Sentinel D-Box

Sentinel D-Box from Vent-Axia

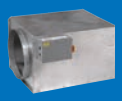
Sentinel is the answer to key questions such as 'Why ventilate a room you're not using?' or 'Why over ventilate a room with only one or two occupants inside?'

Sentinel overcomes many of the issues encountered with a traditional fixed volume ventilation system that is either On or Off irrespective of the number of people in the room, risking room over ventilation, burning valuable money and a wasteful use of energy.

The Sentinel system from Vent-Axia benefits the commercial building by providing:

- Lower energy consumption than traditional systems
- Reduced losses to ventilation under part occupancy
- Longer running life
- Reduced operating costs
- Savings in lifetime maintenance costs
- Ease of installation




Sentinel D-Box Single Fan 344-353


Sentinel D-Box Twin Fan 354-363


Sentinel D-Box Sensors & Controls 364-365

Vent-Axia

Sentinel D-Box







Vent-Axia Sentinel D-Box Fans

Using the Vent-Axia Lo-Carbon range can reduce electrical consumption, thus reducing the overall carbon footprint.

Sentinel is a new 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 the rooms are used at different times of the day by a variable number of people, the Sentinel 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 again 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 Sentinel system, driven by the ventilation requirements of the room at any one time, means that the system is only running to the level required, 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.

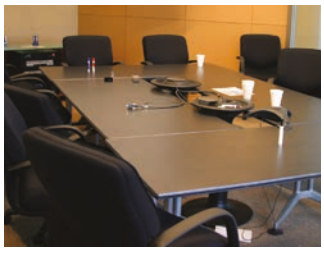
System Overview

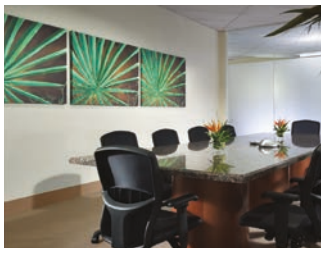
The Sentinel System is made up of 3 parts: EC/DC Fan Motor, Sentinel Integral Control Unit, Sensors and Controls.

The ventilation demands of the room are detected by the wall, ceiling or duct mounted Sentinel sensors/switches. These communicate with the Sentinel 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 Ducting Section.

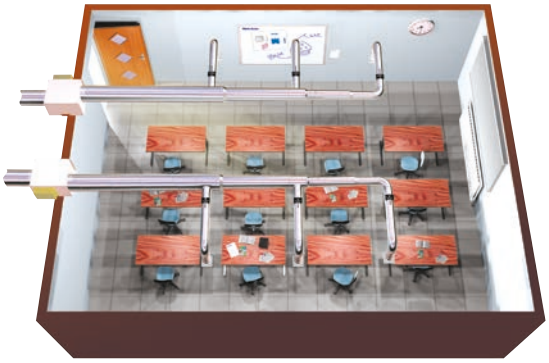





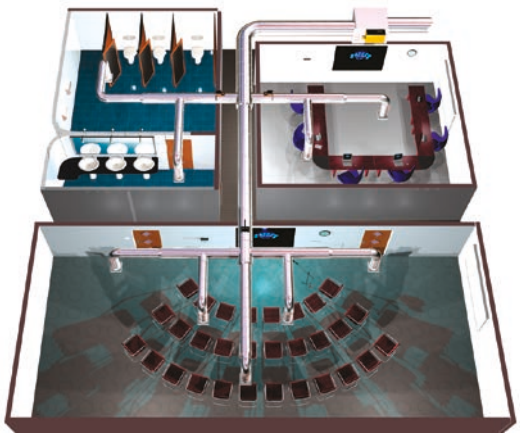




Typical network of hotel bathrooms/flats/apartments



Typical school classroom



Typical office plan with conference facilities

System Technology

Sentinel 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, Sentinel'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, twin allowing for load sharing or 'standby' for extra reliability.

EC/DC Energy Saving Fan Motor Technology

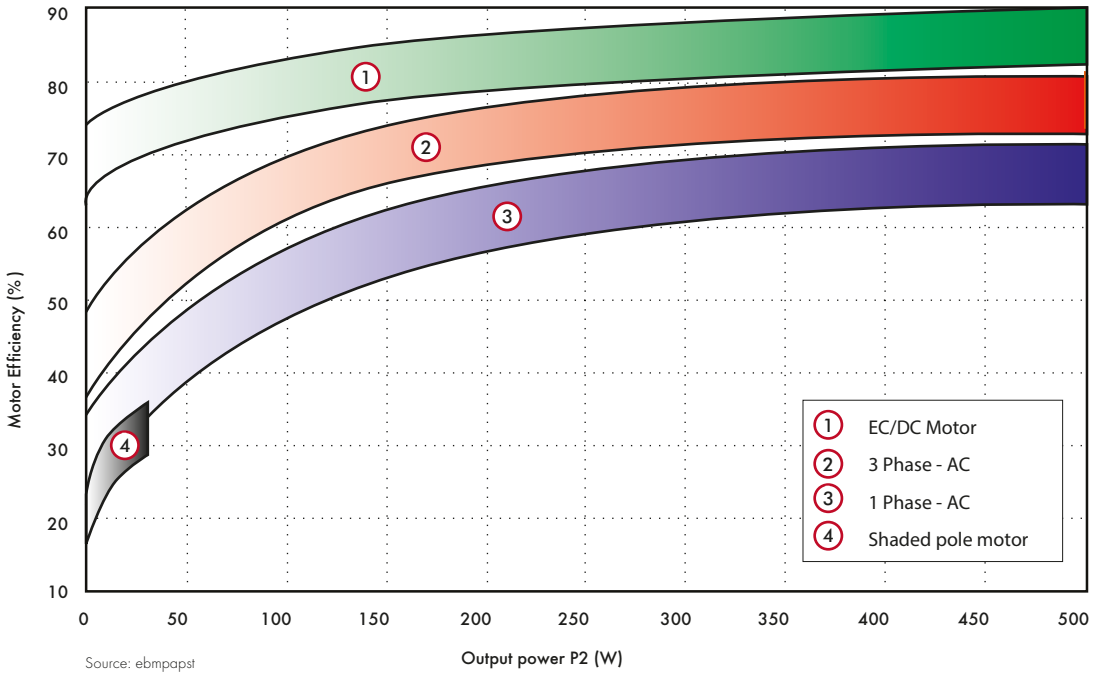
Sentinel utilises the latest EC/DC motor technology, which provides energy saving benefits even over DC motors.



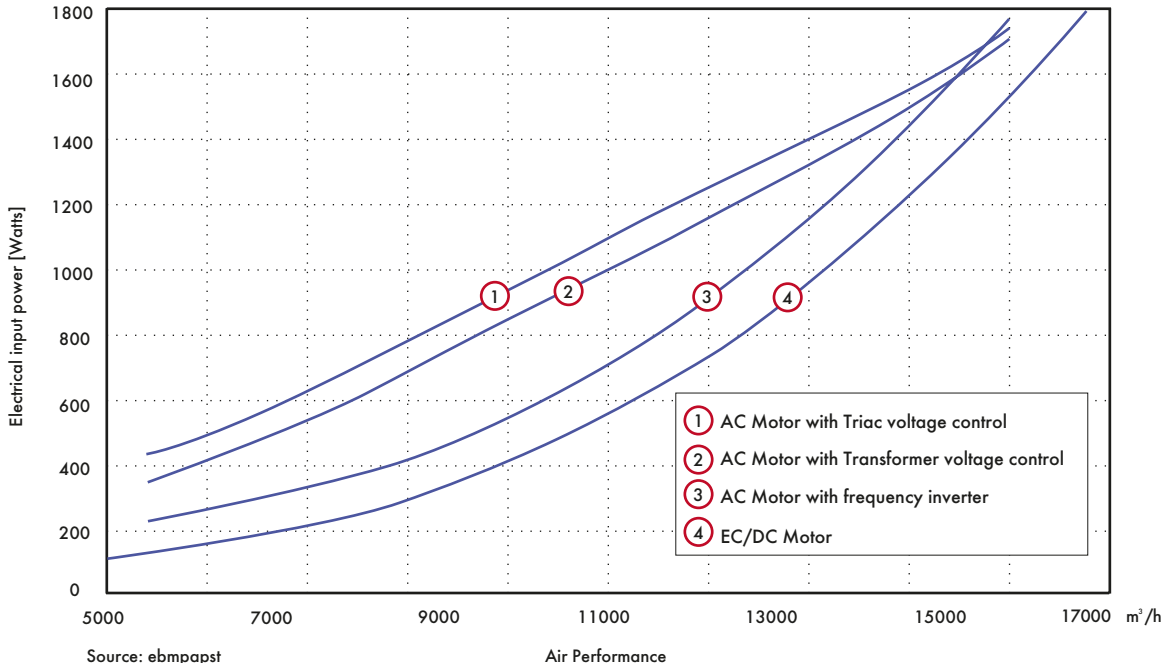
This technology is also infinitely speed controllable and offers increased energy savings across the complete speed control range when compared with conventional inverter drive solutions. The result is higher efficiency, reduced noise, accurate controllability, better speed control drawing less power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

Sentinel 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



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. Hierarchal – 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 - 70m^3/h
- Humidity: 12m^3/h – 30% RH
  70m^3/h - 75% RH
- Motorised Duct Dampers 100mm - 315mm Dia
- Built in end stop adjustment for setting minimum and maximum volume
- 24V Min/Max or 0-10V proportional control options
- 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 (563502)
- Humidistat - Room (432945)

Proportional 0-10V (DVDxxx/PC)

- Carbon Dioxide Sensor – Room (433259)
- Carbon Dioxide Sensor – Duct (433259)
- Temperature Sensor - Room (434749)

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

Controls









* Overall potential savings based on 12 hours use

Sentinel D-Box Single Fan

The Sentinel single in-line duct fans are as supplied from Vent-Axia Ltd. Manufactured from prime quality galvanised sheet steel, Sentinel 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.

Weatherproof external units incorporate controller shrouds and are coated externally with a polyurethane finish.

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 Sentinel 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 Sentinel 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 Sentinel 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 Sentinel 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 2×10^{-5} Pa. The inlet/outlet sound power level spectra figures are dB with a reference of 10^{-12} watts.

Weatherproof Typical Ordering Designation

Ordering Codes are similar to existing units with Suffix.... /WP which denotes Weatherproof finish.

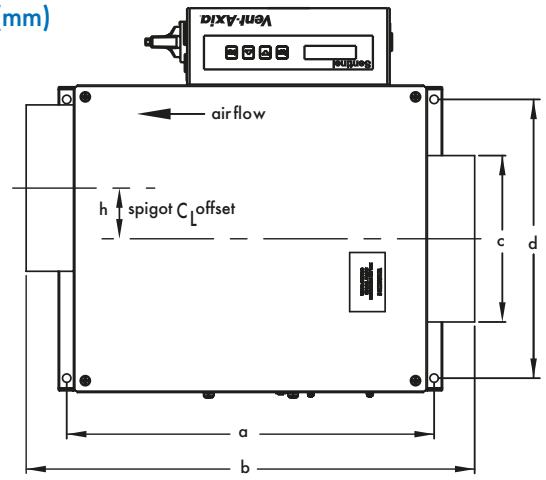
Example SENT100S/CP/WP

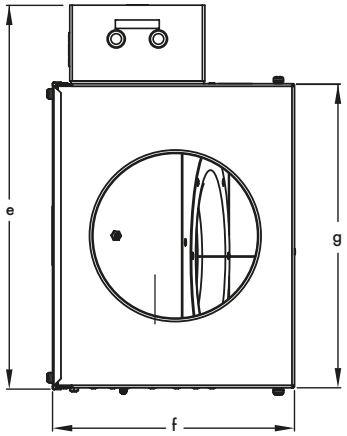
Accessories

For duct accessories see Ducting and Fitting Section.



Fan Dimensions (mm)





Hierarchy Model	Constant Pressure Model	a	b	c	d	e	f	g	h	Weight kg
SENT100S	SENT100S/CP	380	443	100	275	400	192	306	62	8.5
SENT125S	SENT125S/CP	380	443	125	275	400	192	306	62	8.5
SENT150S	SENT150S/CP	380	443	150	275	400	192	306	62	8.5
SENT200S	SENT200S/CP	435	531	200	330	453	287	360	60	12.5
SENT250S	SENT250S/CP	435	531	250	330	453	287	360	35	13
SENT315S	SENT315S/CP	710	808	315	540	661	458	568	43	34
SENT400S	SENT400S/CP	710	808	400	540	661	458	568	43	36
SENT500S	SENT500S/CP	898	996	500	735	858	577	765	59	55

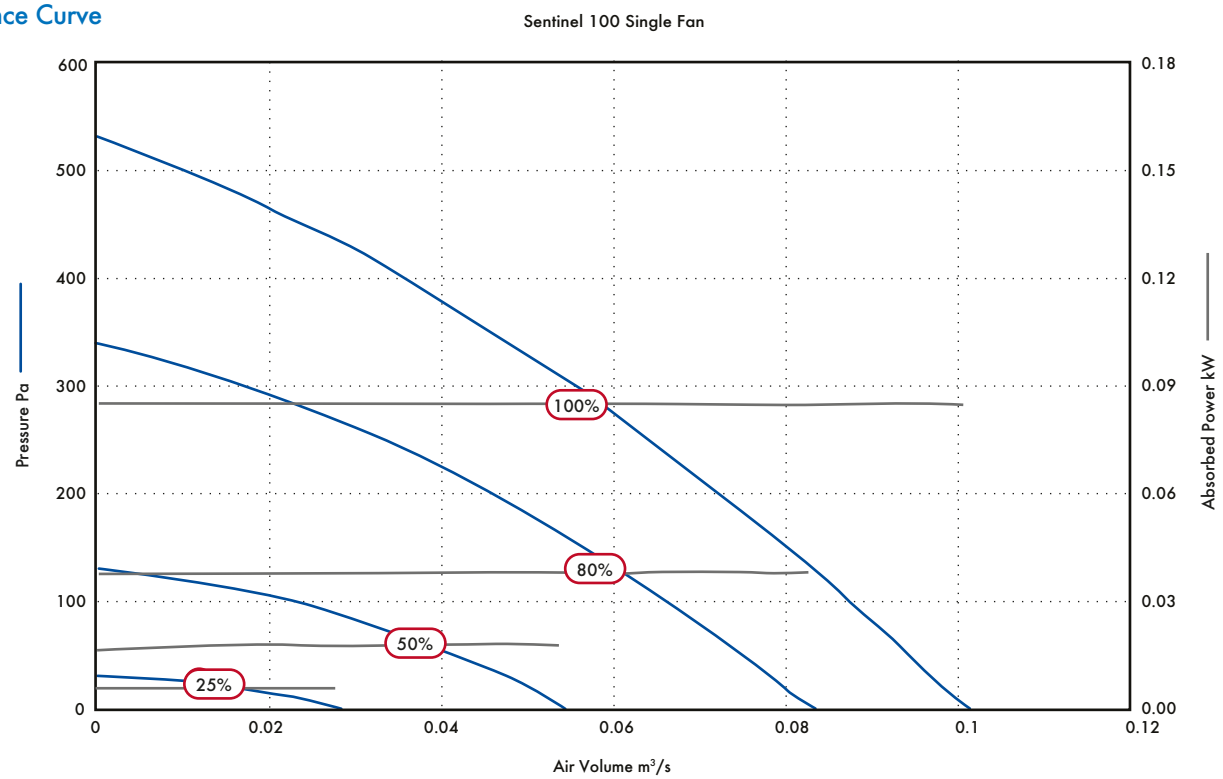
Accessories

Hierarchy Model	Model	Anti-Vibration Mounts Stock Ref	Duct air heater Stock Ref	Filter cassette Stock Ref	Bag filter cassette Stock Ref	*Duct attenuator 600mm Stock Ref
SENT100S	SENT100S/CP	68MP033G	10531100T1	10532100A	10533100	10535100
SENT125S	SENT125S/CP	68MP033G	10531125T1	10532125A	10533125	10535125
SENT150S	SENT150S/CP	68MP033G	10531150T1	10532150A	10533150	10535150
SENT200S	SENT200S/CP	68MP033G	10531200T1	10532200A	10533200	10535200
SENT250S	SENT250S/CP	68MP033G	10531250T1	10532250A	10533250	10535250
SENT315S	SENT315S/CP	68MP033G	10531315T1	10532315A	10533315	10535315
SENT400S	SENT400S/CP	68MP033G	10531400T3	10532400A	10533400	10535400
SENT500S	SENT500S/CP	68MP033G	10531500T3	10532500A	10533500	10536500*

*For alternative attenuator lengths, refer to Accessories and Controllers section

Vent-Axia Sentinel D-Box Single Fan

Performance Curve



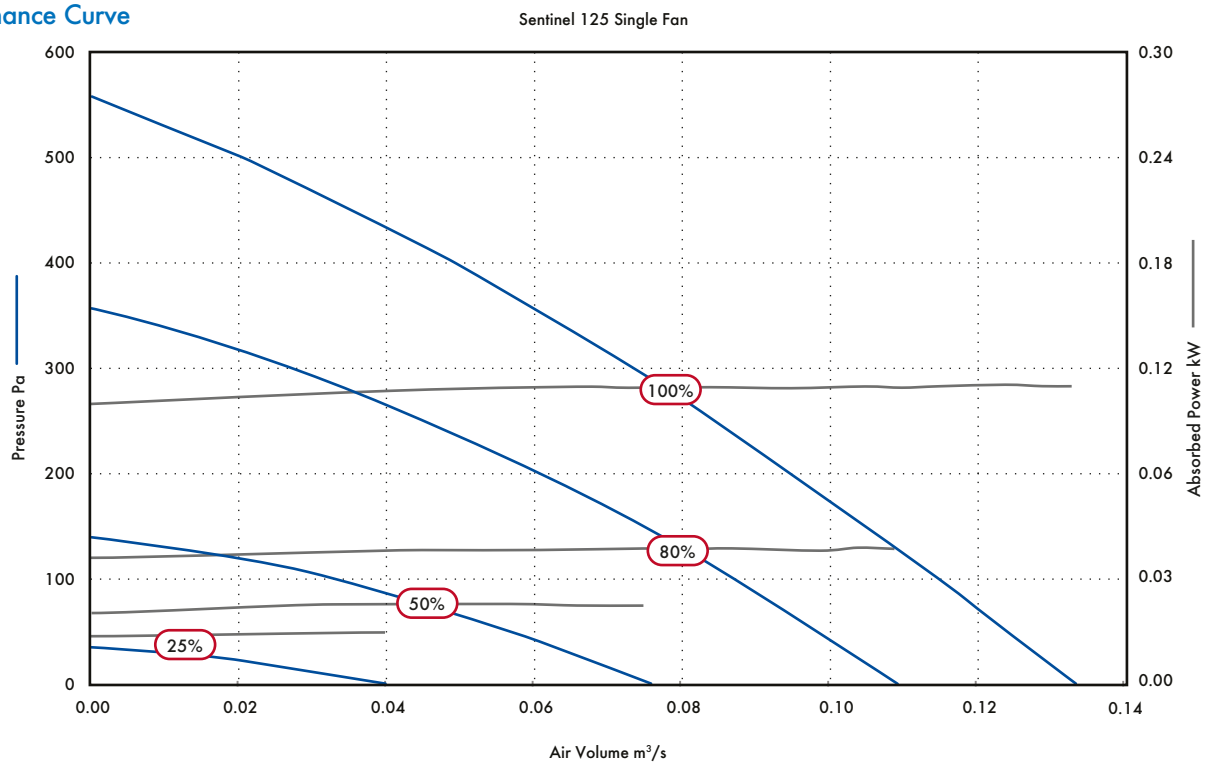
Performance Guide

Speed	Phase		Airflow, m³/s @ Pa 0	25	50	100	125	150	200	250	300	350	375	Amps F.L.C
100%	1	m³/s	0.10	0.10	0.09	0.09	0.08	0.08	0.07	0.06	0.06	0.05	0.04	
		kW	0.08	0.09	0.08	0.09	0.08	0.08	0.08	0.09	0.09	0.09	0.08	0.72
		SFP	0.84	0.88	0.90	0.98	1.01	1.06	1.18	1.33	1.52	1.85	2.07	
80%	1	m³/s	0.08	0.08	0.08	0.07	0.06	0.06	0.05	0.03	0.02			
		kW	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04			0.5
		SFP	0.46	0.48	0.51	0.58	0.62	0.68	0.83	1.15	2.11			
50%	1	m³/s	0.05	0.05	0.04	0.02	0.01							
		kW	0.02	0.02	0.02	0.02	0.02							0.15
		SFP	0.33	0.38	0.44	0.78	2.75							
25%	1	m³/s	0.03	0.01										
		kW	0.01	0.01										0.08
		SFP	0.21	0.46										

Sound Data

Speed	Test Mode	Octave Band Frequency SWL 63	125	250	500	1k	2k	4k	8k	dB(A) @3m
100%	Inlet	57.2	68.7	68	70.1	59.4	53.1	47.3	41.8	42.5
	Outlet	54.9	67.7	70	70.5	68.1	64.6	57.7	49.5	49.3
	Breakout	58.7	63.8	63.3	63	54.8	51.2	46.4	42.1	42.2
80%	Inlet	52.2	63.7	63	65.1	54.3	48.1	42.3	36.8	37.5
	Outlet	50.1	62.9	65.1	65.6	63.2	59.7	52.9	44.6	44.5
	Breakout	53.8	58.9	58.5	58.2	49.9	46.4	41.5	37.2	37.3
50%	Inlet	42.2	53.7	52.9	55.1	44.3	38.1	32.3	26.8	27.5
	Outlet	39.9	52.7	54.9	55.4	53	49.5	42.7	34.4	34.3
	Breakout	43.6	48.7	48.3	48	39.7	36.2	31.4	27	27.1
25%	Inlet	27.1	38.6	37.9	40	29.2	23	17.2	11.7	12.4
	Outlet	24.8	37.6	39.9	40.4	37.9	34.5	27.6	19.4	19.2
	Breakout	28.6	33.7	33.2	32.9	24.7	21.1	16.3	11.9	12.1

Performance Curve



Performance Guide

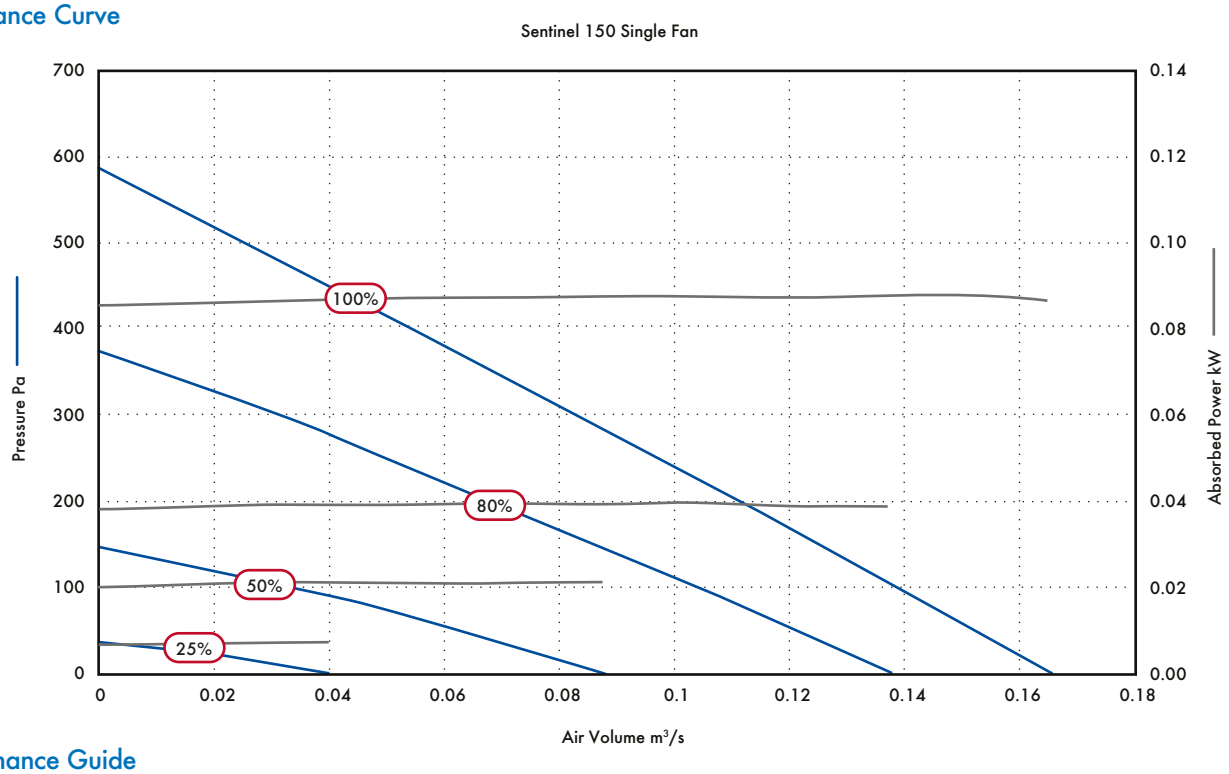
Speed	Phase		Airflow, m³/s @ Pa													Amps
			0	25	50	100	125	150	200	250	300	350	375	400	450	F.L.C
100%	1	m³/s	0.13	0.13	0.12	0.12	0.11	0.11	0.10	0.08	0.07	0.07	0.06	0.05	0.04	0.72
		kW	0.09	0.09	0.09	0.09	0.08	0.09	0.08	0.08	0.08	0.09	0.08	0.08	0.09	
		SFP	0.64	0.66	0.69	0.74	0.77	0.81	0.89	1.01	1.16	1.25	1.39	1.73	2.43	
80%	1	m³/s	0.11	0.10	0.10	0.09	0.08	0.08	0.06	0.05	0.03	0.02				0.51
		kW	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04				
		SFP	0.35	0.37	0.38	0.44	0.47	0.51	0.62	0.84	1.41	2.38				
50%	1	m³/s	0.08	0.07	0.06	0.03	0.02									0.18
		kW	0.02	0.02	0.02	0.02	0.02									
		SFP	0.29	0.33	0.39	0.67	1.47									
25%	1	m³/s	0.04	0.02												0.09
		kW	0.01	0.01												
		SFP	0.35	0.74												

Sound Data

Speed	Test Mode	Octave Band Frequency SWL								dB(A)
		63	125	250	500	1k	2k	4k	8k	@3m
100%	Inlet	57.9	68.5	68.3	70.5	62.4	57.3	50.8	45.5	44.5
	Outlet	58.7	68.4	69.6	74.2	69.7	67.2	61.9	53.7	51.9
	Breakout	56.3	59.2	63.4	62.8	56.5	52.1	45.2	38.2	42.3
80%	Inlet	53.1	63.6	63.4	65.7	57.6	52.4	46	40.6	39.7
	Outlet	53.9	63.6	64.7	69.4	64.9	62.4	57.1	48.8	47.1
	Breakout	51.5	54.3	58.6	58	51.6	47.3	40.4	33.3	37.5
50%	Inlet	42.9	53.4	53.3	55.5	47.4	42.2	35.8	30.4	29.5
	Outlet	43.7	53.4	54.5	59.2	54.7	52.2	46.9	38.6	36.9
	Breakout	41.3	44.1	48.4	47.8	41.4	37.1	30.2	23.1	27.3
25%	Inlet	27.8	38.3	38.2	40.4	32.3	27.2	20.8	15.4	14.4
	Outlet	28.6	38.3	39.4	44.1	39.6	37.1	31.8	23.6	21.8
	Breakout	26.2	29.1	33.3	32.7	26.4	22	15.1	8.1	12.2

Vent-Axia Sentinel D-Box Single Fan

Performance Curve



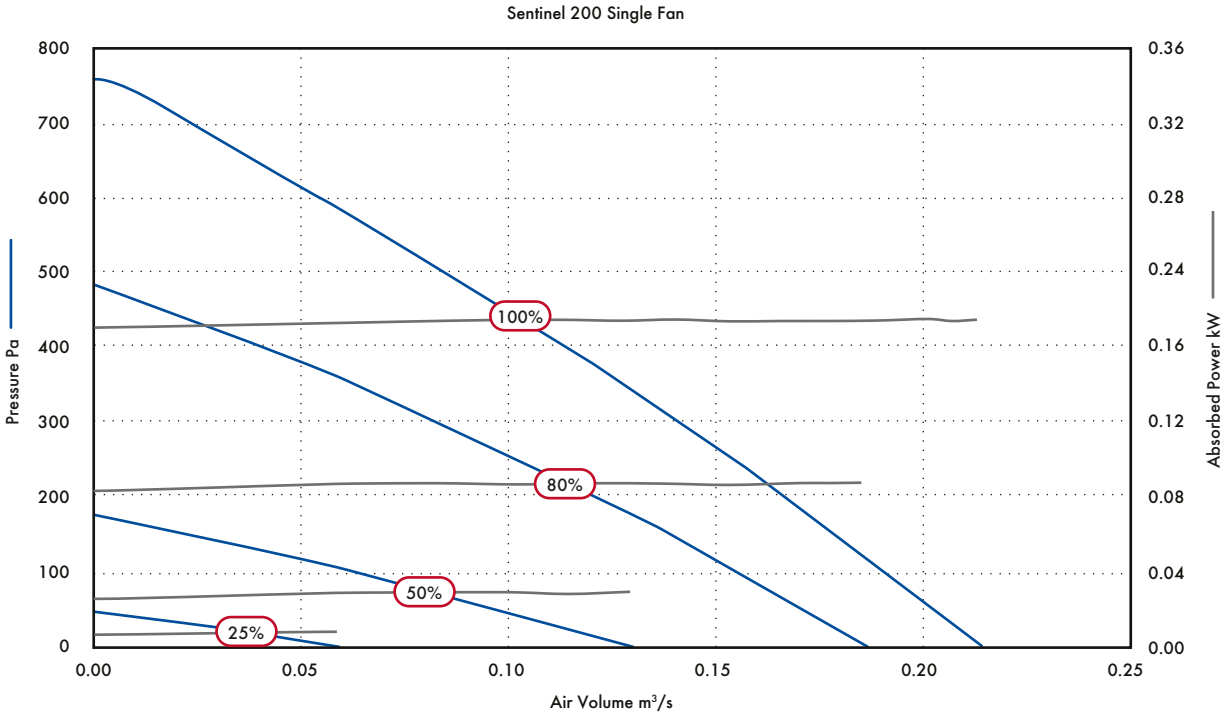
Performance Guide

			Airflow, m³/s @ Pa												Amps
Speed	Phase		0	25	50	100	125	150	200	250	300	350	375	400	F.L.C
100%	1	m³/s	0.17	0.16	0.15	0.14	0.13	0.12	0.11	0.10	0.08	0.07	0.05	0.04	0.74
		kW	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09	
		SFP	0.52	0.55	0.57	0.63	0.66	0.70	0.78	0.91	1.06	1.28	1.61	2.23	
80%	1	m³/s	0.14	0.13	0.12	0.10	0.10	0.09	0.07	0.05	0.03	0.01			0.48
		kW	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04			
		SFP	0.28	0.30	0.32	0.38	0.41	0.45	0.57	0.78	1.26	3.55			
50%	1	m³/s	0.09	0.08	0.06	0.03	0.02								0.16
		kW	0.02	0.02	0.02	0.02	0.02								
		SFP	0.24	0.28	0.33	0.64	1.31								
25%	1	m³/s	0.04	0.02											0.08
		kW	0.01	0.01											
		SFP	0.18	0.47											

Sound Data

		Octave Band Frequency SWL								dB(A)
Speed	Test Mode	63	125	250	500	1k	2k	4k	8k	@3m
100%	Inlet	60	71.5	74	75.2	66.6	61.5	53.6	50	49.8
100%	Outlet	60.2	71.5	73.8	73.8	73.1	70.4	64.6	57.4	55
100%	Breakout	55.8	58.3	62.8	63.9	58	54.4	47	39.6	43.5
80%	Inlet	55.1	66.7	69.1	70.3	61.8	56.7	48.8	45.2	45
80%	Outlet	55.3	66.7	68.9	68.9	68.3	65.6	57.3	52.5	50.1
80%	Breakout	50.9	53.5	57.9	59.1	53.1	49.6	42.2	34.7	38.6
50%	Inlet	44.9	56.4	58.9	60.1	51.5	46.5	38.6	35	34.8
50%	Outlet	45.1	56.5	58.7	58.7	58.1	55.3	47.1	42.3	39.9
50%	Breakout	40.7	43.3	47.7	48.9	42.9	39.4	31.9	24.5	28.4
25%	Inlet	29.9	41.4	43.9	45.1	36.5	31.4	23.6	20	19.7
25%	Outlet	30.1	41.4	43.7	43.7	43.1	40.3	32.1	27.3	24.9
25%	Breakout	25.7	28.2	32.7	33.8	27.9	24.3	16.9	9.4	13.4

Performance Curve



Performance Guide

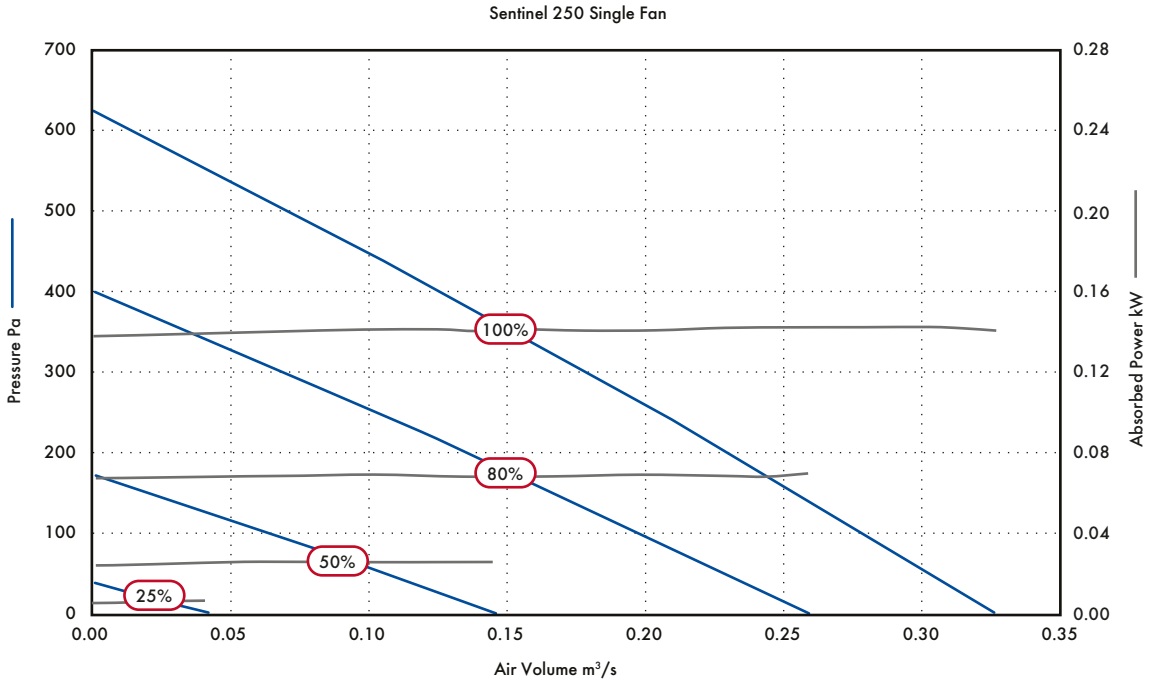
			Airflow, m³/s @ Pa												Amps
Speed	Phase		0	25	50	100	150	200	250	300	350	400	450	500	F.L.C
100%	1	m³/s	0.21	0.21	0.20	0.19	0.18	0.17	0.15	0.14	0.13	0.11	0.10	0.09	0.72
		kW	0.17	0.17	0.17	0.17	0.17	0.17	0.17	0.17	0.17	0.17	0.17	0.17	
		SFP	0.81	0.83	0.86	0.91	0.97	1.04	1.12	1.23	1.35	1.52	1.75	2.04	
80%	1	m³/s	0.19	0.18	0.17	0.15	0.14	0.12	0.10	0.08	0.06	0.04			0.5
		kW	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09			
		SFP	0.47	0.49	0.51	0.56	0.63	0.72	0.84	1.05	1.38	2.12			
50%	1	m³/s	0.13	0.12	0.10	0.06	0.02								0.16
		kW	0.03	0.03	0.03	0.03	0.03								
		SFP	0.23	0.25	0.30	0.46	1.27								
25%	1	m³/s	0.06	0.03											0.08
		kW	0.01	0.01											
		SFP	0.15	0.28											

Sound Data

		Octave Band Frequency SWL								dB(A)
Speed	Test Mode	63	125	250	500	1k	2k	4k	8k	@3m
100%	Inlet	65.4	74.3	75.1	76.2	70.9	65.2	63.7	57	52.9
100%	Outlet	66.2	74.4	73.7	81.2	78.5	79.2	74.9	68	62.9
100%	Breakout	63.5	61.9	63.3	68.7	63.1	63.3	55.2	41.7	49
80%	Inlet	60.6	69.4	70.3	71.3	66	60.4	58.9	52.2	48.1
80%	Outlet	61.3	69.5	68.8	76.3	73.7	74.4	70.1	63.2	58
80%	Breakout	58.6	57.1	58.4	63.8	58.2	58.4	50.3	36.9	44.2
50%	Inlet	50.4	59.2	60.1	61.1	55.8	50.2	48.7	42	37.9
50%	Outlet	53.4	60.9	68	64.5	60.7	59.6	56.1	47.7	46.6
50%	Breakout	49.6	48.2	56	51.8	44.7	42.9	34.5	30.7	32.4
25%	Inlet	35.3	44.2	45	46.1	40.8	35.1	33.7	27	22.8
25%	Outlet	36.1	44.3	43.6	51.1	48.4	49.1	44.8	37.9	32.8
25%	Breakout	33.4	31.8	33.2	38.6	33	33.2	25.1	11.6	19

Vent-Axia Sentinel D-Box Single Fan

Performance Curve



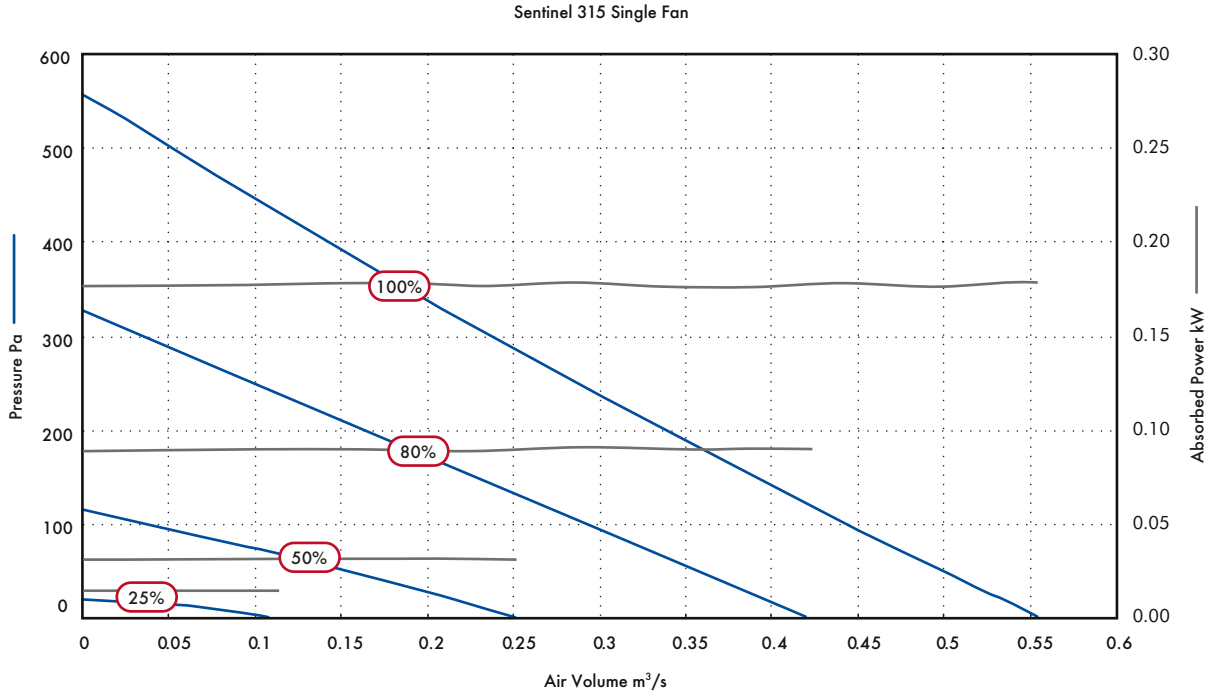
Performance Guide

			Airflow, m³/s @ Pa													Amps
Speed	Phase		0	25	50	100	150	200	250	300	350	375	400	450	500	F.L.C
100%	1	m³/s	0.33	0.32	0.30	0.28	0.25	0.23	0.20	0.18	0.15	0.14	0.13	0.10	0.07	1.38
		kW	0.14	0.14	0.14	0.14	0.14	0.14	0.14	0.14	0.14	0.14	0.14	0.14	0.14	
		SFP	0.43	0.45	0.47	0.51	0.56	0.62	0.69	0.79	0.93	1.01	1.13	1.44	2.01	
80%	1	m³/s	0.26	0.24	0.23	0.20	0.17	0.13	0.10	0.07	0.03					1
		kW	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07					
		SFP	0.27	0.28	0.30	0.35	0.41	0.51	0.68	1.01	2.03					
50%	1	m³/s	0.15	0.12	0.10	0.06	0.02									0.2
		kW	0.03	0.03	0.03	0.03	0.03									
		SFP	0.18	0.21	0.25	0.43	1.53									
25%	1	m³/s	0.04	0.02												0.07
		kW	0.01	0.01												
		SFP	0.17	0.47												

Sound Data

		Octave Band Frequency SWL								dB(A)
Speed	Test Mode	63	125	250	500	1k	2k	4k	8k	@3m
100%	Inlet	66.7	73.4	73.5	79	69.6	64.6	62	58.8	54.1
100%	Outlet	69	72.9	73.6	78.2	75.5	76.2	70.8	66.7	60.1
100%	Breakout	63.3	64.7	65.8	69.9	64.1	63.3	52.8	43.3	49.9
80%	Inlet	61.8	68.6	68.7	74.1	64.8	59.8	57.2	53.9	49.3
80%	Outlet	64.1	68	68.8	73.3	70.7	71.4	66	61.9	55.2
80%	Breakout	58.5	59.8	61	65.1	59.3	58.5	48	38.4	45
50%	Inlet	51.8	58.5	58.6	64	54.7	49.7	47.1	43.8	39.2
50%	Outlet	50.5	59.2	65.3	59.1	56.2	57.7	55.1	41.4	43.3
50%	Breakout	48.5	51.4	59.8	50.7	45.6	44.7	37.1	31.1	33.9
25%	Inlet	36.6	43.3	43.4	48.9	39.6	34.5	31.9	28.6	24
25%	Outlet	38.9	42.8	43.5	48.1	45.4	46.1	40.7	36.6	30
25%	Breakout	33.2	34.6	35.7	39.8	34	33.2	22.7	13.2	19.8

Performance Curve



Performance Guide

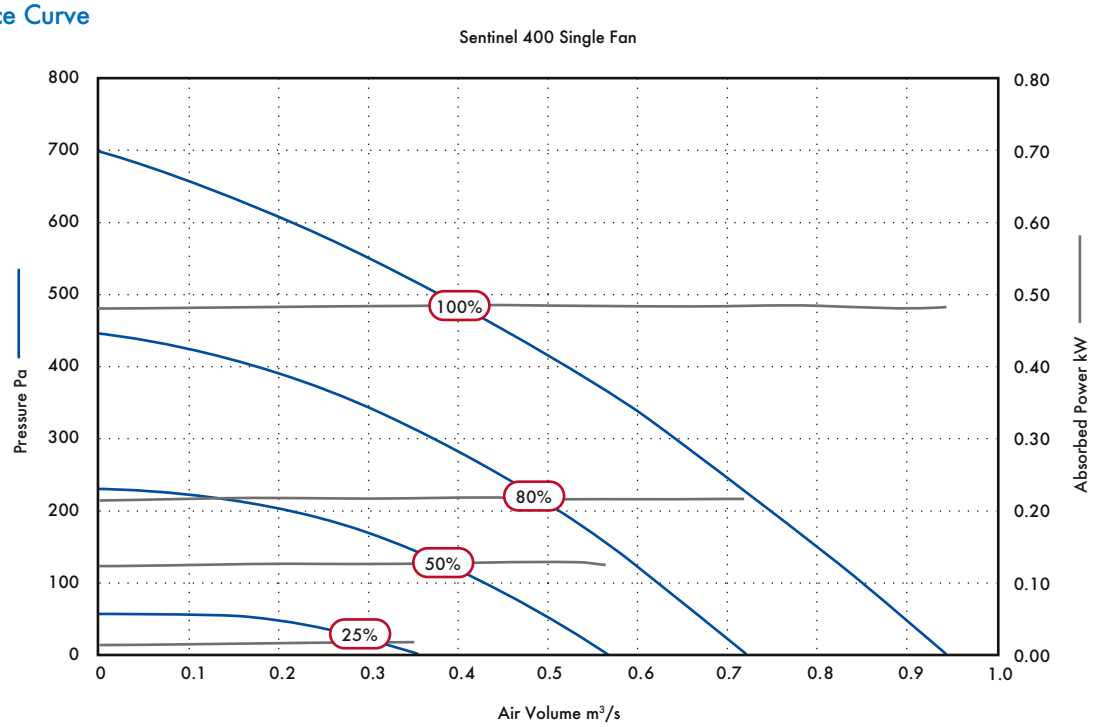
			Airflow, m³/s @ Pa													Amps
Speed	Phase		0	25	50	100	125	150	200	250	300	350	375	400	450	F.L.C
100%	1	m³/s	0.56	0.53	0.50	0.44	0.39	0.34	0.29	0.24	0.21	0.19	0.14	0.10	0.07	1.36
		kW	0.18	0.18	0.17	0.18	0.18	0.18	0.18	0.18	0.18	0.18	0.18	0.18	0.18	
		SFP	0.32	0.34	0.35	0.40	0.45	0.52	0.62	0.74	0.83	0.94	1.25	1.84	2.39	
80%	1	m³/s	0.43	0.39	0.36	0.29	0.23	0.16	0.10	0.04						0.50
		kW	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09						
		SFP	0.21	0.23	0.25	0.31	0.39	0.55	0.90	2.47						
50%	1	m³/s	0.25	0.21	0.15	0.04										0.19
		kW	0.03	0.03	0.03	0.03										
		SFP	0.12	0.15	0.20	0.83										
25%	1	m³/s	0.12													0.08
		kW	0.01													
		SFP	0.12													

Sound Data

		Octave Band Frequency SWL								dB(A)
Speed	Test Mode	63	125	250	500	1k	2k	4k	8k	@3m
100%	Inlet	67.1	74.6	77.5	73.8	66.2	62.8	58.1	53.6	51
100%	Outlet	70.6	75.3	78.9	78.7	76.8	76.4	69.2	63.9	60.5
100%	Breakout	62.8	66.5	69.2	64	58.9	56	47.5	37.9	45.3
80%	Inlet	62.2	69.7	72.7	68.9	61.4	57.9	53.3	48.7	46.1
80%	Outlet	65.7	70.5	74.1	73.9	71.9	71.6	64.4	59.1	55.7
80%	Breakout	57.9	61.6	64.4	59.2	54.1	51.1	42.6	33.1	40.5
50%	Inlet	52	59.5	62.4	58.6	51.1	47.7	43	38.4	35.8
50%	Outlet	55.6	66	66.7	59.2	57.9	58.3	50	38.6	43.8
50%	Breakout	51.4	55.2	55.2	46.1	41.8	36.8	28.4	31.2	29.6
25%	Inlet	37	44.5	47.5	43.7	36.1	32.7	28	23.5	20.9
25%	Outlet	40.4	45.2	48.8	48.6	46.7	46.3	39.1	33.8	30.5
25%	Breakout	32.7	36.4	39.1	33.9	28.8	25.9	17.4	7.8	15.3

Vent-Axia Sentinel D-Box Single Fan

Performance Curve



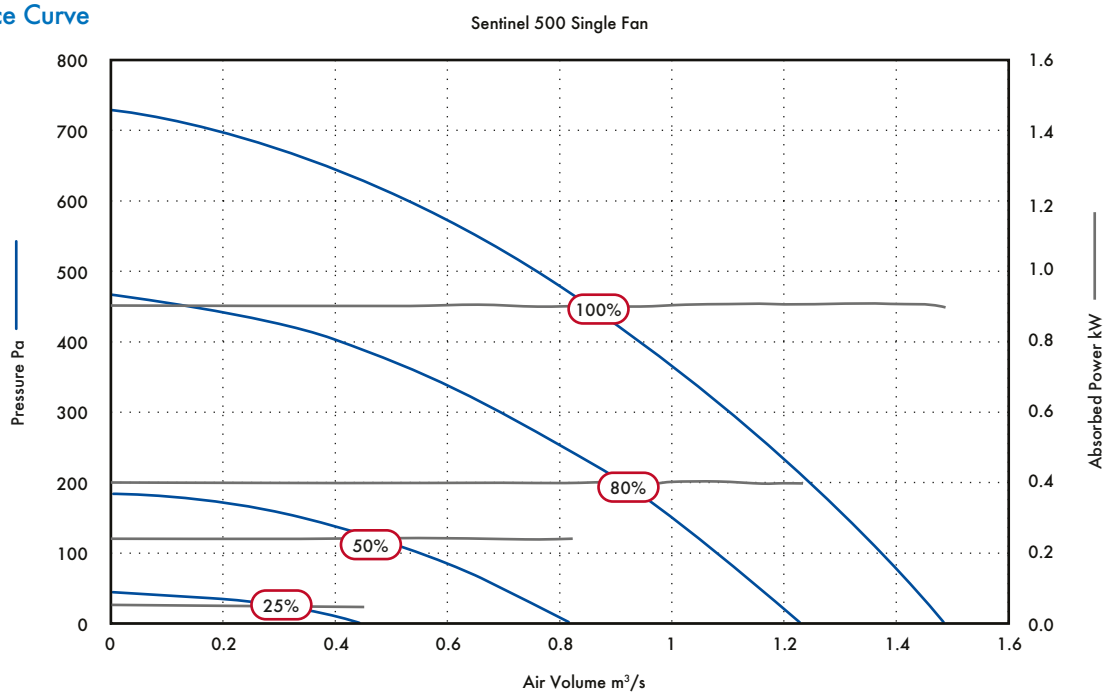
Performance Guide

			Airflow, m³/s @ Pa																Amps
Speed	Phase		0	25	50	100	150	200	225	250	300	350	400	425	450	500	550	600	F.L.C
		m³/s	0.95	0.92	0.90	0.85	0.80	0.75	0.72	0.70	0.64	0.58	0.52	0.49	0.45	0.38	0.30	0.21	
100%	1	kW	0.48	0.48	0.49	0.49	0.48	0.48	0.49	0.48	0.49	0.48	0.48	0.48	0.48	0.48	0.48	0.48	2.47
		SFP	0.51	0.52	0.54	0.57	0.60	0.64	0.67	0.69	0.76	0.83	0.93	0.99	1.07	1.27	1.60	2.26	
		m³/s	0.72	0.70	0.67	0.62	0.57	0.51	0.48	0.45	0.37	0.29	0.17	0.10					
80%	1	kW	0.22	0.22	0.22	0.22	0.22	0.22	0.22	0.22	0.22	0.22	0.22	0.22					1.80
		SFP	0.30	0.31	0.32	0.35	0.38	0.43	0.45	0.49	0.58	0.76	1.25	2.21					
		m³/s	0.57	0.54	0.50	0.43	0.34	0.21	0.09										
50%	1	kW	0.12	0.13	0.13	0.13	0.13	0.13	0.13										0.59
		SFP	0.22	0.24	0.25	0.30	0.37	0.59	1.43										
		m³/s	0.35	0.29	0.18														
25%	1	kW	0.02	0.02	0.02														0.13
		SFP	0.05	0.06	0.10														

Sound Data

		Octave Band Frequency SWL								dB(A)
Speed	Test Mode	63	125	250	500	1k	2k	4k	8k	@3m
100%	Inlet	78	86.2	86.7	74.6	69.9	66.3	60.9	53.1	57.1
100%	Outlet	77.7	87	92.3	80.5	79.4	75.6	70.3	62.8	64.3
100%	Breakout	76.8	84.9	84.8	78.9	74	68.5	60.6	51.9	65.3
80%	Inlet	72	80	79.9	74.1	69.2	63.7	55.7	47.1	55.5
80%	Outlet	72.8	82.2	87.5	75.6	74.6	70.8	65.4	58	59.4
80%	Breakout	73.2	81.4	81.9	69.7	65.1	61.5	56	48.3	52.2
50%	Inlet	61.8	69.8	69.7	63.9	59	53.5	45.5	36.9	45.3
50%	Outlet	62.6	72	77.3	65.4	64.4	60.6	55.2	47.8	49.1
50%	Breakout	62.9	71.2	71.7	59.5	54.9	51.2	45.8	38.1	42
25%	Inlet	46.8	54.8	54.7	48.8	44	38.4	30.5	21.8	30.3
25%	Outlet	47.6	56.9	62.3	50.4	49.4	45.5	40.2	32.7	34.3
25%	Breakout	47.9	56.2	56.7	44.5	39.8	36.2	30.8	23.1	27

Performance Curve



Performance Guide

			Airflow, m³/s @ Pa																Amps
Speed	Phase		0	25	50	100	150	175	200	250	300	350	400	450	500	550	600	650	F.L.C
		m³/s	1.49	1.46	1.43	1.37	1.31	1.28	1.24	1.17	1.10	1.02	0.94	0.86	0.76	0.65	0.53	0.38	
100%	3	kW	0.89	0.91	0.90	0.90	0.90	0.89	0.89	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	2.10
		SFP	0.60	0.62	0.63	0.66	0.69	0.70	0.72	0.77	0.82	0.88	0.95	1.05	1.18	1.38	1.69	2.34	
		m³/s	1.23	1.20	1.16	1.08	1.00	0.95	0.91	0.81	0.70	0.57	0.40	0.16					
80%	3	kW	0.39	0.40	0.39	0.40	0.40	0.39	0.40	0.40	0.40	0.40	0.40	0.39					1.60
		SFP	0.32	0.33	0.34	0.37	0.40	0.41	0.44	0.49	0.57	0.70	0.98	2.48					
		m³/s	0.82	0.76	0.70	0.55	0.34	0.15											
50%	3	kW	0.24	0.24	0.24	0.24	0.24	0.24											0.67
		SFP	0.29	0.31	0.34	0.44	0.71	1.61											
		m³/s	0.45	0.31															
25%	3	kW	0.04	0.05															0.23
		SFP	0.1	0.15															

Sound Data

		Octave Band Frequency SWL								dB(A)
Speed	Test Mode	63	125	250	500	1k	2k	4k	8k	@3m
100%	Inlet	81.1	95.1	86.7	79.6	71.2	67.2	61.2	62.5	60.3
100%	Outlet	81.6	92.9	88	84.9	81.5	76	70.4	69.9	65.7
100%	Breakout	78.4	88.8	84.8	81.7	75.3	67.8	59.7	55.4	61.9
80%	Inlet	76.3	90.3	81.9	74.8	66.4	62.4	56.4	57.7	55.5
80%	Outlet	76.8	88.1	83.2	80.1	76.7	71.2	65.6	65.1	60.9
80%	Breakout	73.6	84	79.9	76.8	70.5	62.9	54.8	50.6	57
50%	Inlet	66.1	80.1	71.7	64.6	56.2	52.2	46.2	47.5	45.3
50%	Outlet	66.6	77.9	73	69.9	66.5	61	55.4	54.9	50.7
50%	Breakout	63.4	73.8	69.7	66.6	60.3	52.7	44.6	40.4	46.8
25%	Inlet	51	65	56.6	49.5	41.1	37.1	31.1	32.4	30.2
25%	Outlet	51.6	62.8	57.9	54.8	51.4	45.9	40.3	39.8	35.6
25%	Breakout	48.3	58.8	54.7	51.6	45.2	37.6	29.6	25.3	31.8

Sentinel D-Box Twin Fan

Features and Benefits

- **Duct Sizes 100 – 500mm**
- **Performance - Airflow 0.01 to 1.2m³/s, Pressure up to 650Pa**
- **Sentinel demand ventilation fan controller with lockable isolator**
- **Latest energy saving EC/DC motors**
- **Internal or external models (IPX2 or IPX5)**
- **Manufactured controlled to BS EN ISO 9001**
- **Performance tested to BS848 Part 1 & 2**

The Sentinel twin in-line duct fans are as supplied from Vent-Axia Ltd. Manufactured from prime quality galvanised sheet steel, Sentinel 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 controller shrouds and are coated externally with a polyurethane finish.

The housing is designed to be as compact as possible for concealed false ceiling applications and Sentinel 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 Sentinel 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 Sentinel 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 Sentinel 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.

Weatherproof Typical Ordering Designation

Ordering Codes are similar to existing units with Suffix.... /WP which denotes Weatherproof finish.

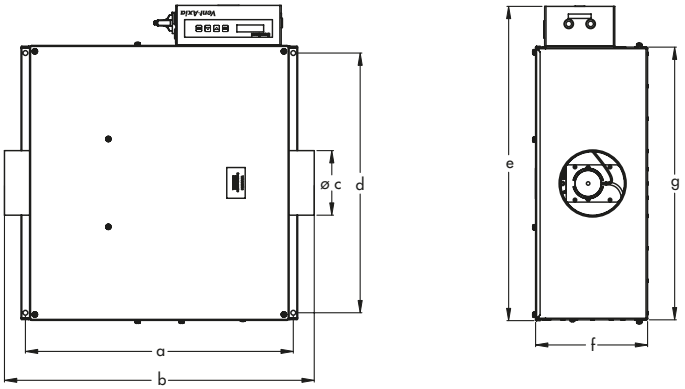
Example SENT100T/CP/WP

Accessories

For duct accessories see Ducting and Fitting Section.



Fan Dimensions (mm)



Hierarchy	Constant	Duct Diameter mm							Weight
Model	Pressure Model	a	b	c	d	e	f	g	Kg
SENT100T	SENT100T/CP	610	705	100	591	717	256	622	26
SENT125T	SENT125T/CP	610	705	125	591	717	256	622	26
SENT150T	SENT150T/CP	610	705	150	591	717	256	622	26
SENT200T	SENT200T/CP	801	896	200	703	830	343	734	39
SENT250T	SENT250T/CP	925	1020	250	798	925	354	829	48
SENT315T	SENT315T/CP	1255	1353	315	1145	1272	536	1176	88
SENT400T	SENT400T/CP	1255	1353	400	1145	1272	536	1176	90
SENT500T	SENT500T/CP	1492	1590	500	1533	1661	675	1564	175

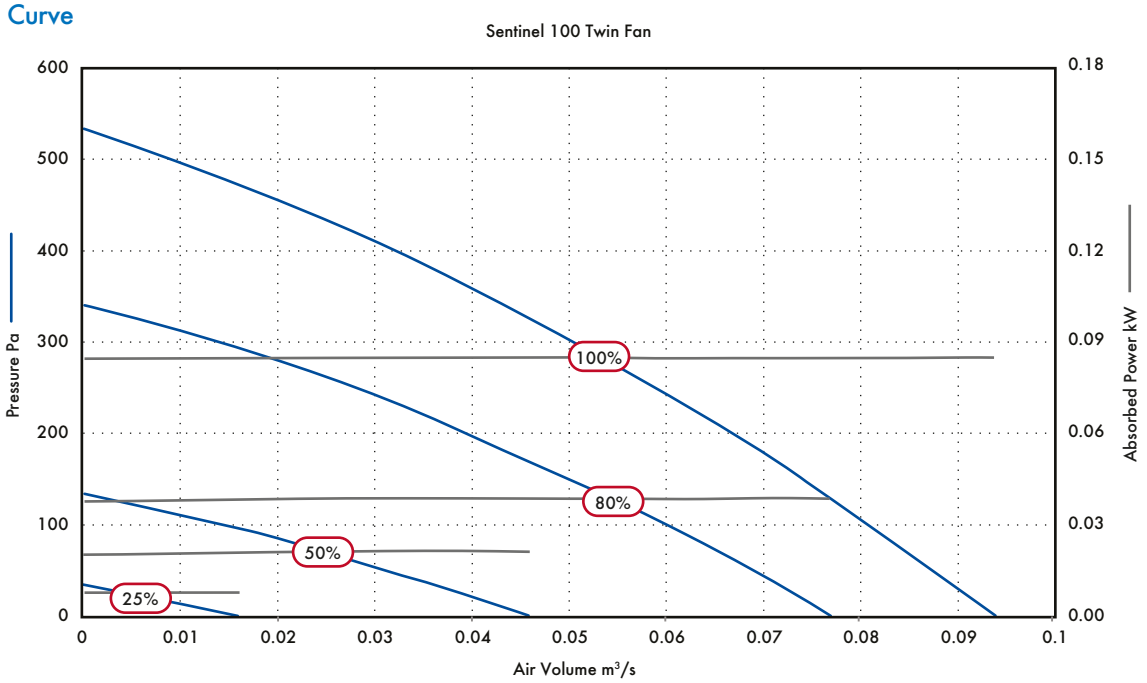
Accessories

Hierarchy		Anti-Vibration Mounts	Duct air heater	Filter cassette	Bag filter cassette	*Duct attenuator 600mm
Model	Model	Stock Ref.	Stock Ref.	Stock Ref.	Stock Ref.	Stock Ref.
SENT100T	SENT100T/CP	68MP033G	10531100T1	10532100A	10533100	10535100
SENT125T	SENT125T/CP	68MP033G	10531125T1	10532125A	10533125	10535125
SENT150T	SENT150T/CP	68MP033G	10531150T1	10532150A	10533150	10535150
SENT200T	SENT200T/CP	68MP033G	10531200T1	10532200A	10533200	10535200
SENT250T	SENT250T/CP	68MP033G	10531250T1	10532250A	10533250	10535250
SENT315T	SENT315T/CP	68MP033G	10531315T1	10532315A	10533315	10535315
SENT400T	SENT400T/CP	68MP033G	10531400T3	10532400A	10533400	10535400
SENT500T	SENT500T/CP	68MP133G	10531500T3	10532500A	10533500	10536500*

*For alternative attenuator lengths, refer to Accessories and Controllers section

Vent-Axia Sentinel D-Box Twin Fan

Performance Curve



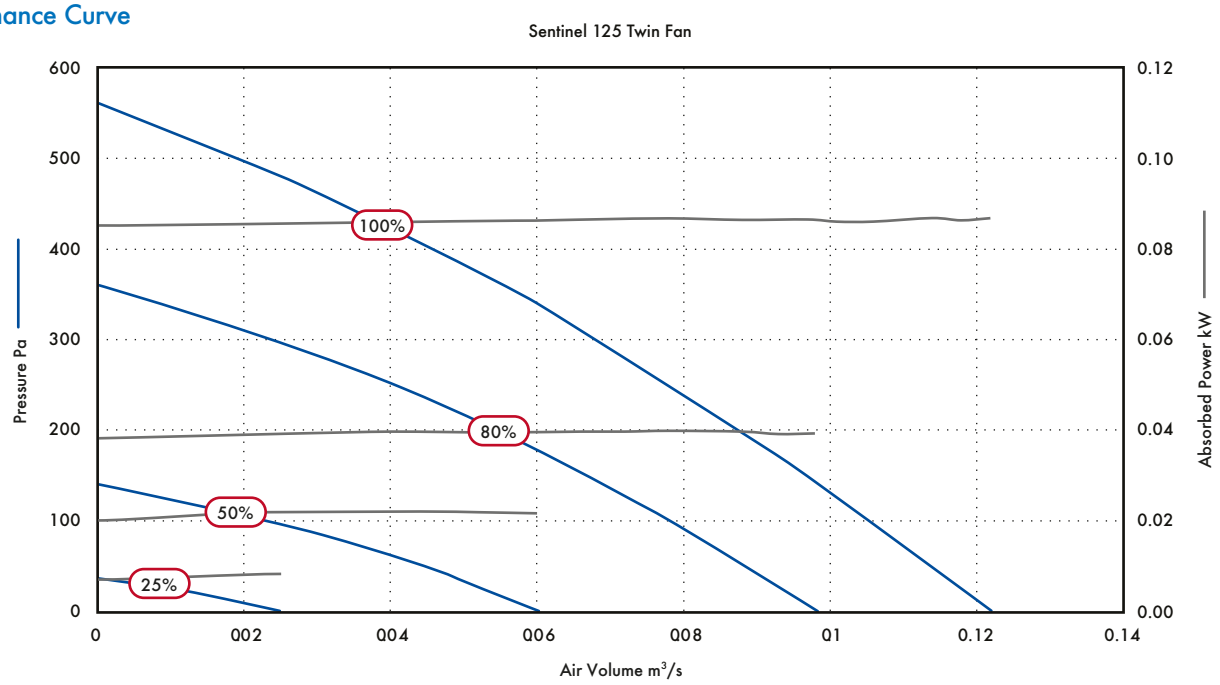
Performance Guide

			Airflow, m³/s @ Pa											Amps
Speed	Phase		0	25	50	75	100	125	150	200	250	300	350	F.L.C
100%	1	m³/s	0.09	0.09	0.09	0.08	0.08	0.08	0.07	0.07	0.06	0.05	0.04	0.69
		kW	0.08	0.08	0.08	0.08	0.08	0.08	0.08	0.08	0.08	0.08	0.08	
		SFP	0.90	0.93	0.97	1.01	1.04	1.10	1.14	1.26	1.43	1.66	2.01	
80%	1	m³/s	0.08	0.07	0.07	0.06	0.06	0.06	0.05	0.04	0.03	0.01		0.5
		kW	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04		
		SFP	0.50	0.53	0.56	0.60	0.64	0.70	0.77	0.99	1.43	2.75		
50%	1	m³/s	0.05	0.04	0.03	0.02	0.01							0.16
		kW	0.02	0.02	0.02	0.02	0.02							
		SFP	0.46	0.55	0.69	0.92	1.52							
25%	1	m³/s	0.02											0.08
		kW	0.01											
		SFP	0.49											

Sound Data

		Octave Band Frequency SWL								dB(A)
Speed	Test Mode	63	125	250	500	1k	2k	4k	8k	@3m
100%	Inlet	54.7	61.5	61.3	60.5	51.1	47.2	40.5	36.6	34.2
100%	Outlet	58.6	63.8	58.4	57.3	53.8	55.5	49.1	41.3	38.4
100%	Breakout	58.4	64	62.6	55.7	45.7	42.7	39.4	37.6	37
80%	Inlet	49.8	56.6	56.5	55.7	46.3	42.4	35.7	31.7	29.4
80%	Outlet	53.7	58.9	53.5	52.5	48.9	50.6	44.3	36.4	33.6
80%	Breakout	53.5	59.2	57.8	50.8	40.9	37.9	34.5	32.7	32.2
50%	Inlet	39.6	46.4	46.3	45.5	36.1	32.1	25.5	21.5	19.1
50%	Outlet	43.5	48.7	43.3	42.3	38.7	40.4	34.1	26.2	23.3
50%	Breakout	43.3	49	47.6	40.6	30.7	27.6	24.3	22.5	22
25%	Inlet	24.5	31.3	31.2	30.4	21	17.1	10.4	6.5	19.7
25%	Outlet	28.4	33.6	28.2	27.2	23.6	25.3	19	11.1	14.9
25%	Breakout	28.2	33.9	32.5	25.5	15.6	12.6	9.2	7.4	20.4

Performance Curve



Performance Guide

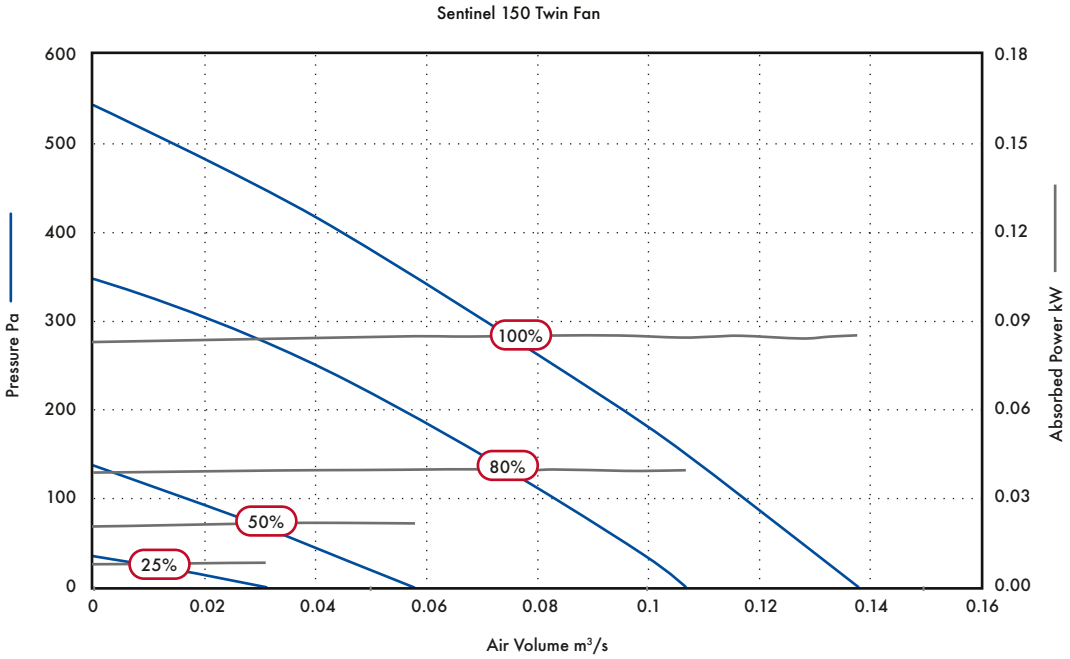
			Airflow, m³/s @ Pa											Amps
Speed	Phase		0	25	50	100	125	150	200	250	300	350	400	F.L.C
100%	1	m³/s	0.12	0.12	0.11	0.11	0.10	0.10	0.09	0.08	0.07	0.06	0.05	0.72
		kW	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09	
		SFP	0.71	0.73	0.76	0.81	0.85	0.89	0.98	1.11	1.27	1.51	1.88	
80%	1	m³/s	0.10	0.09	0.09	0.08	0.07	0.07	0.05	0.04	0.02			0.51
		kW	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04			
		SFP	0.40	0.42	0.45	0.51	0.55	0.60	0.73	0.99	1.64			
50%	1	m³/s	0.06	0.05	0.04	0.02	0.01							0.18
		kW	0.02	0.02	0.02	0.02	0.02							
		SFP	0.36	0.42	0.50	0.95	2.19							
25%	1	m³/s	0.03	0.01										0.09
		kW	0.01	0.01										
		SFP	0.33	0.92										

Sound Data

		Octave Band Frequency SWL								dB(A)
Speed	Test Mode	63	125	250	500	1k	2k	4k	8k	@3m
100%	Inlet	62.6	64	66.6	64.1	54	49.7	40.8	38.4	37.3
100%	Outlet	61.9	65.7	63.5	62.4	58.4	60.4	53.7	47.3	43.3
100%	Breakout	69.7	61.5	62.4	56	47.2	45.2	38.3	33.8	37.2
80%	Inlet	57.8	59.1	61.8	59.2	49.2	44.8	36	33.6	32.5
80%	Outlet	57.1	60.8	58.7	57.5	53.5	55.5	48.9	42.4	38.4
80%	Breakout	64.8	56.7	57.6	51.2	42.4	40.4	33.4	28.9	32.4
50%	Inlet	47.6	48.9	51.6	49	39	34.6	25.8	23.4	22.3
50%	Outlet	46.9	50.6	48.5	47.4	43.3	45.3	38.7	32.2	28.2
50%	Breakout	54.6	46.5	47.4	41	32.2	30.2	23.2	18.7	23.2
25%	Inlet	32.5	33.9	36.5	34	23.9	19.6	10.7	8.3	18.8
25%	Outlet	31.8	35.6	33.4	32.3	28.3	30.3	23.6	17.2	14.5
25%	Breakout	39.6	31.4	32.3	25.9	17.1	15.1	8.2	3.7	22.3

Vent-Axia Sentinel D-Box Twin Fan

Performance Curve



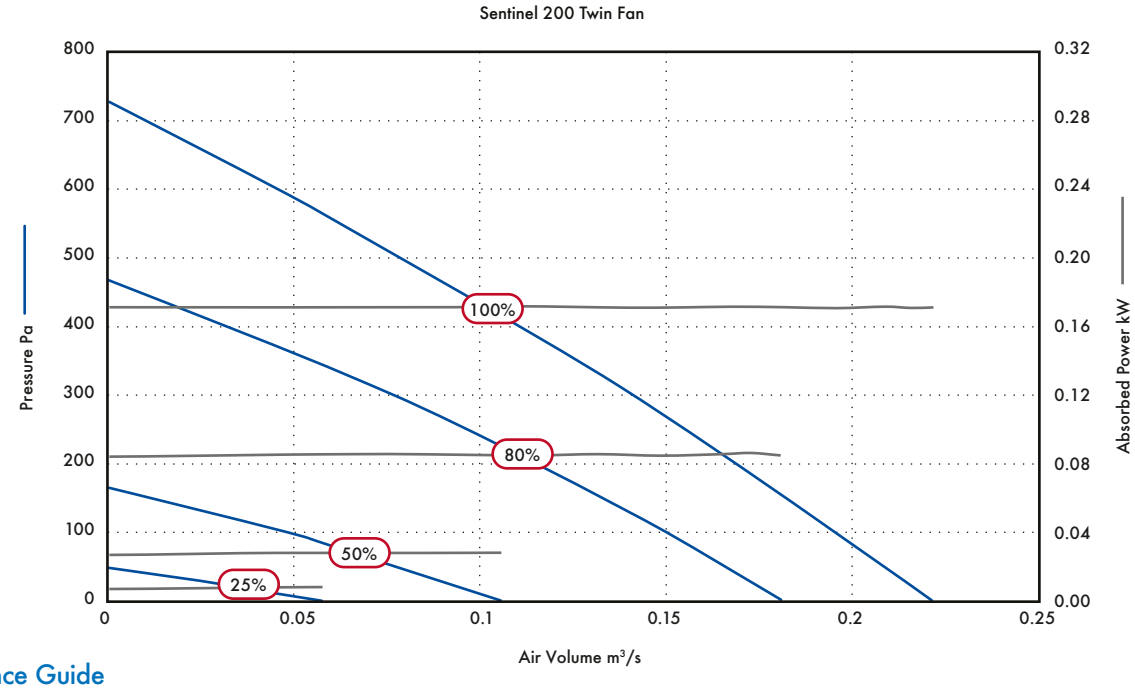
Performance Guide

			Airflow, m³/s @ Pa												Amps
Speed	Phase		0	25	50	100	125	150	200	250	300	325	350	400	F.L.C
100%	1	m³/s	0.14	0.13	0.13	0.12	0.11	0.11	0.10	0.08	0.07	0.07	0.06	0.04	0.71
		kW	0.09	0.09	0.08	0.09	0.09	0.08	0.09	0.09	0.09	0.09	0.09	0.08	
		SFP	0.62	0.64	0.66	0.73	0.76	0.80	0.90	1.03	1.20	1.31	1.47	1.93	
80%	1	m³/s	0.11	0.10	0.10	0.08	0.08	0.07	0.06	0.04	0.02				0.48
		kW	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04				
		SFP	0.37	0.39	0.41	0.48	0.51	0.57	0.71	0.99	1.89				
50%	1	m³/s	0.06	0.05	0.04	0.02									0.17
		kW	0.02	0.02	0.02	0.02									
		SFP	0.37	0.45	0.57	1.35									
25%	1	m³/s	0.03	0.01											0.08
		kW	0.01	0.01											
		SFP	0.26	0.73											

Sound Data

		Octave Band Frequency SWL								dB(A)
Speed	Test Mode	63	125	250	500	1k	2k	4k	8k	@3m
100%	Inlet	58.6	65.9	68.1	65.8	54.1	50.6	42.9	41.5	39.7
100%	Outlet	59.3	68.7	66.8	63.5	60	61.9	56	49.5	45.2
100%	Breakout	66	62	61.9	59.8	50.8	48.4	40.2	37.1	39.2
80%	Inlet	53.7	61.1	63.2	61	49.2	45.8	38.1	36.7	33.8
80%	Outlet	54.5	63.8	62	58.7	55.2	57.1	51.1	44.7	40.4
80%	Breakout	61.1	57.2	57	55	45.9	43.6	35.3	32.3	34.4
50%	Inlet	43.5	50.9	53	50.8	39	35.6	27.8	26.5	24.6
50%	Outlet	44.3	53.6	51.8	48.5	45	46.9	40.9	34.5	30.1
50%	Breakout	50.9	47	46.8	44.8	35.7	33.4	25.1	22.1	24.2
25%	Inlet	28.5	35.8	38	35.7	24	20.6	12.8	11.4	17.2
25%	Outlet	29.2	38.6	36.7	33.5	30	31.8	25.9	19.4	15.1
25%	Breakout	35.9	32	31.8	29.7	20.7	18.3	10.1	7	19.6

Performance Curve



Performance Guide

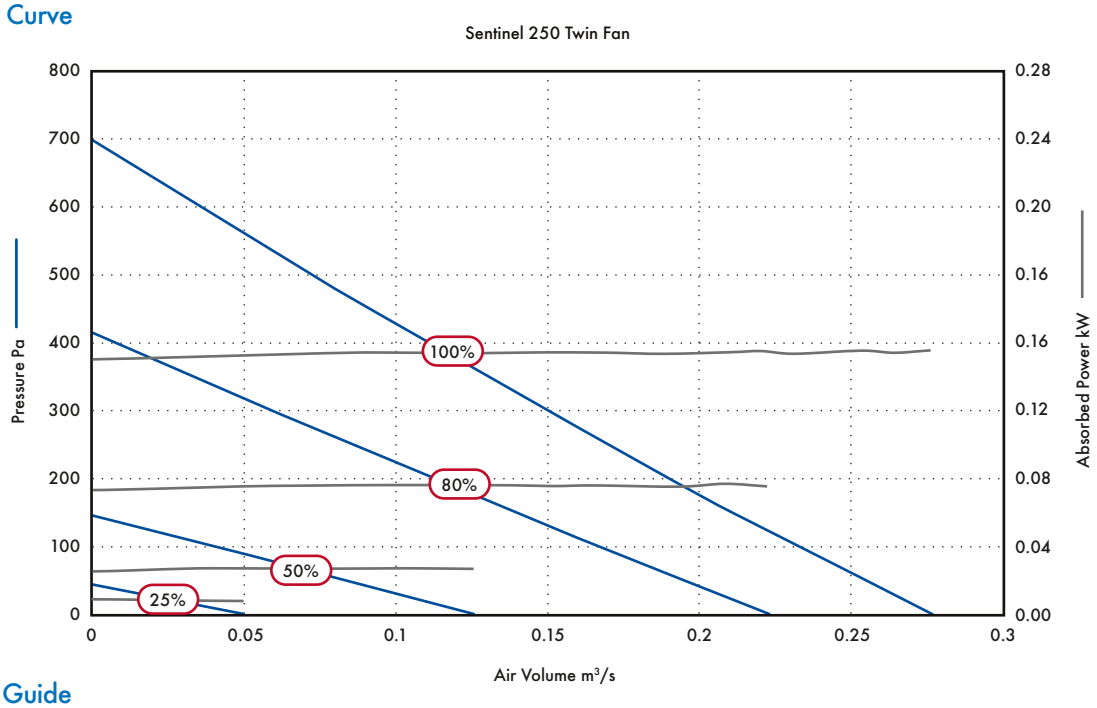
			Airflow, m³/s @ Pa												Amps
Speed	Phase		0	25	50	100	150	200	250	300	350	400	450	500	F.L.C
100%	1	m³/s	0.22	0.22	0.21	0.20	0.18	0.17	0.15	0.14	0.13	0.11	0.09	0.08	1.4
		kW	0.17	0.17	0.17	0.17	0.17	0.17	0.17	0.17	0.17	0.17	0.17	0.17	
		SFP	0.77	0.79	0.82	0.87	0.94	1.02	1.11	1.22	1.37	1.56	1.82	2.17	
80%	1	m³/s	0.18	0.17	0.17	0.15	0.13	0.12	0.10	0.08	0.06	0.03			1.07
		kW	0.09	0.09	0.09	0.08	0.09	0.09	0.09	0.09	0.09	0.09			
		SFP	0.47	0.50	0.52	0.57	0.65	0.74	0.89	1.13	1.53	2.60			
50%	1	m³/s	0.11	0.09	0.08	0.05	0.01								0.2
		kW	0.03	0.03	0.03	0.03	0.03								
		SFP	0.27	0.31	0.37	0.62	2.58								
25%	1	m³/s	0.06	0.03											0.09
		kW	0.01	0.01											
		SFP	0.15	0.3											

Sound Data

		Octave Band Frequency SWL								dB(A)
Speed	Test Mode	63	125	250	500	1k	2k	4k	8k	@3m
100%	Inlet	60.6	71.5	66.8	70.7	64.1	57.3	53.2	49	46
100%	Outlet	63.3	74.7	66.6	80.4	70.2	68.6	64.6	58	55
100%	Breakout	66	69	63.2	66.3	57.4	52.6	45.5	37	44.7
80%	Inlet	55.8	66.7	61.9	65.8	59.3	52.5	48.4	44.2	41.1
80%	Outlet	58.4	69.8	61.7	75.6	65.4	63.7	59.8	53.2	50.3
80%	Breakout	61.2	64.2	58.4	61.4	52.5	47.8	40.6	32.1	39.9
50%	Inlet	45.6	56.5	51.7	55.6	49.1	42.2	38.2	34	30.9
50%	Outlet	48.2	59.6	51.5	65.3	55.2	53.5	49.6	43	40.1
50%	Breakout	51	54	48.2	51.2	42.3	37.6	30.4	21.9	29.7
25%	Inlet	30.5	41.4	36.7	40.6	34	27.2	23.1	18.9	15.9
25%	Outlet	33.2	44.6	36.5	50.3	40.1	38.5	34.5	27.9	25
25%	Breakout	36	38.9	33.2	36.2	27.3	22.6	15.4	6.9	19.2

Vent-Axia Sentinel D-Box Twin Fan

Performance Curve



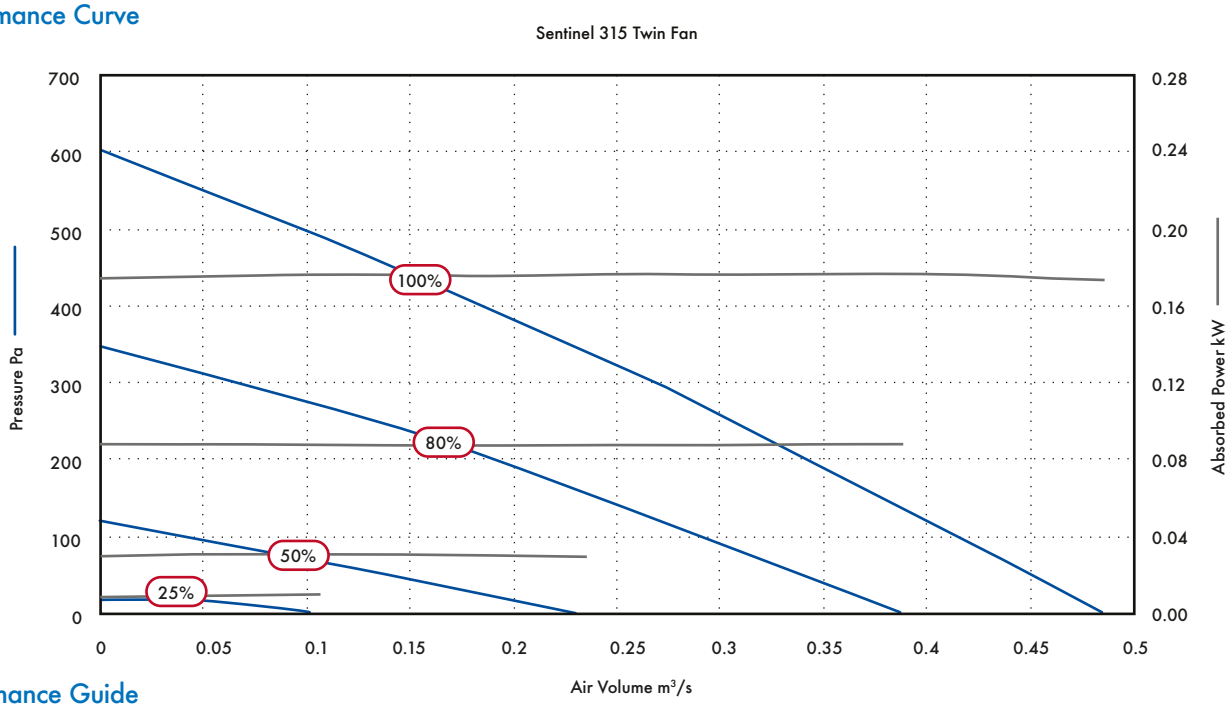
Performance Guide

			Airflow, m³/s @ Pa													Amps
Speed	Phase		0	25	50	100	125	150	200	250	300	350	400	450	500	F.L.C
		m³/s	0.28	0.27	0.25	0.23	0.22	0.21	0.19	0.17	0.15	0.13	0.11	0.09	0.07	
100%	1	kW	0.16	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	1.4
		SFP	0.56	0.58	0.61	0.66	0.70	0.73	0.81	0.91	1.04	1.19	1.41	1.71	2.17	
		m³/s	0.22	0.21	0.19	0.17	0.15	0.14	0.11	0.09	0.06	0.03				
80%	1	kW	0.08	0.08	0.08	0.08	0.08	0.08	0.08	0.08	0.08	0.08				0.92
		SFP	0.34	0.37	0.39	0.46	0.50	0.55	0.69	0.90	1.29	2.31				
		m³/s	0.13	0.10	0.08	0.04	0.02									
50%	1	kW	0.03	0.03	0.03	0.03	0.03									0.2
		SFP	0.22	0.27	0.34	0.72	1.65									
		m³/s	0.05	0.02												
25%	1	kW	0.01	0.01												0.09
		SFP	0.18	0.43												

Sound Data

		Octave Band Frequency SWL								dB(A)
Speed	Test Mode	63	125	250	500	1k	2k	4k	8k	@3m
100%	Inlet	61.7	70.5	62.2	70.9	60.2	51.8	51.2	47.8	45.1
100%	Outlet	63.9	74.3	63.6	76.2	67.5	66.2	60.9	55.9	52.4
100%	Breakout	66.7	66.8	62.3	67.8	56.3	52.3	44.2	39.9	45.4
80%	Inlet	56.9	65.7	57.3	66	55.4	46.9	46.3	43	40.2
80%	Outlet	59.1	69.5	58.8	71.3	62.6	61.4	56	51.1	47.6
80%	Breakout	61.8	62	57.4	62.9	51.4	47.5	39.3	35	40.5
50%	Inlet	46.8	55.6	47.3	56	45.3	36.8	36.2	32.9	30.1
50%	Outlet	49	59.4	48.7	61.2	52.5	51.3	46	41	37.5
50%	Breakout	51.7	51.9	47.4	52.8	41.4	37.4	29.2	25	30.4
25%	Inlet	31.6	40.4	32.1	40.8	30.1	21.6	21	17.7	16.7
25%	Outlet	33.8	44.2	33.5	46.1	37.3	36.1	30.8	25.8	22.3
25%	Breakout	36.6	36.7	32.2	37.6	26.2	22.2	14.1	9.8	18.3

Performance Curve



Performance Guide

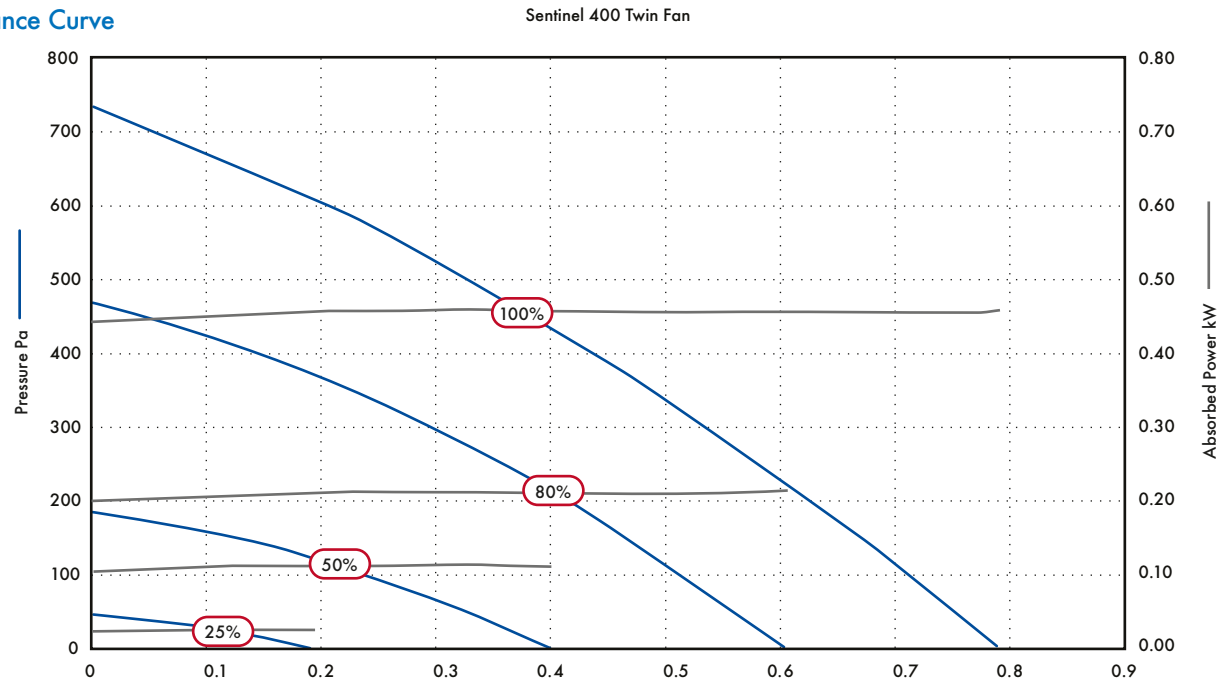
			Airflow, m³/s @ Pa													Amps
Speed	Phase		0	50	100	150	200	250	300	325	350	400	450	500	525	F.L.C
100%	1	m³/s	0.49	0.45	0.42	0.38	0.34	0.31	0.27	0.25	0.23	0.19	0.14	0.10	0.08	1.40
		kW	0.17	0.18	0.18	0.18	0.18	0.18	0.18	0.18	0.18	0.18	0.18	0.18	0.18	
		SFP	0.36	0.39	0.43	0.46	0.51	0.58	0.66	0.71	0.78	0.95	1.24	1.81	2.36	
80%	1	m³/s	0.39	0.34	0.30	0.25	0.19	0.13	0.07	0.04						0.60
		kW	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09						
		SFP	0.23	0.26	0.30	0.36	0.46	0.66	1.27	2.47						
50%	1	m³/s	0.23	0.14	0.04											0.20
		kW	0.03	0.03	0.03											
		SFP	0.13	0.22	0.77											
25%	1	m³/s	0.11													0.09
		kW	0.01													
		SFP	0.13													

Sound Data

		Octave Band Frequency SWL								dB(A)
Speed	Test Mode	63	125	250	500	1k	2k	4k	8k	@3m
100%	Inlet	64.4	70	65.8	64.6	58.6	50.3	47.4	44.6	41.5
100%	Outlet	65.7	72	64.5	71.9	64.7	64.2	58.1	51.9	49.7
100%	Breakout	68	65.9	64	60.1	53.3	48.9	41.3	34.1	40.5
80%	Inlet	59.6	65.1	61	59.7	53.7	45.4	42.5	39.7	36.7
80%	Outlet	60.8	67.2	59.7	67.1	59.9	59.3	53.2	47.1	44.9
80%	Breakout	63.1	61.1	59.2	55.2	48.4	44	36.5	29.3	35.7
50%	Inlet	49.3	54.9	50.7	49.5	43.5	35.2	32.3	29.5	26.4
50%	Outlet	50.6	56.9	49.4	56.8	49.6	49.1	43	36.8	34.6
50%	Breakout	52.8	50.8	48.9	45	38.2	33.7	26.2	19	25.4
25%	Inlet	34.3	39.9	35.7	34.5	28.5	20.2	17.3	14.5	14.8
25%	Outlet	35.6	42	34.4	41.8	34.6	34.1	28	21.8	19.6
25%	Breakout	37.9	35.8	33.9	30	23.2	18.8	11.2	4	20.4

Vent-Axia Sentinel D-Box Twin Fan

Performance Curve



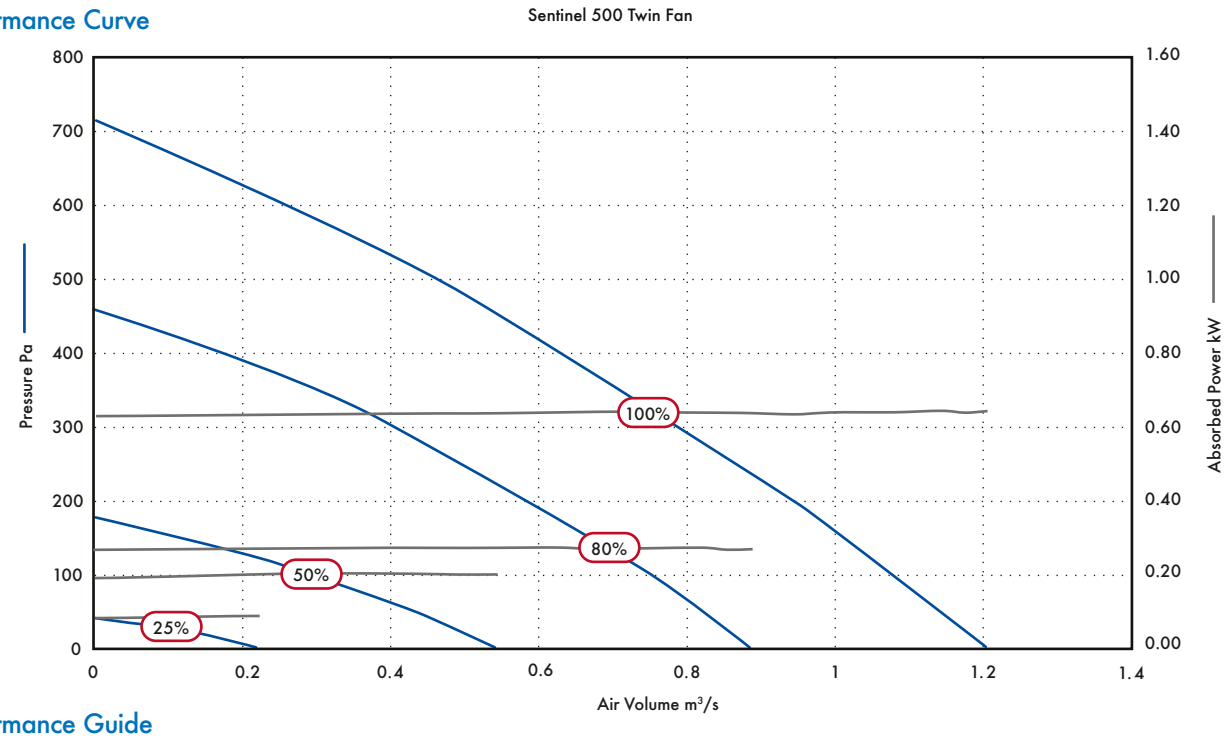
Performance Guide

			Airflow, m³/s @ Pa															Amps
Speed	Phase		0	25	50	100	125	150	200	250	300	350	400	450	500	550	600	F.L.C
100%	1	m³/s	0.79	0.77	0.75	0.71	0.67	0.65	0.63	0.58	0.54	0.49	0.44	0.38	0.33	0.27	0.21	2.86
		kW	0.46	0.45	0.46	0.46	0.45	0.46	0.46	0.46	0.46	0.46	0.46	0.46	0.46	0.46	0.46	
		SFP	0.58	0.59	0.61	0.64	0.68	0.71	0.73	0.79	0.85	0.94	1.05	1.19	1.40	1.70	2.23	
80%	1	m³/s	0.61	0.58	0.56	0.52	0.47	0.44	0.41	0.36	0.30	0.23	0.15					2.02
		kW	0.21	0.21	0.21	0.21	0.21	0.21	0.21	0.21	0.21	0.21	0.21					
		SFP	0.35	0.36	0.37	0.41	0.45	0.48	0.50	0.59	0.71	0.93	1.43					
50%	1	m³/s	0.40	0.36	0.33	0.24	0.12											0.77
		kW	0.11	0.11	0.11	0.11	0.11											
		SFP	0.27	0.30	0.34	0.46	0.90											
25%	1	m³/s	0.19	0.11														0.19
		kW	0.02	0.02														
		SFP	0.11	0.19														

Sound Data

		Octave Band Frequency SWL								dB(A)
Speed	Test Mode	63	125	250	500	1k	2k	4k	8k	@3m
100%	Inlet	73	82.9	75.8	69.4	63	55.9	53.6	49.8	49.2
100%	Outlet	75.5	83.8	79.5	78.5	74.7	71	64.8	57.3	58.7
100%	Breakout	77.6	80.7	80.5	72.8	66.6	60.4	50.9	41.7	54.7
80%	Inlet	68.2	78.1	71	64.6	58.2	51.1	48.8	44.9	44.3
80%	Outlet	70.6	78.9	74.6	73.7	69.9	66.1	59.9	52.4	53.6
80%	Breakout	72.7	75.9	75.6	68	61.7	55.5	46.1	36.9	49.9
50%	Inlet	58	67.9	60.7	54.4	47.9	40.9	38.6	34.7	34.1
50%	Outlet	60.4	68.7	64.4	63.5	59.7	55.9	49.7	42.2	43.6
50%	Breakout	62.5	65.6	65.4	57.8	51.5	45.3	35.9	26.7	39.7
25%	Inlet	42.9	52.9	45.7	39.4	32.9	25.8	23.6	19.7	19.1
25%	Outlet	45.4	53.7	49.4	48.4	44.6	40.9	34.7	27.2	28.6
25%	Breakout	47.5	50.6	50.4	42.8	36.5	30.3	20.8	11.6	24.9

Performance Curve



Performance Guide

			Airflow, m³/s @ Pa														Amps
Speed	Phase		0	25	50	100	150	175	200	250	300	350	400	450	500	550	F.L.C
100%	3	m³/s	1.20	1.17	1.14	1.08	1.01	0.98	0.94	0.87	0.80	0.72	0.64	0.56	0.47	0.37	2.1
		kW	0.65	0.65	0.65	0.65	0.65	0.64	0.64	0.64	0.65	0.65	0.65	0.64	0.64	0.65	
		SFP	0.54	0.55	0.57	0.60	0.64	0.66	0.68	0.74	0.81	0.90	1.01	1.16	1.38	1.74	
80%	3	m³/s	0.89	0.85	0.82	0.75	0.67	0.63	0.59	0.50	0.40	0.30	0.17				1.6
		kW	0.27	0.26	0.27	0.27	0.27	0.27	0.27	0.27	0.27	0.27	0.27				
		SFP	0.30	0.31	0.33	0.36	0.40	0.43	0.46	0.54	0.67	0.91	1.55				
50%	3	m³/s	0.54	0.49	0.43	0.30	0.13										0.67
		kW	0.20	0.20	0.20	0.20	0.20										
		SFP	0.36	0.40	0.46	0.67	1.53										
25%	3	m³/s	0.22	0.12													0.39
		kW	0.08	0.08													
		SFP	0.36	0.71													

Sound Data

		Octave Band Frequency SWL								dB(A)
Speed	Test Mode	63	125	250	500	1k	2k	4k	8k	@3m
100%	Inlet	74.9	86.2	77.4	72.7	62.3	56.4	52.6	52.5	52.1
100%	Outlet	78.6	85.1	84.5	78	74.3	69	63.5	58.5	59.2
100%	Breakout	68.5	63.6	60.3	54.5	47.6	41.1	30.4	30.9	35.8
80%	Inlet	70	81.4	72.6	67.9	57.4	51.6	47.7	47.7	47.3
80%	Outlet	73.7	80.3	79.6	73.2	69.4	64.2	58.7	53.6	54.3
80%	Breakout	63.6	58.8	55.4	49.7	42.7	36.3	25.6	26.1	31
50%	Inlet	59.8	71.2	62.4	57.7	47.2	41.4	37.5	37.5	37.1
50%	Outlet	63.5	70.1	69.4	63	59.2	54	48.5	43.4	44.1
50%	Breakout	53.4	48.6	45.2	39.5	32.5	26.1	15.4	15.9	21.4
25%	Inlet	44.8	56.1	47.3	42.6	32.1	26.3	22.5	22.4	22
25%	Outlet	48.5	55	54.3	47.9	44.2	38.9	33.4	28.4	29

Sentinel D-Box 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 432945

Ecotronic Humidity Sensor*



Humidity Control is automatic and can be set to switch between 65 and 90%RH. An integral pullcord provides a manual override function if required. Can be wired for either ON/OFF or Trickle Boost operation. Set Point adjustable. Maximum switching load 1 amp inductive. Pullcord override indicator. Ambient operating temperature 0°C to +40°C. Dimensions:87 x 87 x 33mm (H x W x D). Supply voltage 24V DC SELV.

Humidity sensors should be sited approx. 100mm below ceiling level and not above cupboards, refer to siting details in fitting and wiring instructions supplied with product.

Stock Ref 432949

Vent-Axia 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 Sentinel.

Stock Ref 563502

Air Quality Sensor (AQS)*



Automatically reacts to the deterioration of air quality, sensing tobacco smoke, smells and toilet odours to regulate mechanically ventilated areas, such as cinemas, pubs, clubs, restaurants, kitchens, toilets and conference rooms.

The sensor switches when the air quality declines below an adjustable preset level. This is registered by a self-cleaning ceramic sensing head. The air quality sensor should not be used for the detection of combustible gases. Ambient operating temperature range 0°C to +50°C. MIN - MAX mode or direct Damper control. Dimensions:87 x 157 x 47mm (H x W x D) Surface mounted. 1 - 25 min O/R timer. Supply voltage 24V DC SELV.

Stock Ref 432953

Vent-Axia Visionex PIR*



A wall or ceiling person presence detector for use with Sentinel. Can be used in MIN - MAX mode or for direct damper control.

Fits any UK single gang mounting box. Adjustable timer overrun (5-25 minutes). Range of detection up to 10 metres. Designed to meet IP43. Ambient operating temperature range 0°C to +50°C. Supply voltage 24V DC SELV.

Stock Ref 433162

7 Day TimeSwitch



For applications where regular switching is required at fixed periods or at different times on different days of the week, eg:offices, shops, pubs and restaurants.

The 7 Day TimeSwitch gives twelve On or Off positions per day and can be set for 7 days. The cycle will repeat until changed. Volt free switch connection to Sentinel.

Analogue clock display and integral time switches for ease of setting. Manual override. Removable clear plastic cover protects timeswitch face. Time base: 7 days. Shortest switching time: 2 hours. Ambient operating temperature range -20°C to +85°C. Dimensions: 104 x 74 x 52mm (H x W x D). Supply voltage 220-240V/1/50Hz.

Stock Ref 563515

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



Remote Speed Control*



Provides infinitely variable Sentinel 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 426332

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 Sentinel 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 433259

CO_2 + Temp Room Sensor*



HVAC temperature and carbon dioxide room sensor for ventilation control of residential areas, office areas and classrooms. Used with Sentinel in Proportional control mode. Sensor will monitor both CO_2 and temperature levels between the set points, the air extraction rate following the higher of the 2 outputs.

24V DC SELV. 0 - 2000ppm CO_2 working range. 0 - 50°C working range. Auto-calibrating NDIR CO_2 absorption sensor. Thin film platinum temperature sensor for high accuracy. Dimensions:100 x 84 x 25mm (H x W x D).

Stock Ref 433257

Remote Fan Status Indicator*



This Remote Display unit will indicate the running status and condition of the fan or fans. Can be used in all Sentinel operating modes for fan mounting.

24V DC SELV. Directly connects into the SCU. Used for single and twin fan mounting. Ambient operating temperature -5°C to +50°C. Dimensions:86 x 86 x 28mm (H x W x D).

Stock Ref 433816

Constant Press System Accessories PIR Grille*



PIR grille is on extract grille with an integral flap damper. Suitable for bathrooms and WC's. The PIR function fully opens the damper when a person. presence is detected. The opening time is fixed at 20 mins. Spigot size is 125mm.

12V AC SELV unit using the main transformer unit supplied. Integral PIR person presence sensor controlling damper. Auto-humidity control damper response at all times. 100° viewing angle. Temperature range 0 - 50°C .Size: 158 x 150 x 35mm (H x W x D). MAX airflow 70m³/hr @100 Pa.

Stock Ref 434184

Dampers*



Two types available:
a) MM type - opening shut/MIN to open/MAX controlled by switches and
b) PC type - opening proportionally when controlled by sensors.

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

Typical ordering 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