prevent accidental operation.

The twin unit controller features automatic 6hr duty/share and run/standby in the event of motor failure.

Motors are single phase 230V +/- 10% / 50/60Hz / 1ph (size 100-400mm) or 400V +/- 10% / 50/60Hz / 3ph (size 500mm), (4 wire systems only).

24V DC power is provided from the controller for powering the matched range of B-Series switches and sensors.

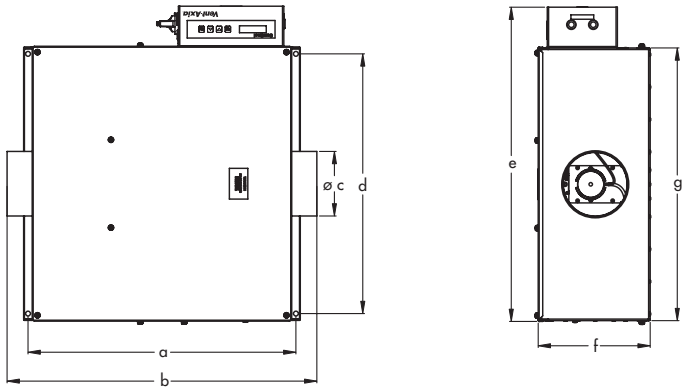
Performance/Sound

Extensively tested to BS848 parts 1 & 2. Published dB(A) figures are free field sound pressure levels at 3m with spherical propagation at reference level of $2x10^{-5}$ Pa. The inlet/outlet sound power level spectra figures are dB with a reference of 10^{-12} Watts.

Accessories

For duct accessories see Ducting and Fitting Section.

Dimensions (mm)



Duct Diameter mm

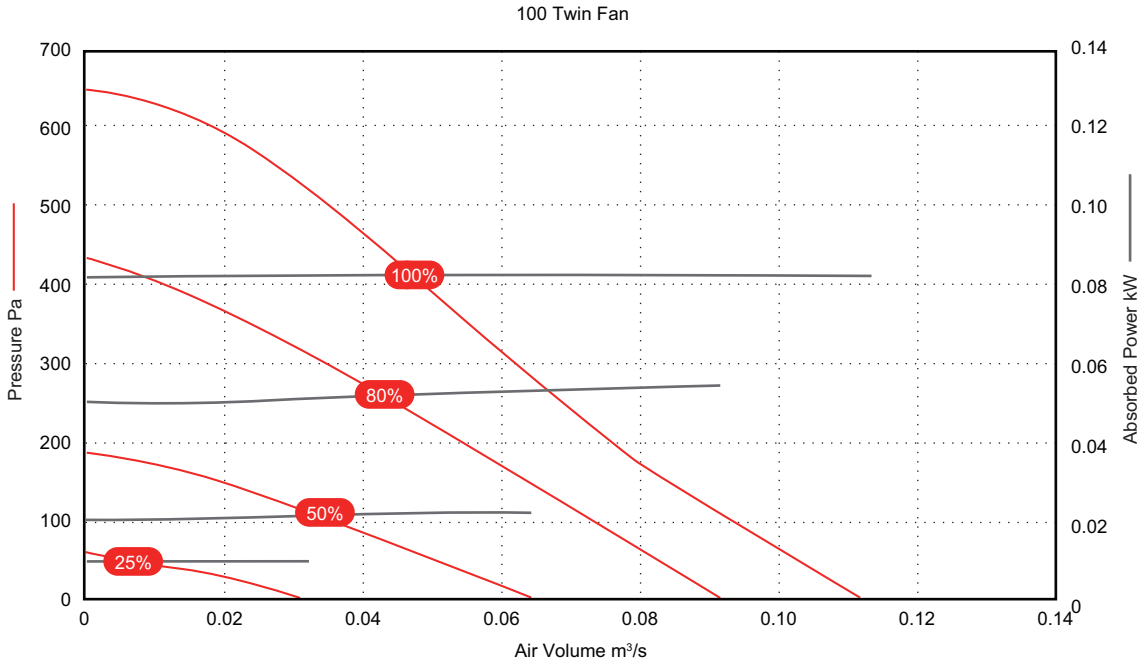
Model	a	b	c	d	e	f	g	Kg
B100T	610	705	100	591	717	256	622	26
B125T	610	705	125	591	717	256	622	26
B150T	610	705	150	591	717	256	622	26
B200T	801	896	200	703	830	343	734	39
B250T	925	1020	250	798	925	354	829	48
B315T	1255	1353	315	1145	1272	536	1176	88
B400T	1255	1353	400	1145	1272	536	1176	90
B500T	1492	1590	500	1533	1661	675	1564	175

Accessories

Model	Anti-Vibration mounts Stock Ref.	Duct air heater Stock Ref.	Filter cassette Stock Ref.	Bag filter cassette Stock Ref.
B100T	AVM-Box	EHB-B100	PFC-B100	BFC-B100
B125T	AVM-Box	EHB-B125	PFC-B125	BFC-B125
B150T	AVM-Box	EHB-B150	PFC-B150	BFC-B150
B200T	AVM-Box	EHB-B200	PFC-B200	BFC-B200
B250T	AVM-Box	EHB-B250	PFC-B250	BFC-B250
B315T	AVM-Box	EHB-B315-SP EHB-B315-TP	PFC-B315	BFC-B315
B400T	AVM-Box	EHB-B400	PFC-B400	BFC-B400
B500T	AVM-Box-H	EHB-B500	PFC-B400	BFC-B400

Size	Flexible Connectors Stock Ref	Backdraught Shutter Stock Ref	Fast Clamp Stock Ref	Duct Attenuator 300mm Stock Ref	Duct Attenuator 600mm Stock Ref	Duct Attenuator 900mm Stock Ref
100	FCZ-B100	SHU-B100	CLA-B100	ATT300-B100	ATT600-B100	ATT900-B100
125	FCZ-B125	SHU-B125	CLA-B125	ATT300-B125	ATT600-B125	ATT900-B125
150	FCZ-B150	SHU-B150	CLA-B150	ATT300-B150	ATT600-B150	ATT900-B150
200	FCZ-B200	SHU-B200	CLA-B200	ATT300-B200	ATT600-B200	ATT900-B200
250	FCZ-B250	SHU-B250	CLA-B250	ATT300-B250	ATT600-B250	ATT900-B250
315	FCZ-B315	SHU-B315	CLA-B315	ATT300-B315	ATT600-B315	ATT900-B315
400	FCZ-B400	SHU-B400	CLA-B400	ATT300-B400	ATT600-B400	ATT900-B400
500	-	-	-	-	-	ATT900-B500

Performance Guide

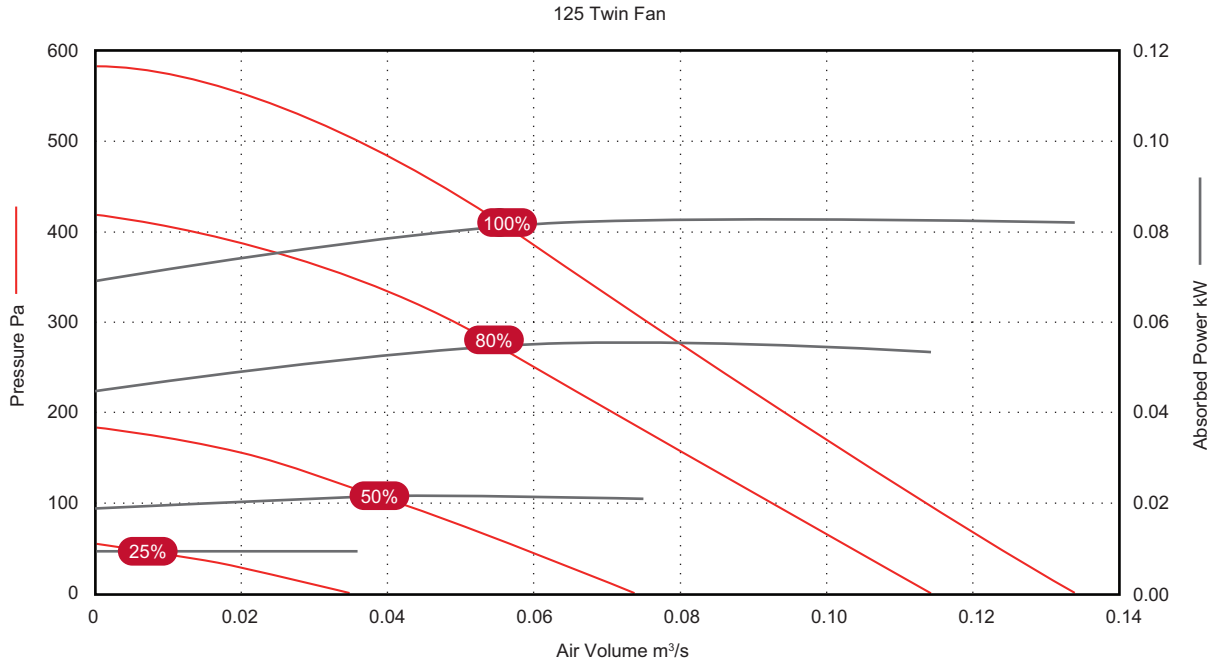


			Airflow, m³/s @ Pa							
Speed	**Motor Phase**		**0**	**50**	**100**	**200**	**300**	**400**	**500**	**F.L.C Amps**
25	1	m³/s	0.03	0.01						0.08
		SFP	0.30	0.90						
		kW	0.01	0.01						
50	1	m³/s	0.06	0.05	0.04					0.16
		SFP	0.38	0.44	0.53					
		kW	0.02	0.02	0.02					
80	1	m³/s	0.09	0.08	0.07	0.05	0.03	0.01		0.50
		SFP	0.61	0.69	0.79	1.08	1.70	4.90		
		kW	0.06	0.06	0.06	0.05	0.05	0.05		
100	1	m³/s	0.11	0.10	0.09	0.08	0.06	0.05	0.04	0.69
		SFP	0.75	0.83	0.92	1.04	1.38	1.66	2.08	
		kW	0.08	0.08	0.08	0.08	0.08	0.08	0.08	

Sound Data

		Octave Band Frequency SWL								
Speed	**Test Mode**	**63**	**125**	**250**	**500**	**1k**	**2k**	**4k**	**8k**	**dB(A) @ 3m**
25	Breakout	45	39	35	27	25	23	23	30	17
	Inlet	45	38	41	29	25	21	22	29	18
	Outlet	43	39	34	28	24	22	23	28	17
50	Breakout	47	55	47	35	28	24	24	29	23
	Inlet	48	50	43	37	32	28	22	28	22
	Outlet	47	52	46	42	38	35	26	29	25
80	Breakout	55	64	58	45	38	35	32	32	32
	Inlet	54	58	54	51	44	40	31	30	32
	Outlet	51	61	59	56	50	49	40	34	37
100	Breakout	65	69	61	50	42	40	37	36	36
	Inlet	55	63	56	53	49	45	38	34	35
	Outlet	53	65	59	58	54	55	48	39	40

Performance Guide

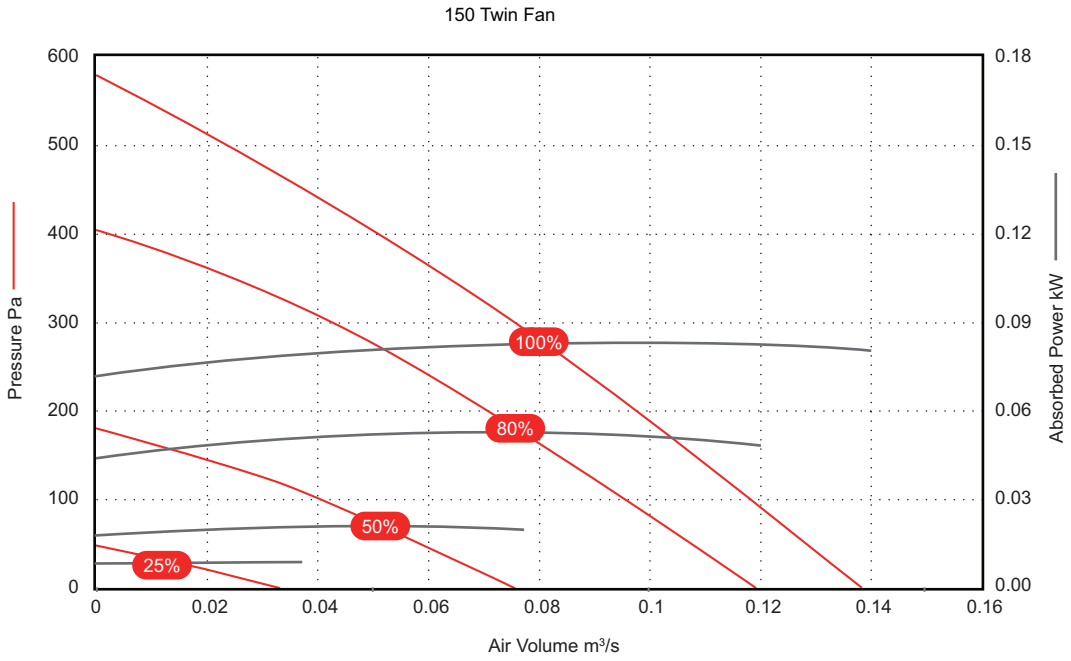


			Airflow, m³/s @ Pa							
Speed	**Motor Phase**		**0**	**50**	**100**	**200**	**300**	**400**	**500**	**F.L.C Amps**
25	1	m³/s	0.04							0.09
		SFP	0.25							
		kW	0.01							
50	1	m³/s	0.07	0.06	0.04					0.18
		SFP	0.31	0.37	0.55					
		kW	0.02	0.02	0.02					
80	1	m³/s	0.12	0.10	0.09	0.07	0.05	0.02		0.51
		SFP	0.45	0.54	0.61	0.79	1.06	2.45		
		kW	0.05	0.05	0.06	0.06	0.05	0.05		
100	1	m³/s	0.13	0.12	0.11	0.09	0.08	0.06	0.03	0.72
		SFP	0.63	0.68	0.75	0.92	1.04	1.35	2.60	
		kW	0.08	0.08	0.08	0.08	0.08	0.08	0.08	

Sound Data

		Octave Band Frequency SWL								
Speed	**Test Mode**	**63**	**125**	**250**	**500**	**1k**	**2k**	**4k**	**8k**	**dB(A) @ 3m**
25	Breakout	48	39	35	28	25	23	24	30	18
	Inlet	46	41	34	27	24	21	22	29	17
	Outlet	44	41	36	29	25	21	22	28	17
50	Breakout	49	56	48	35	33	25	25	30	25
	Inlet	49	56	50	40	34	31	23	29	26
	Outlet	49	60	56	45	40	37	27	29	30
80	Breakout	56	66	59	45	35	31	31	32	33
	Inlet	48	60	56	51	44	40	31	30	33
	Outlet	53	66	61	56	52	51	45	34	39
100	Breakout	59	72	64	52	41	36	35	36	39
	Inlet	52	66	66	56	51	47	38	39	39
	Outlet	54	69	64	61	57	57	52	43	44

Performance Guide

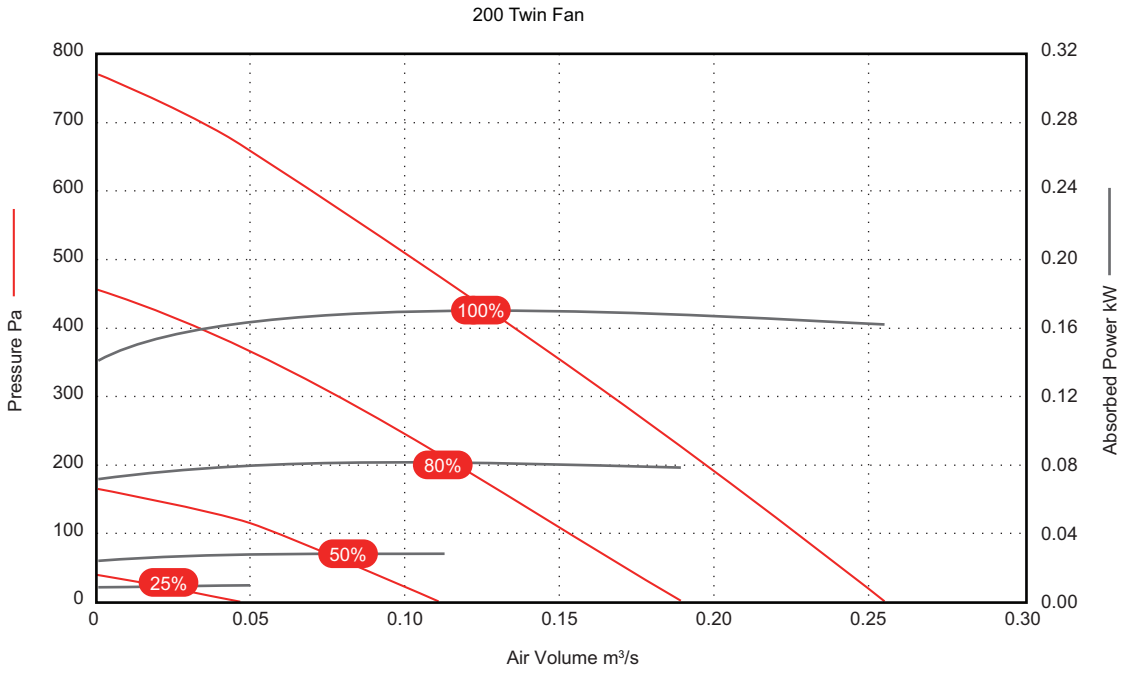


			Airflow, m³/s @ Pa							
Speed	**Motor Phase**		**0**	**50**	**100**	**200**	**300**	**400**	**500**	**F.L.C Amps**
25	1	m³/s	0.04							0.08
		SFP	0.23							
		kW	0.01							
50	1	m³/s	0.08	0.06	0.04					0.17
		SFP	0.25	0.35	0.53					
		kW	0.02	0.02	0.02					
80	1	m³/s	0.12	0.11	0.09	0.07	0.04			0.48
		SFP	0.40	0.45	0.58	0.76	1.30			
		kW	0.05	0.05	0.05	0.05	0.05			
100	1	m³/s	0.14	0.13	0.12	0.10	0.08	0.05	0.02	0.71
		SFP	0.58	0.63	0.69	0.83	1.03	1.60	3.85	
		kW	0.08	0.08	0.08	0.08	0.08	0.08	0.08	

Sound Data

		Octave Band Frequency SWL								
Speed	**Test Mode**	**63**	**125**	**250**	**500**	**1k**	**2k**	**4k**	**8k**	**dB(A) @ 3m**
25	Breakout	46	40	35	27	26	23	23	29	17
	Inlet	45	39	36	28	27	24	22	29	18
	Outlet	47	43	36	30	26	23	22	28	21
50	Breakout	48	52	49	37	31	26	23	29	24
	Inlet	47	55	48	41	33	30	23	29	25
	Outlet	49	59	56	44	42	40	32	29	30
80	Breakout	55	58	58	49	45	41	38	32	33
	Inlet	54	62	64	52	45	41	33	32	36
	Outlet	55	67	66	57	53	53	47	38	41
100	Breakout	60	63	62	59	51	47	42	41	39
	Inlet	58	66	66	59	50	46	39	36	40
	Outlet	60	71	67	64	61	61	55	49	47

Performance Guide

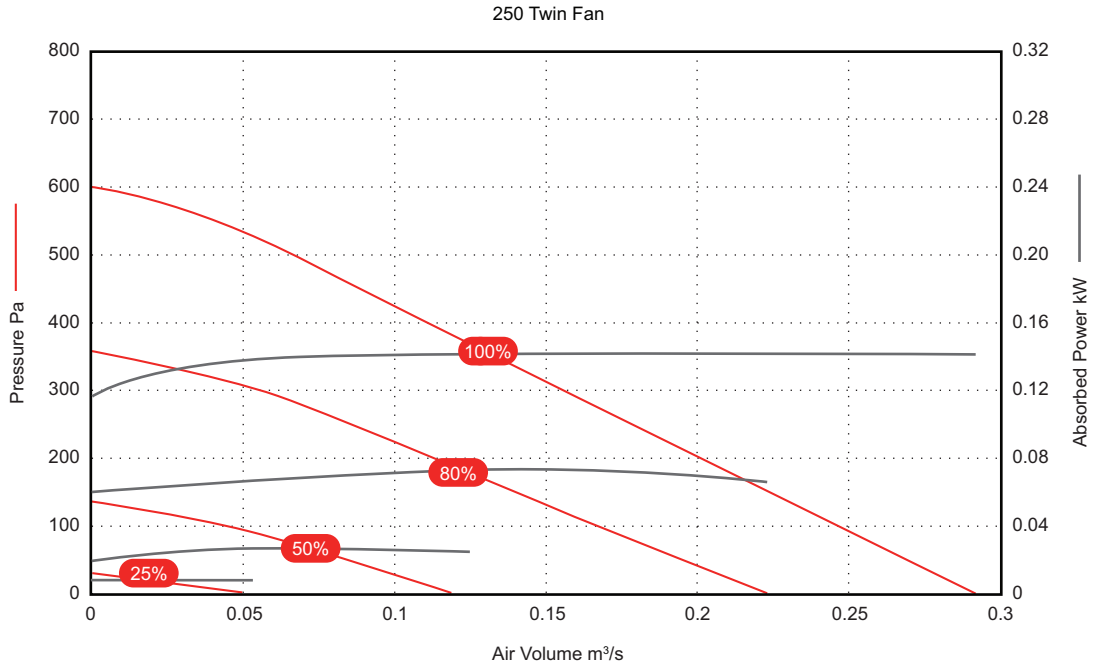


			Airflow, m³/s @ Pa									
Speed	**Motor Phase**		**0**	**50**	**100**	**200**	**300**	**400**	**500**	**600**	**700**	**F.L.C Amps**
25	1	m³/s	0.05									0.09
		SFP	0.20									
		kW	0.01									
50	1	m³/s	0.11	0.08	0.06							0.2
		SFP	0.25	0.35	0.47							
		kW	0.03	0.03	0.03							
80	1	m³/s	0.19	0.17	0.15	0.11	0.07	0.04				1.07
		SFP	0.42	0.47	0.54	0.74	1.16	2.00				
		kW	0.08	0.08	0.08	0.08	0.08	0.08				
100	1	m³/s	0.25	0.24	0.23	0.20	0.17	0.13	0.10	0.07	0.04	1.4
		SFP	0.64	0.68	0.72	0.83	0.98	1.29	1.69	2.39	4.03	
		kW	0.16	0.16	0.17	0.17	0.17	0.17	0.17	0.17	0.16	

Sound Data

		Octave Band Frequency SWL								
Speed	**Test Mode**	**63**	**125**	**250**	**500**	**1k**	**2k**	**4k**	**8k**	**dB(A) @ 3m**
25	Breakout	47	45	37	40	37	32	25	31	23
	Inlet	44	48	36	36	32	25	22	29	21
	Outlet	47	49	37	37	33	36	23	30	23
50	Breakout	52	54	54	43	38	41	26	32	29
	Inlet	56	59	56	49	41	34	34	31	31
	Outlet	52	61	54	53	47	46	41	33	34
80	Breakout	62	64	60	58	45	43	32	35	37
	Inlet	55	64	59	64	54	47	42	38	42
	Outlet	62	70	61	69	61	58	55	51	48
100	Breakout	67	69	64	63	51	45	38	40	42
	Inlet	58	70	63	68	62	55	51	49	47
	Outlet	68	75	65	80	67	67	64	60	58

Performance Guide

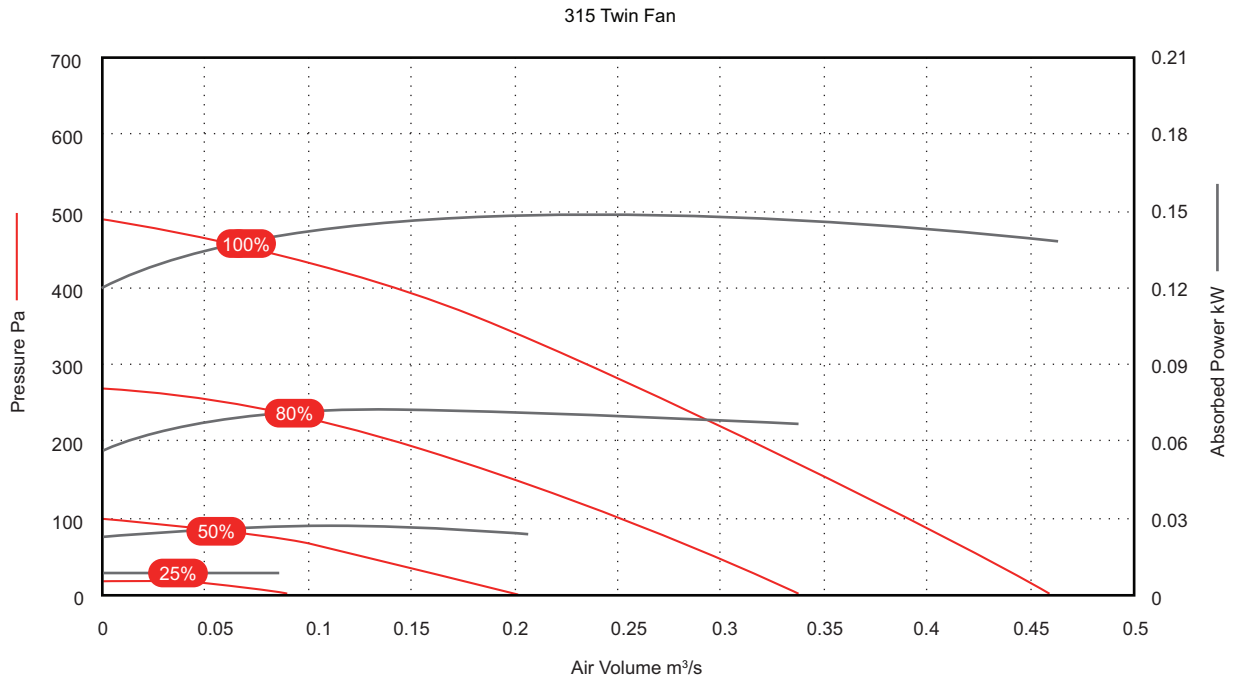


			Airflow, m³/s @ Pa								
Speed	**Motor Phase**		**0**	**50**	**100**	**200**	**300**	**400**	**500**	**600**	**F.L.C Amps**
25	1	m³/s	0.05								0.09
		SFP	0.18								
		kW	0.01								
50	1	m³/s	0.12	0.09	0.05						0.2
		SFP	0.21	0.30	0.54						
		kW	0.03	0.03	0.03						
80	1	m³/s	0.23	0.20	0.17	0.11	0.06				0.92
		SFP	0.29	0.35	0.43	0.66	1.10				
		kW	0.07	0.07	0.07	0.07	0.07				
100	1	m³/s	0.30	0.27	0.25	0.20	0.15	0.11	0.07	0.01	1.4
		SFP	0.47	0.53	0.57	0.69	0.91	1.26	2.01	12.10	
		kW	0.14	0.14	0.14	0.14	0.14	0.14	0.14	0.12	

Sound Data

		Octave Band Frequency SWL								
Speed	**Test Mode**	**63**	**125**	**250**	**500**	**1k**	**2k**	**4k**	**8k**	**dB(A) @ 3m**
25	Breakout	45	41	34	28	26	24	25	31	18
	Inlet	47	41	35	33	27	23	24	31	19
	Outlet	45	42	36	34	32	25	23	30	20
50	Breakout	49	51	50	39	31	28	25	31	25
	Inlet	50	53	51	48	41	33	29	31	29
	Outlet	51	55	49	54	45	43	33	31	33
80	Breakout	56	59	58	51	42	36	30	32	33
	Inlet	59	62	58	62	52	43	42	36	40
	Outlet	58	63	59	67	60	58	53	46	46
100	Breakout	61	64	61	60	49	42	36	35	39
	Inlet	64	68	61	69	60	50	50	47	47
	Outlet	63	69	62	78	66	67	61	57	56

Performance Guide

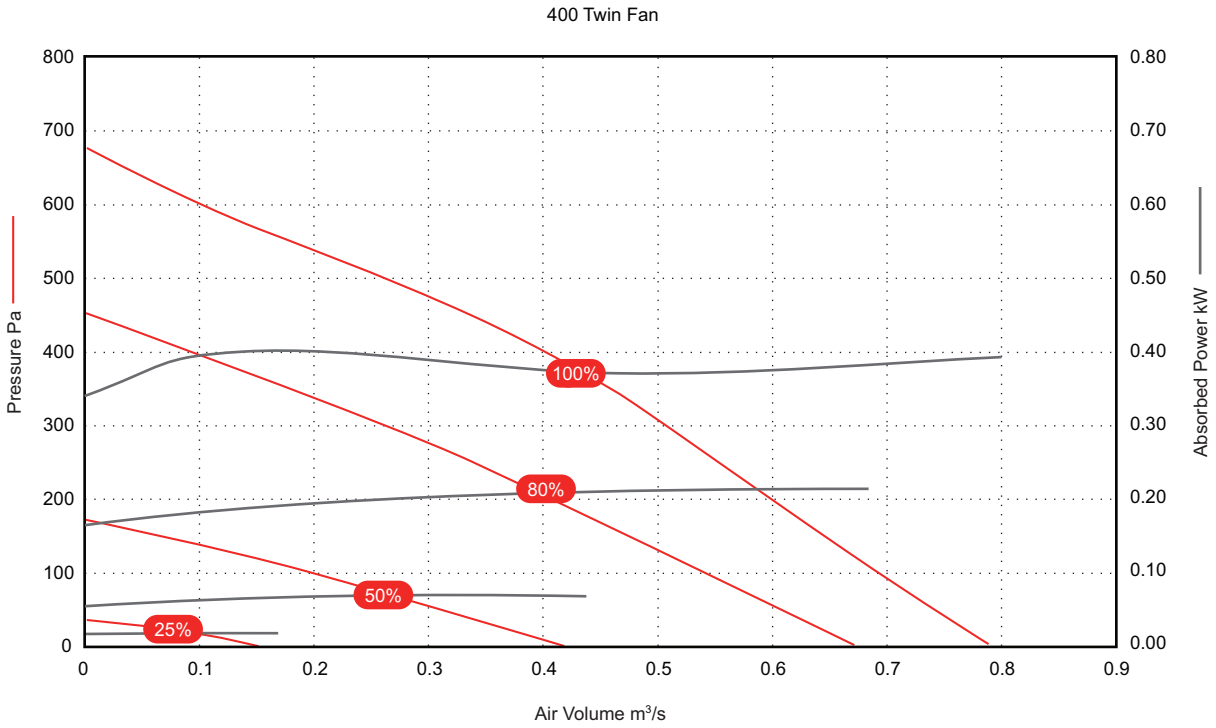


Speed	Motor Phase		0	50	100	200	300	400	F.L.C Amps
25	1	m³/s	0.09						0.09
		SFP	0.11						
		kW	0.01						
50	1	m³/s	0.21	0.13	0.01				0.2
		SFP	0.12	0.22	2.40				
		kW	0.03	0.03	0.02				
80	1	m³/s	0.34	0.29	0.25	0.14			0.6
		SFP	0.20	0.23	0.28	0.51			
		kW	0.07	0.07	0.07	0.07			
100	1	m³/s	0.46	0.43	0.39	0.32	0.24	0.14	1.4
		SFP	0.30	0.33	0.36	0.46	0.62	1.04	
		kW	0.14	0.14	0.14	0.15	0.15	0.15	

Sound Data

		Octave Band Frequency SWL								
Speed	Test Mode	63	125	250	500	1k	2k	4k	8k	dB(A) @ 3m
25	Breakout	48	42	37	30	27	25	24	30	19
	Inlet	44	42	34	28	23	22	22	29	17
	Outlet	47	40	35	32	27	24	23	29	18
50	Breakout	57	50	44	42	30	26	25	30	24
	Inlet	53	53	42	40	34	28	24	30	24
	Outlet	54	56	47	58	42	38	29	30	35
80	Breakout	61	66	55	44	37	33	27	30	32
	Inlet	58	72	56	52	45	39	35	32	37
	Outlet	61	79	61	60	55	53	44	40	45
100	Breakout	66	72	71	51	44	38	36	32	43
	Inlet	63	74	65	59	52	46	43	40	42
	Outlet	66	76	68	69	63	61	53	45	49

Performance Guide

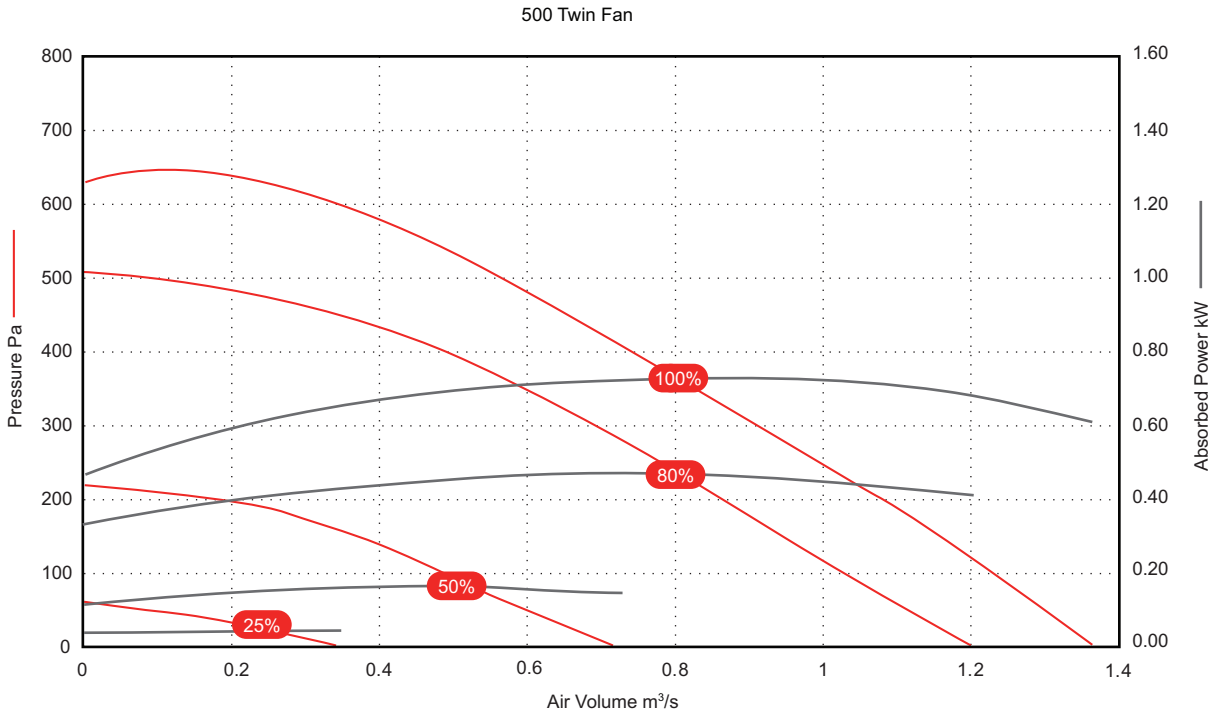


			Airflow, m³/s @ Pa								
Curve Ref.	**Motor Phase**		**0**	**50**	**100**	**200**	**300**	**400**	**500**	**600**	**F.L.C Amps**
25	1	m³/s	0.16								0.19
		SFP	0.13								
		kW	0.02								
50	1	m³/s	0.44	0.34	0.21						0.77
		SFP	0.16	0.21	0.34						
		kW	0.07	0.07	0.07						
80	1	m³/s	0.69	0.60	0.54	0.43	0.27	0.10			2.02
		SFP	0.31	0.35	0.39	0.50	0.73	1.81			
		kW	0.21	0.21	0.21	0.22	0.20	0.18			
100	1	m³/s	0.80	0.73	0.68	0.59	0.50	0.40	0.27	0.10	2.86
		SFP	0.49	0.53	0.56	0.63	0.73	0.93	1.46	3.93	
		kW	0.39	0.39	0.38	0.37	0.36	0.37	0.39	0.39	

Sound Data

		Octave Band Frequency SWL								
Speed	**Test Mode**	**63**	**125**	**250**	**500**	**1k**	**2k**	**4k**	**8k**	**dB(A) @ 3m**
25	Breakout	56	41	41	31	27	25	24	31	20
	Inlet	46	44	41	35	27	22	23	29	20
	Outlet	48	45	41	38	32	24	24	29	21
50	Breakout	65	62	55	44	38	31	26	30	30
	Inlet	60	66	55	50	46	38	30	31	33
	Outlet	64	67	59	57	53	48	41	35	39
80	Breakout	74	75	68	56	49	43	38	40	42
	Inlet	69	80	67	62	57	50	45	41	46
	Outlet	72	81	72	71	66	62	55	48	52
100	Breakout	78	77	75	61	55	48	46	41	48
	Inlet	73	82	73	66	62	53	50	45	50
	Outlet	75	85	78	77	73	69	63	55	58

Performance Guide



			Airflow, m³/s @ Pa								
Speed	**Motor Phase**		**0**	**50**	**100**	**200**	**300**	**400**	**500**	**600**	**F.L.C Amps**
25	3	m³/s	0.36	0.10							0.32
		SFP	0.12	0.40							
		kW	0.04	0.04							
50	3	m³/s	0.73	0.61	0.49	0.20					0.5
		SFP	0.20	0.25	0.33	0.75					
		kW	0.14	0.15	0.16	0.15					
80	3	m³/s	1.20	1.11	1.02	0.86	0.69	0.50	0.08		0.9
		SFP	0.34	0.39	0.44	0.54	0.69	0.92	4.40		
		kW	0.41	0.43	0.44	0.46	0.48	0.46	0.36		
100	3	m³/s	1.37	1.30	1.24	1.09	0.92	0.75	0.57	0.35	1.2
		SFP	0.45	0.49	0.54	0.66	0.79	0.97	1.25	1.88	
		kW	0.61	0.64	0.67	0.71	0.73	0.73	0.71	0.66	

Sound Data

		Octave Band Frequency SWL								
Speed	**Test Mode**	**63**	**125**	**250**	**500**	**1k**	**2k**	**4k**	**8k**	**dB(A) @ 3m**
25	Breakout	59	45	45	34	29	24	25	30	22
	Inlet	49	45	43	38	33	23	24	31	22
	Outlet	48	42	45	42	37	27	25	31	24
50	Breakout	66	64	54	48	39	32	26	32	32
	Inlet	60	63	58	54	45	40	35	40	35
	Outlet	66	60	64	60	54	51	39	41	41
80	Breakout	72	75	66	59	50	43	37	40	42
	Inlet	67	75	70	65	57	51	47	50	46
	Outlet	75	74	76	73	66	61	53	51	53
100	Breakout	74	79	69	62	54	46	40	41	46
	Inlet	69	80	74	70	61	55	51	51	50
	Outlet	78	78	82	78	70	65	60	54	58

Sensors & Controls

Ambient Response Humidity Sensor*

Humidity Sensor control is fixed at 72 - 75%RH. Incorporates a night time 'set back' function to avoid nuisance tripping as the humidity level rises when the air cools. An integral pullcord provides a manual override function if required. Can be wired for either On/Off or Trickle/Boost operation. Pullcord override and neon indicator. Changeover relay switch. Operating range: 30% - 90%RH. Ambient operating temperature +5°C to +40°C. 24V DC SELV. Dimensions:87 x 87 x 33mm (H x W x D). Will fit single gang box for surface mounting.

Stock Ref **8802931**

Remote Speed Control*

Provides infinitely variable B-Series fan speed control between the 2 set points in Proportional mode. This control does NOT provide an ON/OFF switching facility.

Manual control. Located remotely. 24V DC SELV. Ambient operating temperature -5°C to +40°C. Dimensions:84 x 84 x 30mm (H x W x D). Will fit single gang box for surface mounting.

Stock Ref **8802876**

ThermoSwitch®

Automatically switches on fans on either a rise or fall in air temperature. Can be used for Trickle/ Boost operation on either intake or extract systems. Setting range: +6°C to +30°C. Two internal range limit/locking rings are included to allow setting within a limited temperature range or locking at a fixed set-point. IP20 rated. Sealed sensing mechanism. Mounting direct on surface only. Dimensions: 80 x 104 x 36mm (H x W x D). Volt free switch connection to B-Series.

Stock Ref **8802932**

CO_2 Duct Probe

High CO_2 levels promote increased fatigue and reduced concentration. This sensor monitors CO_2 levels in extract ducts from conference areas, offices, theatres etc. With B-Series in Proportional control mode, air extraction rate tracks the CO_2 level to improve indoor air quality.

24V DC SELV. 0 - 2000ppm CO_2 working range. Auto-calibrating NDIR absorption sensor. Stable drift compensation. Adjustable probe length. MAX. IP Rating 65.

Stock Ref **8802880**

* PLEASE NOTE: These sensors/controls are unique to B-Series and CANNOT be used with any other product.

Dampers*

Two types available:

a) MM type - Opens from a Closed / Minimum Flow position to a Fully Open / Maximum Flow position controlled by switching sensors.

b) PC type - opening proportionally when controlled by sensors.

Duct sizes available: 100, 125, 150, 200, 250 and 315. Industry standard actuators.

Typical orderin g designation: DVD size MM or PC

Power Supply*

For those situations where a separate 24V DC SELV supply source is required. 24W output capacity. See Fitting & Wiring instructions for connection details.

Stock Ref **433193**

0-10V CO_2, Temperature and Humidity - Wired

Room mounted CO_2 sensor with 0-10V signal output powered by an external 24V supply.

- Dimensions (HxWxD) (mm) 90 x 90 x 17
- 24V Power supply required
- Temperature range 0~60°C
- Relative humidity range 0-90% RH
- CO_2 range 0-2000PPM
- Compatible with standard single gang or surface mounted
  pattress box
- Status LED indicator for pairing, health check, faults & air quality traffic light index
- 0-10V Wired Communication

Stock Ref

496283

Breathing Buildings

Our team is passionate about delivering the very best personalised service to our customers with emphasis on providing the ideal solution for your particular property needs. We will happily organise a free consultation at your convenience, to assess all of the ventilation options and ensure you are recommended the ideal solution that delivers enhanced indoor air quality, the best energy efficiency, ease of operation, thermal comfort and peace-of-mind.

Our customers can be assured of our product quality, our processes and our excellent customer service. Breathing Buildings have won several industry awards. In 2024, we won two product awards from the prestigious Energy Savings Awards and HVR Awards. Three prestigious awards were won in 2022 for one project, ask our team to explain more about the East Anglian Air Ambulance project that won awards from the Chartered Institute of Building Services Engineers (CIBSE), Heating and Ventilating Review (HVR) and the Society of Public Architecture, Construction, Engineering and Surveying (SPACES) for our NVHR range and our close collaboration with customers.

Our team would welcome the opportunity of demonstrating our case studies to you and answering any questions you may have. Simply call 01223 450060 or email us at info@breathingbuildings.com and we will visit you at your convenience.

Contact our team for a free site consultation at your convenience.

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QUALITY MANAGEMENT SYSTEM - ISO 9001:2015
OCCUPATIONAL HEALTH & SAFETY MANAGEMENT SYSTEM – ISO 45001:2018
ENVIRONMENTAL MANAGEMENT SYSTEM – ISO 14001:2015

Breathe Better Build Sustainably

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