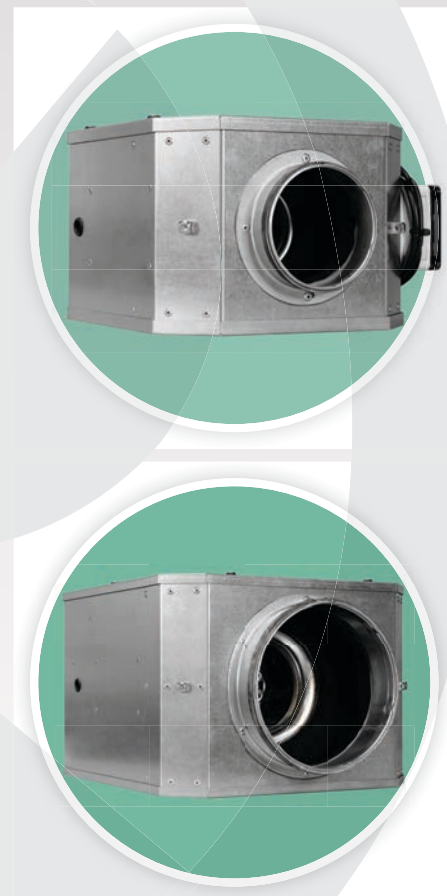


Uniclass L7534	EPIC L32
C/SfB	
(57)	



# XSD Single EC Box Fan Range

quiet efficiency...



Improving air quality for over 50 years







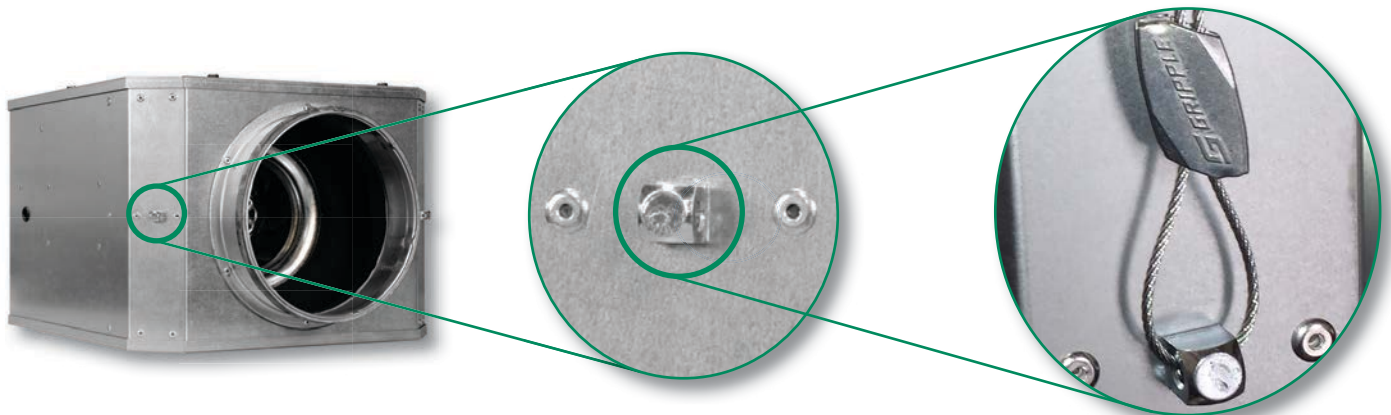
## Introducing the NEW Xpelair XSD Single EC Box Fan range...

The XSD EC high efficiency range of attenuated inline supply/extract units build on the success of Xpelair's customised solutions and incorporates the quietest and most energy efficient technologies on the market.

With new energy efficiency regulations, ERP 2013/15 and continuing demands to reduce energy usage, XSD delivers for both today and in the future.

The integral demand controlled ventilation feature, high efficiency EC motors and backward curved impellers not only reduce energy consumption but also optimise indoor air quality.

The XSD is best in class for ease of installation. It benefits from quick connect spigots and is supplied with an easy to install Gripple suspension kit which results in over a 90% reduction in typical installation time.



The XSD range has been extensively tested to ensure the accuracy of published figures. Airflow performance independently tested at the Building Research Establishment (BRE). Acoustic performance independently tested at the Institute for Sound and Vibration Research (ISVR Consulting) at the University of Southampton. Both bodies are wholly independent. No endorsements sought or implied.

# Xpelair XSD

quiet efficiency...

Xpelair's new XSD range of single inline extract/supply units offer a quiet, high efficiency ventilation solution that maintains indoor air quality.

Incorporating market leading technologies, XSD has been designed with today's energy costs in mind, minimising energy consumption and reducing associated losses when compared with traditional extract ventilation systems. The units use the latest Demand Controlled Ventilation (DCV) system to ensure optimum indoor air quality.



## High Efficiency Motorised Impellers

All units in the XSD range benefit from high efficiency, backward curved, composite impellers, directly mounted to matched, electronically commutated (EC) motors, offering a number of benefits when compared to traditional AC or DC motors.

The use of permanent magnet motors means the torque effect on the rotor is generated via the permanent magnetic field within the stator windings. In contrast to traditional asynchronous motors, there is no current heat loss in the EC motor, leading to significant efficiency improvements.

With electronic commutation replacing mechanical motor switching, internal wear is reduced, increasing service life and further improving efficiency.

Inbuilt, purposely designed EC technology ensures an optimum match to the motor, removing the possibility of conflicts, increasing efficiency, and minimising RF and electronic noise levels.

Stepless and infinitely variable speed control, in combination with the XSD's onboard DCV controller, allows for a range of control strategies to be considered, offering the possibility of significant energy savings when compared to traditional ventilation equipment. From simple on/off single speed, or high/low boost modes, through to complex multiple input, full demand control strategies, the configurable DCV controller can cover the vast majority of installations with ease.

### Benefits include:

- Stepless infinitely variable speed control allowing accurate commissioning
- Low levels of electronic and RF interference
- Increased service life
- Low specific fan power levels through improved efficiency



## Legislation

### Energy Performance of Buildings Directive – EPBD

With 40% of our energy consumed in buildings, the EU has introduced legislation to ensure that they consume less energy. The Energy Performance of Buildings Directive is an EU measure designed to tackle climate change by reducing the amount of carbon produced by buildings. The requirements for display certificates and inspections were implemented in the UK in 2007.

The EU revised the EPBD Directive in 2010 (Directive 2010/31/EU), adopted in the UK in 2013. This toughened the requirements to move towards new and retrofitted buildings being nearly-zero energy by 2020 (2018 in the case of Public buildings), and setting minimum requirements for both the envelope and the technical systems.

### Ecodesign Directive – Energy Related Products - ErP

The Ecodesign Directive (Directive 2009/125/EC) establishes a framework to set mandatory ecological requirements for energy-using and energy-related products sold in all 28 Member States. Its scope currently covers more than 40 product groups including fans driven by motors with an input power between 125W & 500kW.

The ultimate aim of the Ecodesign Directive is that manufacturers of energy-using products will, at the design stage, be obliged to reduce the energy consumption and other negative environmental impacts of products. While the Directive's primary aim is to reduce energy use, it is also aimed at enforcing other environmental considerations including: materials use and recyclability.

### Building Regulations – Approved Document Part L – AD-L

The EPBD instructs all Member States to take appropriate measures to ensure the minimum energy performance requirements are met. The UK meets these requirements through the Building Regulations, Approved Document Part L (Conservation of fuel and power), (AD-L).

To meet the requirements of the ErP directive the intention is that the recommended minimum product standards in the Domestic and Non-Domestic Building Services Design Guides should at least match the energy efficiency standards as set out within the Ecodesign directives.

### Building Regulations – Approved Document Part F – AD-F

As part of the framework set out to ensure compliance with the EPBD, standard calculation methods are used to evaluate the energy performance of buildings. (SAP for domestic buildings, SBEM for non-domestic).

One of the points assessed is the amount of energy (heat) lost through leakage in poorly constructed buildings. By improving the air tightness in buildings, designers are able to limit this inefficiency, aiding with the building's overall compliance with the minimum performance requirements.

Approved Document – Part F (means of ventilation), (AD-F) details the required ventilation rates in relation to building type, use and air permeability rate, to ensure the minimum indoor air quality levels are maintained.

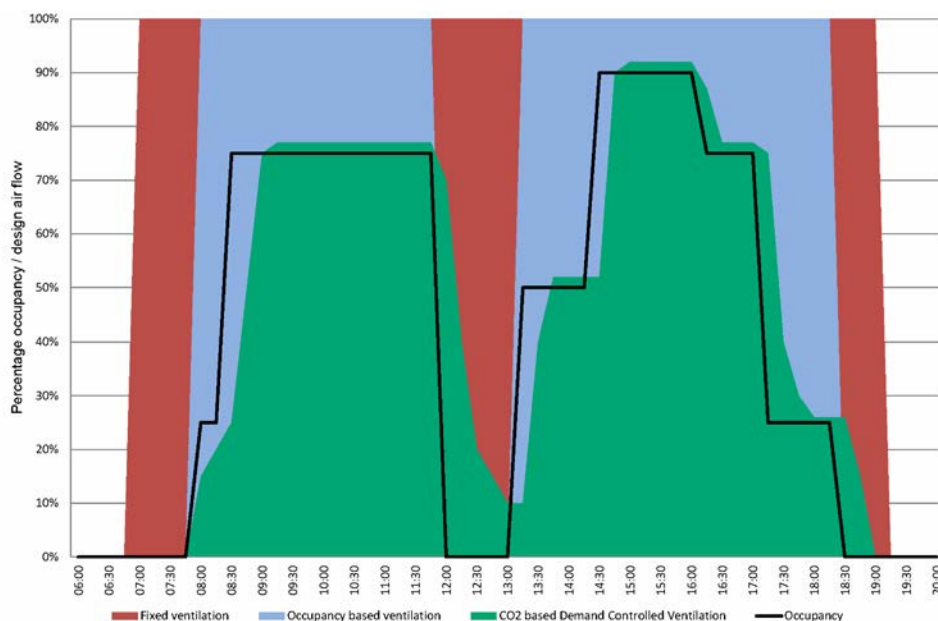
The performance curves for the XSD range have been carefully laid out to allow the designer to check the ventilation rates (AD-F) against the maximum specific fan power (AD-L), and with the knowledge that all tests have been carried out independently, selections can be made with confidence that the product will comply.



## Demand Controlled Ventilation (DCV)

DCV is a strategy used to ensure that the amount of fresh air provided closely matches the requirement of the occupants, rather than continually providing a fixed amount of air. By monitoring the indoor space, it's possible to actively control the ventilation system to maintain suitable indoor air quality.

The figure on the right highlights the potential savings when adding simple occupancy control to a traditional, fixed time, constant air volume system, and the increased savings potential which is possible with a DCV system based on internal air quality levels.



## Onboard DCV Controller

With accurate flow rate adjustment, and multiple interface options, the controller offers the ability to significantly reduce running costs, by closely matching the required ventilation rates to the actual demand, rather than running at a fixed flow rate controlled by a time schedule. Constant adaptation to the changing internal environment ensures that energy usage is kept to a minimum, whilst indoor air quality is maintained at the desired level.

The onboard, DCV capable controller offers numerous options for maintaining the required flow rates to the indoor space. From simple on/off single speed, or high/low boost modes, through to complex, multiple input, full demand control strategies, the configurable DCV controller can cover the vast majority of installations with ease.

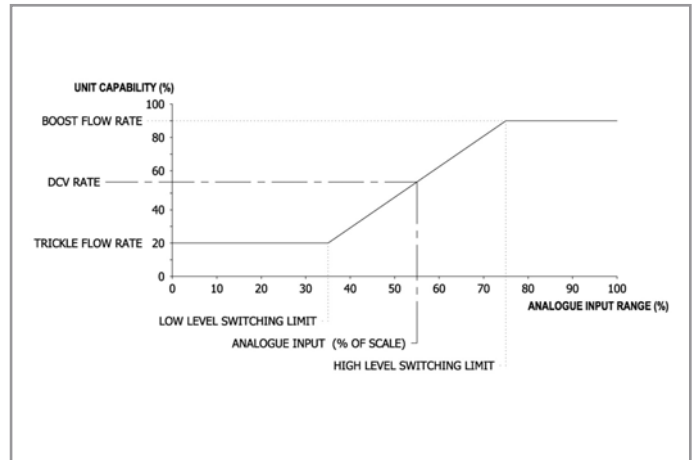




## Proportional Band Control (PBC)

PBC is a control function which automatically adjusts air volume flow rates, between a pre-set high and low level, in relation to an analogue control input such as a CO<sub>2</sub> sensor.

The XSD range's factory fitted controllers have dual proportional band control capabilities, which enable the unit to adjust the ventilation rates in accordance with up to two independent analogue inputs (i.e. CO<sub>2</sub> and humidity sensors). This can be combined with the switched live or digital inputs to further refine the system operation, increasing indoor air quality, reducing running costs, whilst being flexible enough for even the most demanding applications.



## Building Management System (BMS) Integration

BMS integration is possible via the numerous inputs/outputs that are available. By utilising Volt Free Contacts (VFCs) or by supplying an Analogue Signal (0-10Vdc), the Building Management System can fully control the unit operation. With fan run, fail and maximum speed indication also included, via the 3 digital outputs, the BMS can monitor unit operation at any given moment.



### Control and Monitoring

- 2 Switched live inputs (230Vac)
- 3 Digital inputs (24Vdc)
- 2 Analogue inputs (0-10Vdc)
- 3 Digital outputs (VFC's)

## Optional Sensors (For use in conjunction with the onboard controller)

### CO<sub>2</sub> Sensor

Measures the CO<sub>2</sub> levels within the occupied space, and adjusts the ventilation rates proportionally to maintain the desired indoor air quality (IAQ).

**Ref: 92777AA**



### QHS Humidity Sensor

Measures the Relative Humidity levels within the occupied space, and adjusts the ventilation rates proportionally to maintain the desired indoor air quality (IAQ).

**Ref: 96040AA**



### Constant Pressure Sensor

Measures the pressure within the ductwork, and adjusts the fan speed proportionally to maintain the required system resistance.

**Ref: 92953AA**



### PIR Sensor

Senses occupancy within the indoor space, and either activates the system, or boosts the ventilation rates as required.

**Ref: 21871AA**



### Air Quality Sensor

Senses contaminants such as cooking, toilet and body odours and either activates the system, or automatically boosts the ventilation rate when the pre-set level is exceeded.

**Ref: 92097AW**



Further details available on request.

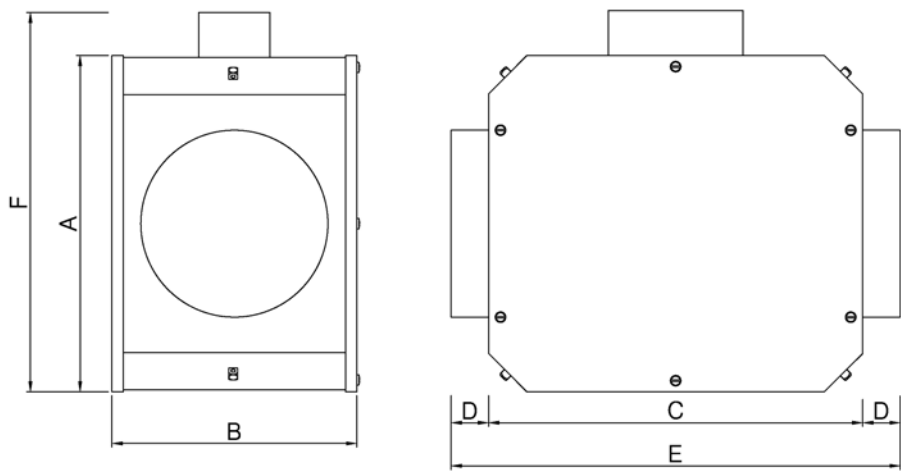
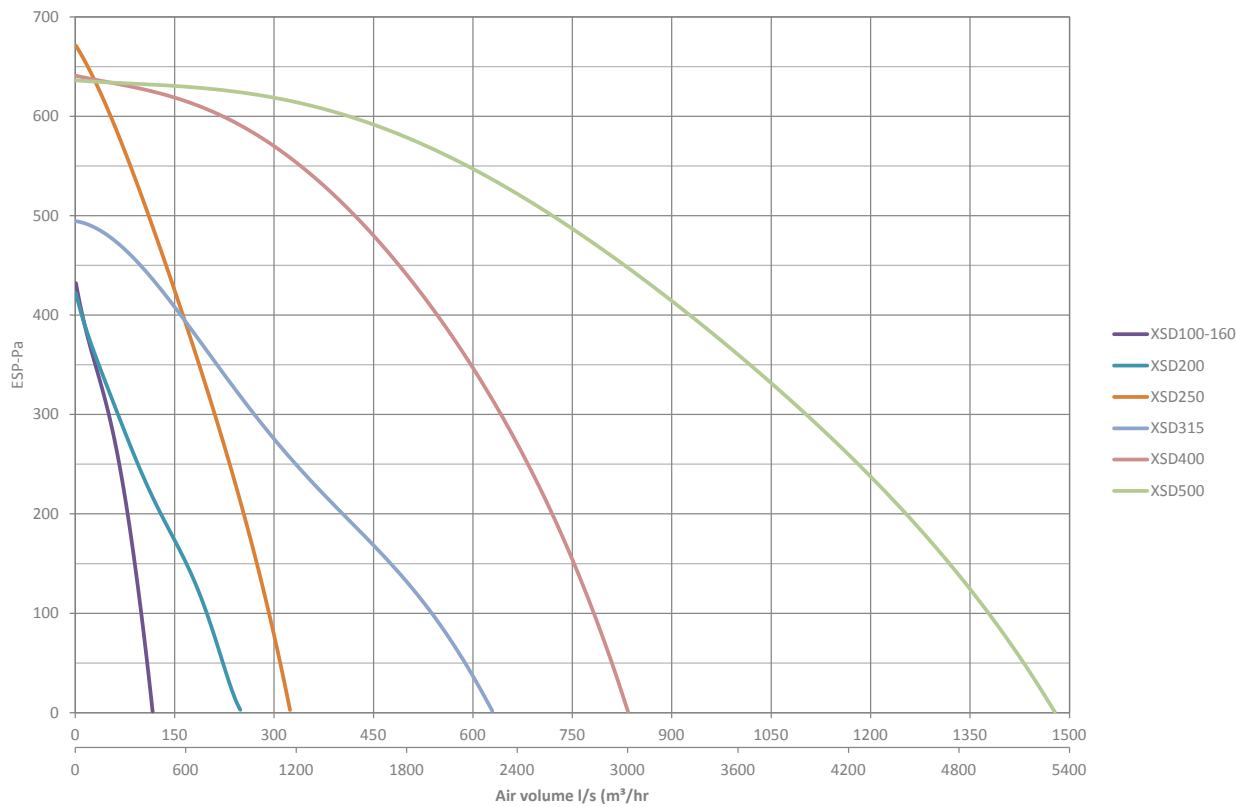






quiet  
efficiency...

## Model Overview



Part No.	Duct Ø	Dim'n A	Dim'n B	Dim'n C	Dim'n D	Dim'n E	Dim'n F	Supply	FLC (A)	Power (W)	Weight (kg)
92890AA	100	300	220	350	40	430	360	230Vac/1ph/50Hz	0.37	46	9.5
92891AA	125	300	220	350	40	430	360	230Vac/1ph/50Hz	0.37	46	9.5
92892AA	150	300	220	350	40	430	360	230Vac/1ph/50Hz	0.37	46	9.0
92893AA	160	300	220	350	40	430	360	230Vac/1ph/50Hz	0.37	46	9.0
92894AA	200	450	330	500	40	580	510	230Vac/1ph/50Hz	0.73	80	17.5
92895AA	250	450	330	500	65	630	510	230Vac/1ph/50Hz	1.45	173	18.0
92896AA	315	640	460	680	65	810	700	230Vac/1ph/50Hz	1.45	171	34.0
92897AA	400	640	460	680	70	820	700	230Vac/1ph/50Hz	2.05	463	36.5
92898AA	500	810	580	900	70	1040	870	230Vac/1ph/50Hz	3.35	763	60.0

## Key Features

- Unique compact design
- Acoustically lined case for low noise levels
- ErP 2015 compliant, ultra efficient EC motors with backward curved impellers for increased efficiency and reduced running costs
- BMS compatible, integrated demand control ventilation (DCV)
- Comprehensive range of control sensors available to suit all applications
- Simple in-built support fixings to reduce installation time
- Incorporates Gripple suspension kit
- Airflow and acoustic data independently tested
- Low specific fan power level through improved efficiency

## GRIPPLE Unit Suspension Kit

- Reduces typical installation time by over 90%
- Threaded for ease of use, no tools required (excluding anchor installation)
- Ideal for use in concrete ceilings, metal decking and pressed metal brackets/channels
- 5:1 load bearing ratio - light and compact
- Replaces threaded rod - no more sawing, filling or fixing nuts
- Flexible - can be safely pre-installed, simplifying the planning process
- Safe - lightweight and compact, making it easier to carry on site
- Saves time and money - no need for additional brackets
- Eco friendly - 1.2kg less CO<sub>2</sub> per meter than threaded rod
- Damping - helps to prevent structure borne vibration transmission
- Manufactured in Sheffield, UK by market leader Gripple Limited

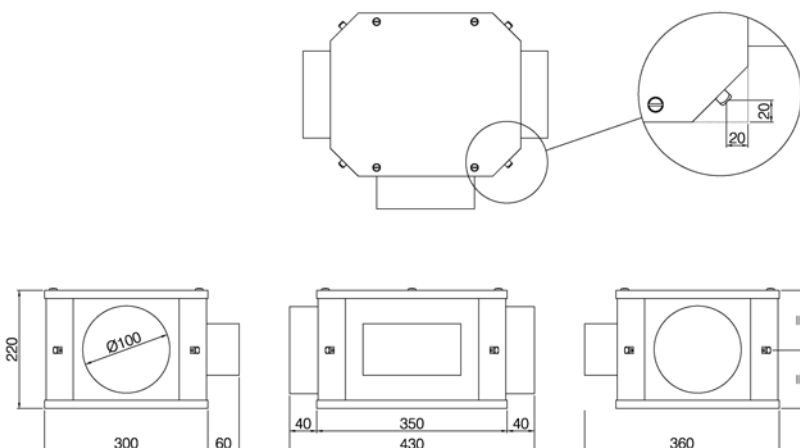
## Models

Model	Reference Number
XSD100	92890AA
XSD125	92891AA
XSD150	92892AA
XSD160	92893AA
XSD200	92894AA
XSD250	92895AA
XSD315	92896AA
XSD400	92897AA
XSD500	92898AA



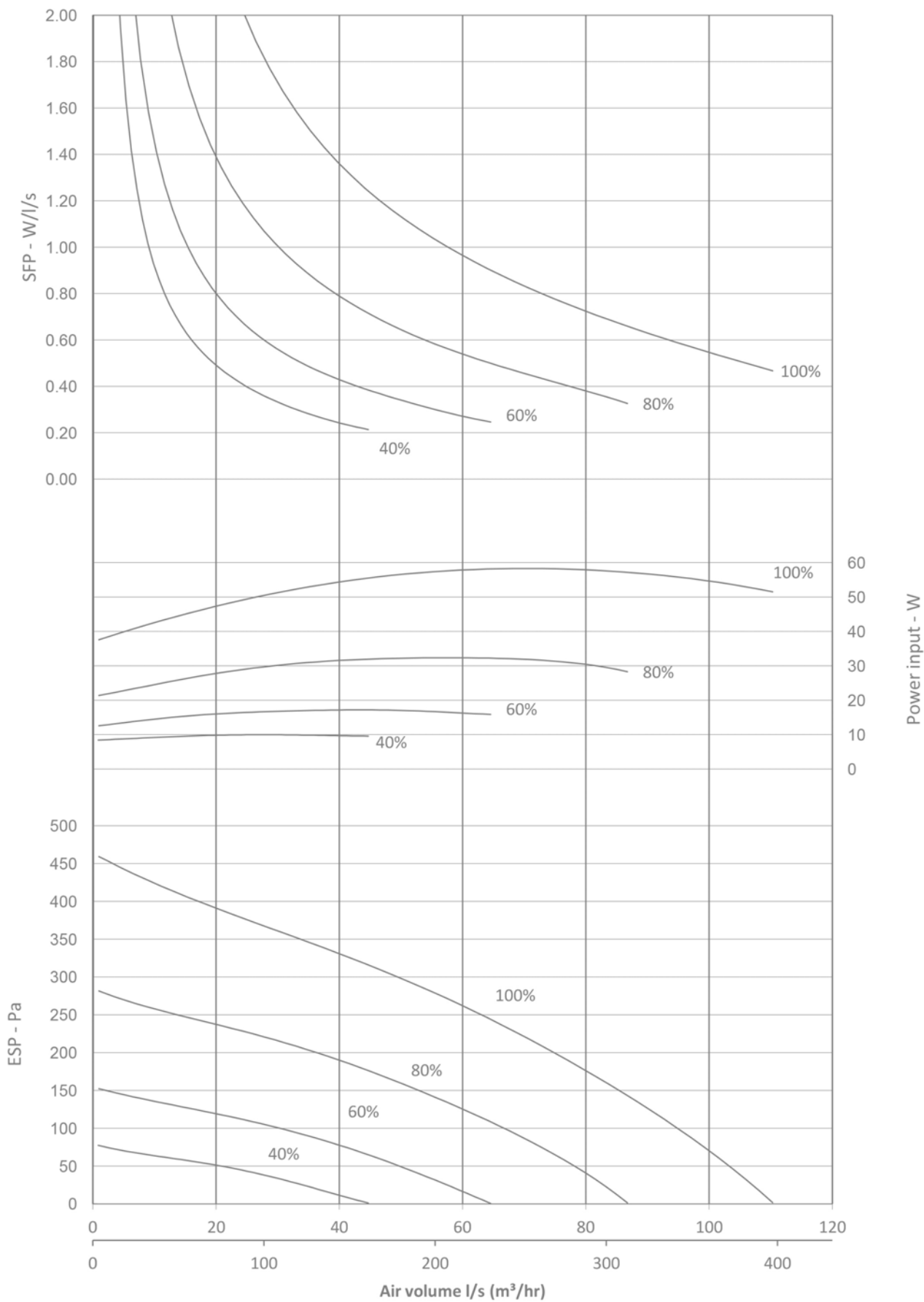


### Performance and Dimensions

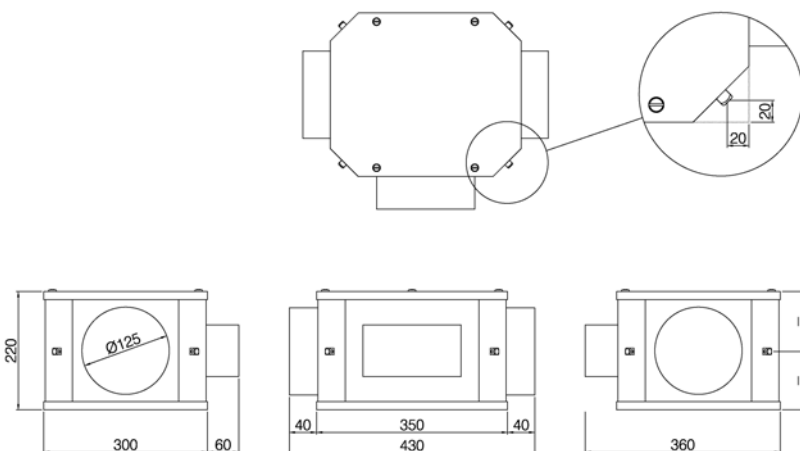


		Frequency (Hz)								LpA dB (3m)
Speed	Sound Power*	63	125	250	500	1000	2000	4000	8000	
20%	Lw(Dcas)	33.2	33.6	36.2	28.0	20.4	14.1	7.0	12.5	9.1
20%	Lw(Din)	29.4	31.9	31.4	29.9	23.7	23.1	22.6	26.6	
20%	Lw(Din-1)	51.4	50.6	44.5	36.9	27.5	24.6	22.9	26.7	
20%	Lw(Dout)	31.4	25.8	23.7	17.5	17.8	19.8	21.7	22.5	
20%	Lw(Dout-1)	55.7	44.1	36.8	25.1	21.2	21.0	22.0	22.6	
40%	Lw(Dcas)	37.5	42.0	46.7	32.1	22.5	15.6	8.4	12.6	16.9
40%	Lw(Din)	37.0	46.8	41.0	30.0	28.8	21.9	23.4	26.6	
40%	Lw(Din-1)	60.9	65.8	54.2	38.2	31.7	23.1	23.8	26.7	
40%	Lw(Dout)	43.4	38.4	38.3	31.0	25.4	21.1	22.0	22.4	
40%	Lw(Dout-1)	67.9	55.9	51.4	38.9	29.0	22.4	22.4	22.5	
60%	Lw(Dcas)	43.3	42.2	48.7	35.0	28.1	22.0	12.4	12.7	20.0
60%	Lw(Din)	41.6	48.7	48.5	38.0	34.9	33.9	29.9	27.7	
60%	Lw(Din-1)	66.1	67.0	61.3	46.2	38.0	35.1	30.4	27.8	
60%	Lw(Dout)	55.9	46.4	46.3	39.1	34.1	28.2	25.9	22.7	
60%	Lw(Dout-1)	80.4	64.6	59.1	46.8	37.8	29.6	26.3	22.8	
80%	Lw(Dcas)	60.2	43.7	50.9	46.4	35.5	29.4	22.6	15.0	25.3
80%	Lw(Din)	48.0	50.1	53.3	45.9	42.5	42.0	39.4	33.8	
80%	Lw(Din-1)	72.1	68.1	65.3	54.2	45.6	43.1	39.9	33.9	
80%	Lw(Dout)	66.7	55.9	51.0	46.6	42.1	36.4	34.7	25.2	
80%	Lw(Dout-1)	91.0	74.6	63.4	54.4	45.7	37.8	35.2	25.3	
100%	Lw(Dcas)	66.6	47.8	55.3	48.8	41.6	35.2	29.7	19.9	30.2
100%	Lw(Din)	57.6	52.3	55.5	52.1	49.8	48.1	46.5	40.3	
100%	Lw(Din-1)	80.1	69.9	67.9	60.3	52.9	49.2	47.0	40.4	
100%	Lw(Dout)	75.0	64.4	55.7	52.5	48.3	43.0	42.9	30.9	
100%	Lw(Dout-1)	99.3	83.1	68.5	60.2	51.9	44.3	43.3	31.1	

\*Please refer to [Legend](#) on Page 31 for Sound Power classification.



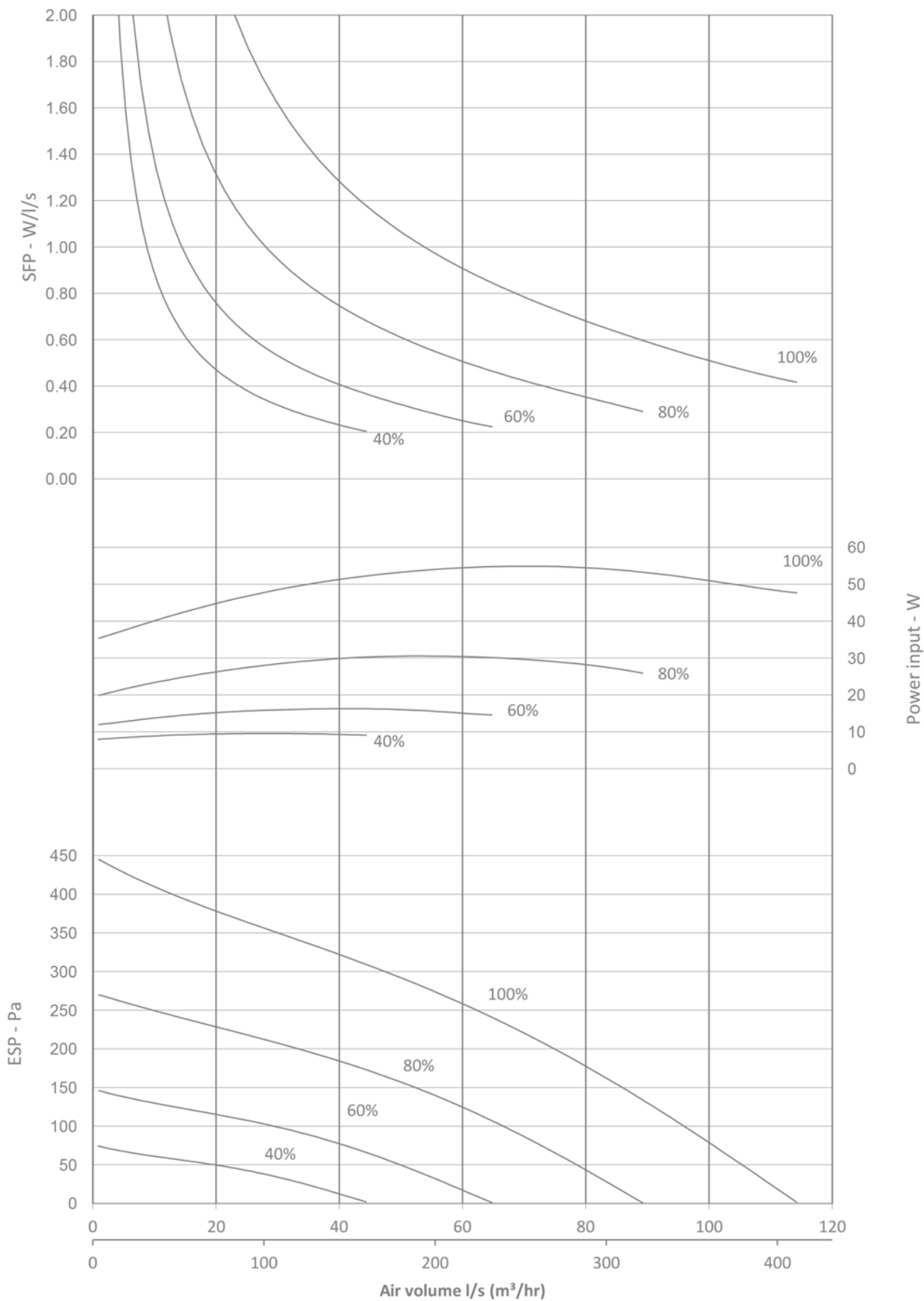
### Performance and Dimensions



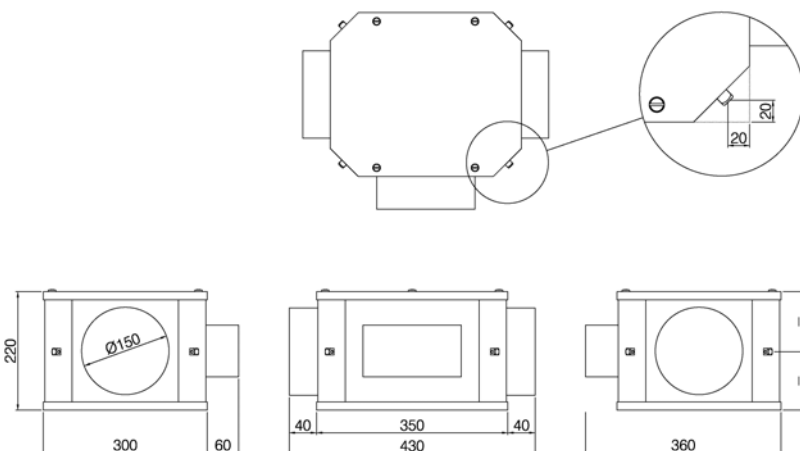
		Frequency (Hz)								LpA dB (3m)
Speed	Sound Power	63	125	250	500	1000	2000	4000	8000	
20%	Lw(Dcas)	35.6	31.8	31.3	27.2	20.9	15.2	8.4	12.3	7.5
20%	Lw(Din)	31.1	31.4	31.1	27.8	20.2	22.8	22.4	26.6	
20%	Lw(Din-1)	51.7	48.2	42.8	33.5	22.3	23.9	22.7	26.7	
20%	Lw(Dout)	30.5	27.7	25.5	21.3	18.1	19.7	21.6	22.4	
20%	Lw(Dout-1)	52.8	44.3	36.7	27.9	20.6	20.6	21.9	22.5	
40%	Lw(Dcas)	51.5	41.3	40.0	32.0	25.9	23.7	20.7	15.2	15.4
40%	Lw(Din)	36.8	42.6	41.3	33.3	29.6	23.5	24.0	26.7	
40%	Lw(Din-1)	58.2	57.3	52.5	40.1	31.6	24.4	24.3	26.7	
40%	Lw(Dout)	38.4	40.8	39.3	33.8	29.5	23.3	22.2	22.5	
40%	Lw(Dout-1)	61.3	56.0	50.4	40.2	32.1	24.2	22.4	22.5	
60%	Lw(Dcas)	40.8	41.6	44.7	33.6	28.1	23.8	13.7	13.0	17.4
60%	Lw(Din)	39.5	44.0	49.7	40.8	36.3	36.2	31.9	28.2	
60%	Lw(Din-1)	61.9	58.8	60.7	47.5	38.5	37.0	32.2	28.3	
60%	Lw(Dout)	45.6	43.5	47.5	41.5	37.4	32.1	27.3	23.4	
60%	Lw(Dout-1)	68.3	58.9	58.5	47.6	40.1	33.1	27.5	23.4	
80%	Lw(Dcas)	47.2	42.8	48.6	43.6	35.3	30.9	25.5	16.5	23.5
80%	Lw(Din)	45.8	47.2	54.6	48.4	44.0	44.4	42.8	35.5	
80%	Lw(Din-1)	68.4	62.5	64.8	55.2	46.2	45.1	43.2	35.5	
80%	Lw(Dout)	56.8	48.4	53.0	48.7	45.1	39.6	37.7	28.7	
80%	Lw(Dout-1)	79.5	64.6	63.1	54.9	47.9	40.5	38.0	28.8	
100%	Lw(Dcas)	64.9	47.2	51.7	49.0	41.4	35.9	31.7	19.9	29.1
100%	Lw(Din)	50.2	51.2	56.5	56.4	50.6	48.7	50.1	42.1	
100%	Lw(Din-1)	72.7	66.6	66.8	63.3	52.8	49.4	50.4	42.2	
100%	Lw(Dout)	65.6	55.5	54.8	55.6	51.6	45.5	46.3	35.5	
100%	Lw(Dout-1)	88.3	72.0	65.4	62.1	54.3	46.5	46.5	35.6	

\*Please refer to [Legend](#) on Page 31 for Sound Power classification.



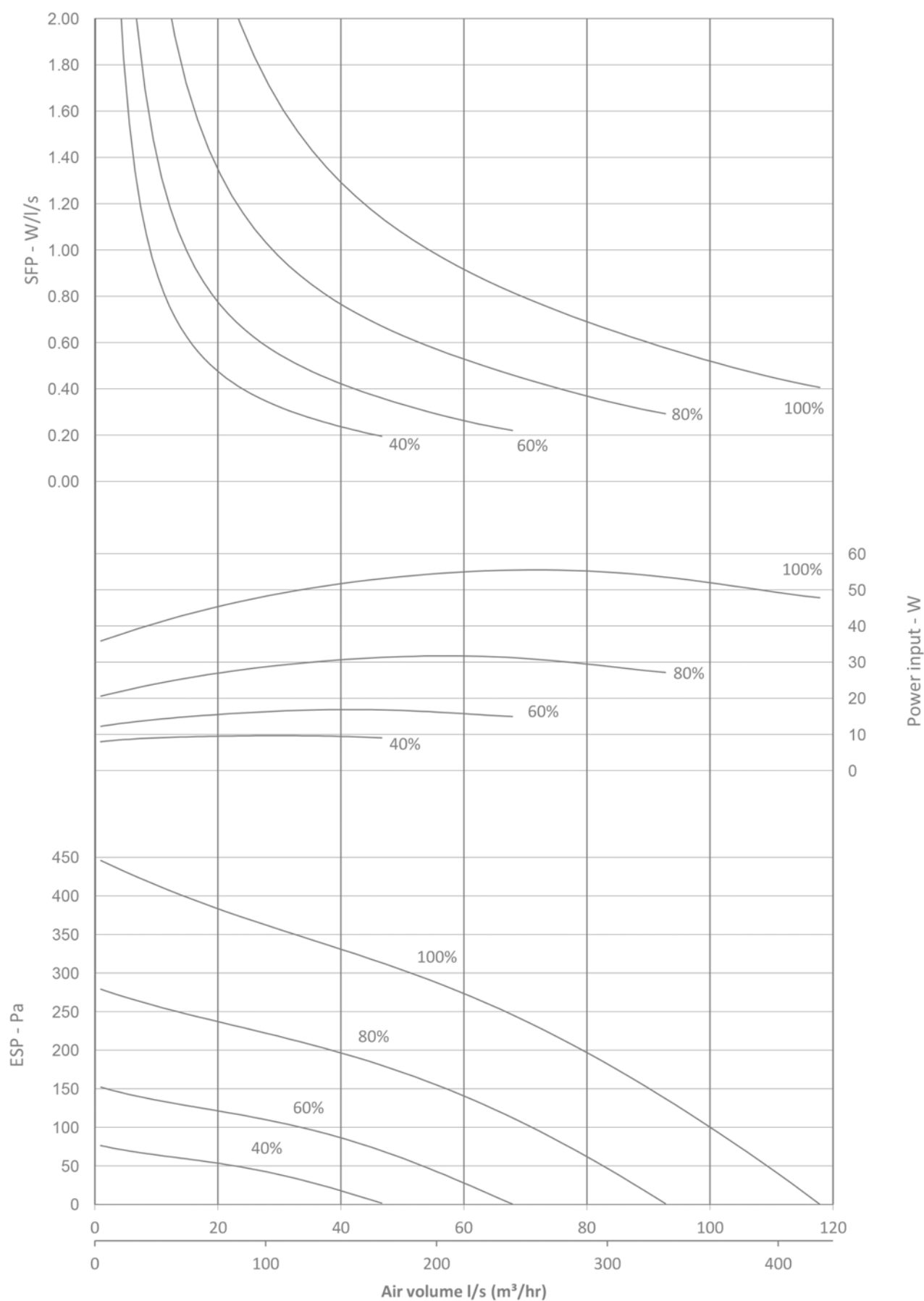


### Performance and Dimensions



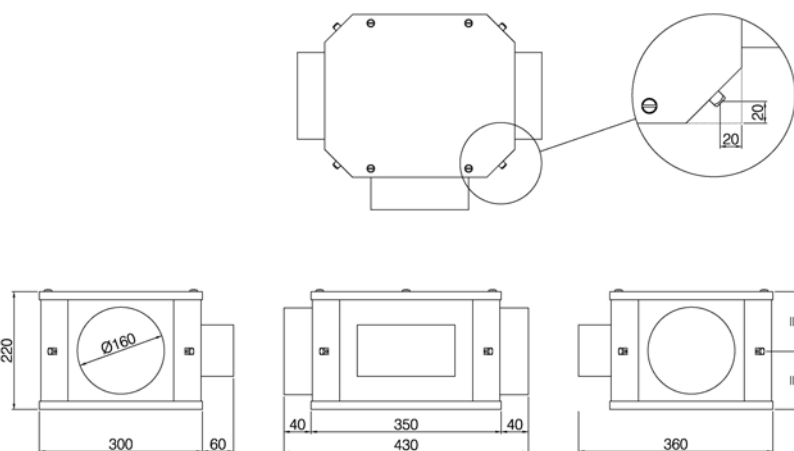
		Frequency (Hz)								LpA dB (3m)
Speed	Sound Power	63	125	250	500	1000	2000	4000	8000	
20%	Lw(Dcas)	38.4	33.4	32.8	26.6	21.8	18.3	10.0	13.2	8.3
20%	Lw(Din)	37.8	40.0	36.1	28.5	21.9	15.2	22.5	26.6	
20%	Lw(Din-1)	57.4	54.7	45.2	33.8	24.3	15.8	22.7	26.7	
20%	Lw(Dout)	30.4	32.3	27.9	21.7	18.6	19.9	21.6	22.4	
20%	Lw(Dout-1)	51.4	47.8	37.7	26.9	20.6	20.5	21.8	22.5	
40%	Lw(Dcas)	37.2	37.5	40.4	29.9	25.0	19.4	11.2	13.4	12.7
40%	Lw(Din)	34.7	44.5	45.3	36.7	33.8	30.2	28.0	26.8	
40%	Lw(Din-1)	56.1	57.8	55.4	42.3	35.4	30.9	28.2	26.9	
40%	Lw(Dout)	37.7	42.7	42.7	36.7	32.9	28.5	23.7	22.6	
40%	Lw(Dout-1)	59.2	56.2	52.8	41.9	34.8	29.3	23.9	22.6	
60%	Lw(Dcas)	41.3	40.6	44.9	35.7	31.3	27.2	17.7	14.3	18.9
60%	Lw(Din)	40.1	45.0	52.5	44.1	40.0	40.4	38.7	30.1	
60%	Lw(Din-1)	61.5	58.6	61.8	49.5	41.7	40.9	38.9	30.2	
60%	Lw(Dout)	40.2	44.4	50.4	44.3	40.6	35.7	32.0	24.5	
60%	Lw(Dout-1)	61.1	58.2	59.7	49.3	42.7	36.4	32.2	24.6	
80%	Lw(Dcas)	48.0	45.1	46.8	49.1	38.5	32.4	29.4	18.7	26.2
80%	Lw(Din)	44.8	48.0	56.9	51.8	47.4	46.7	47.5	40.2	
80%	Lw(Din-1)	65.9	62.0	65.4	57.5	49.0	47.2	47.8	40.3	
80%	Lw(Dout)	46.9	48.3	54.1	52.0	47.9	42.7	43.9	32.1	
80%	Lw(Dout-1)	67.7	62.6	62.9	57.3	50.0	43.4	44.1	32.2	
100%	Lw(Dcas)	61.6	48.7	49.0	54.4	44.2	37.1	34.9	25.0	32.1
100%	Lw(Din)	48.5	52.0	57.4	58.9	53.1	50.5	54.4	45.7	
100%	Lw(Din-1)	69.6	66.0	66.2	64.6	54.8	51.1	54.6	45.8	
100%	Lw(Dout)	54.0	53.2	55.5	58.4	53.5	48.1	50.9	39.1	
100%	Lw(Dout-1)	75.0	67.5	64.6	63.6	55.6	48.8	51.1	39.2	

\*Please refer to [Legend](#) on Page 31 for Sound Power classification.



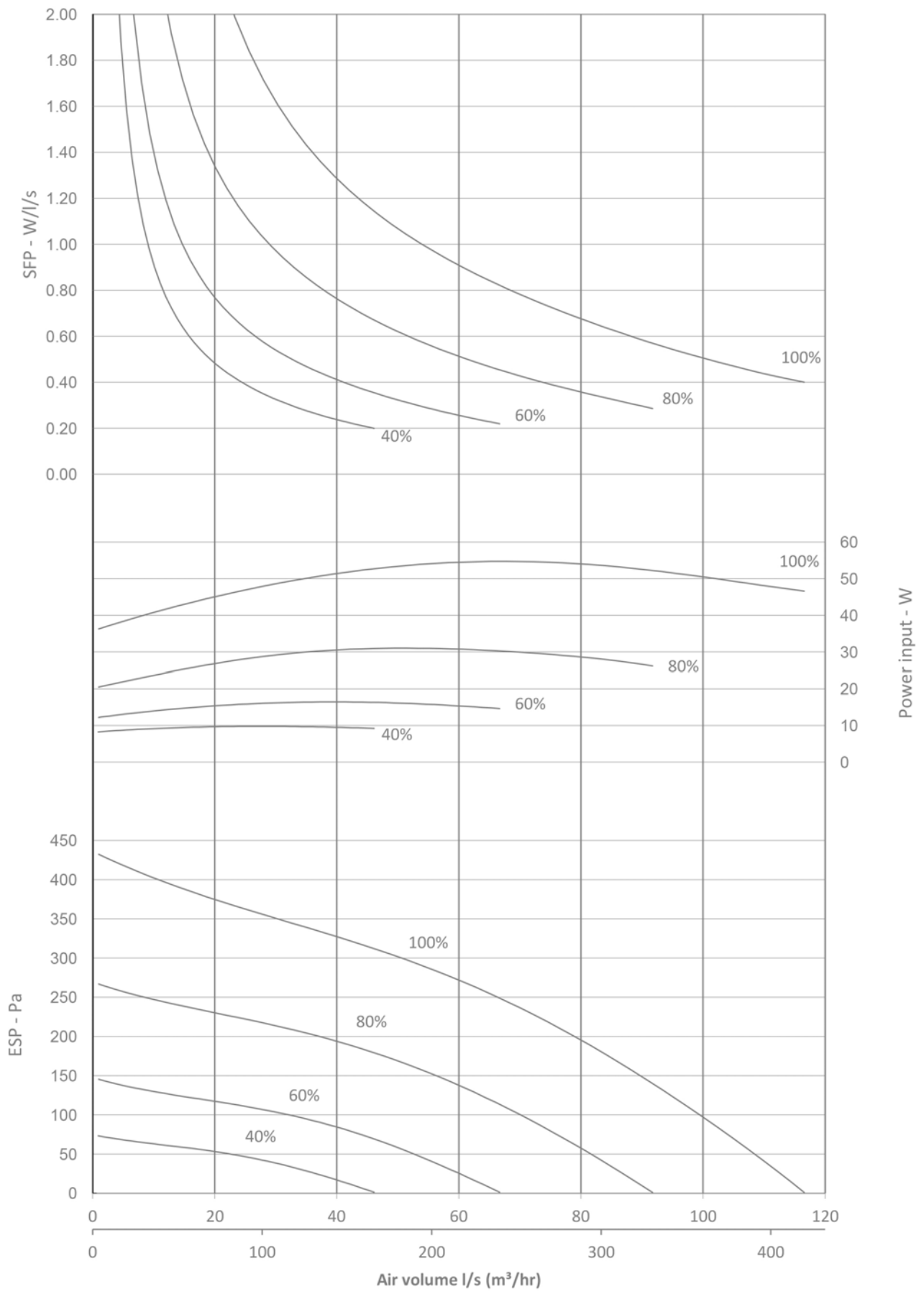


## Performance and Dimensions

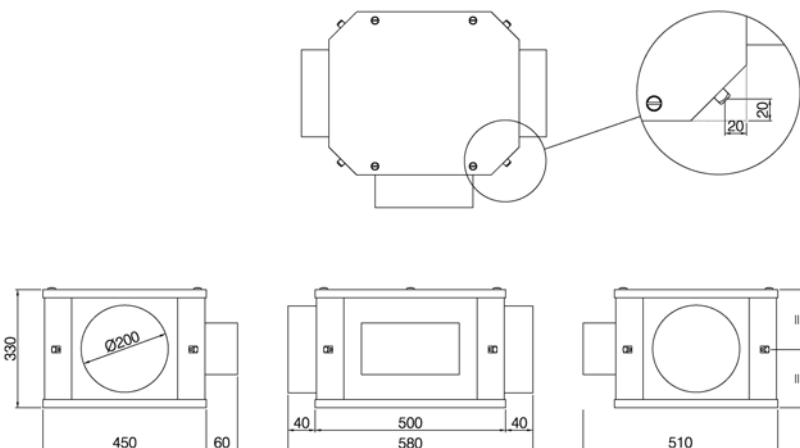


		Frequency (Hz)								LpA dB (3m)
Speed	Sound Power	63	125	250	500	1000	2000	4000	8000	
20%	Lw(Dcas)	35.9	32.5	30.9	27.3	21.8	17.5	10.6	13.3	8.0
20%	Lw(Din)	33.8	32.4	32.5	29.0	19.2	22.2	22.5	26.6	
20%	Lw(Din-1)	53.9	47.1	42.1	33.4	20.8	22.9	22.6	26.6	
20%	Lw(Dout)	31.8	32.5	29.1	23.4	18.6	19.3	21.0	21.6	
20%	Lw(Dout-1)	52.2	47.3	38.4	28.3	20.5	19.9	21.1	21.6	
40%	Lw(Dcas)	38.2	36.0	41.4	30.0	24.4	18.7	10.5	13.5	13.0
40%	Lw(Din)	34.9	43.7	44.3	37.4	35.8	30.8	24.8	26.7	
40%	Lw(Din-1)	55.5	56.6	53.8	42.6	37.1	31.5	25.0	26.8	
40%	Lw(Dout)	43.3	43.8	42.7	38.1	35.1	30.7	24.8	24.4	
40%	Lw(Dout-1)	64.5	56.8	52.2	42.9	36.8	31.4	25.0	24.4	
60%	Lw(Dcas)	44.3	38.7	44.4	34.1	29.4	27.6	15.5	13.7	18.1
60%	Lw(Din)	41.5	44.8	52.5	44.5	40.8	41.5	35.2	29.4	
60%	Lw(Din-1)	62.3	57.8	61.3	49.6	42.3	42.0	35.4	29.4	
60%	Lw(Dout)	46.8	45.7	50.6	45.3	41.9	38.0	31.4	26.2	
60%	Lw(Dout-1)	67.7	59.0	59.5	49.9	43.8	38.7	31.6	26.2	
80%	Lw(Dcas)	49.2	41.9	46.0	46.8	36.1	32.7	29.9	15.9	24.4
80%	Lw(Din)	44.4	47.6	57.3	53.0	47.9	48.2	48.1	38.1	
80%	Lw(Din-1)	65.0	61.0	65.3	58.3	49.4	48.7	48.3	38.2	
80%	Lw(Dout)	53.5	49.2	55.0	52.8	49.2	44.7	45.6	33.2	
80%	Lw(Dout-1)	74.2	63.1	63.3	57.8	51.1	45.3	45.8	33.2	
100%	Lw(Dcas)	68.2	46.6	48.4	54.3	42.0	37.0	34.0	20.8	32.4
100%	Lw(Din)	50.7	51.7	57.6	59.8	53.7	51.4	55.2	45.2	
100%	Lw(Din-1)	70.3	65.2	66.0	65.2	55.2	51.9	55.4	45.3	
100%	Lw(Dout)	61.5	54.7	56.4	59.3	55.0	49.8	53.2	40.7	
100%	Lw(Dout-1)	82.1	68.9	65.1	64.2	56.9	50.4	53.4	40.8	

\*Please refer to [Legend](#) on Page 31 for Sound Power classification.

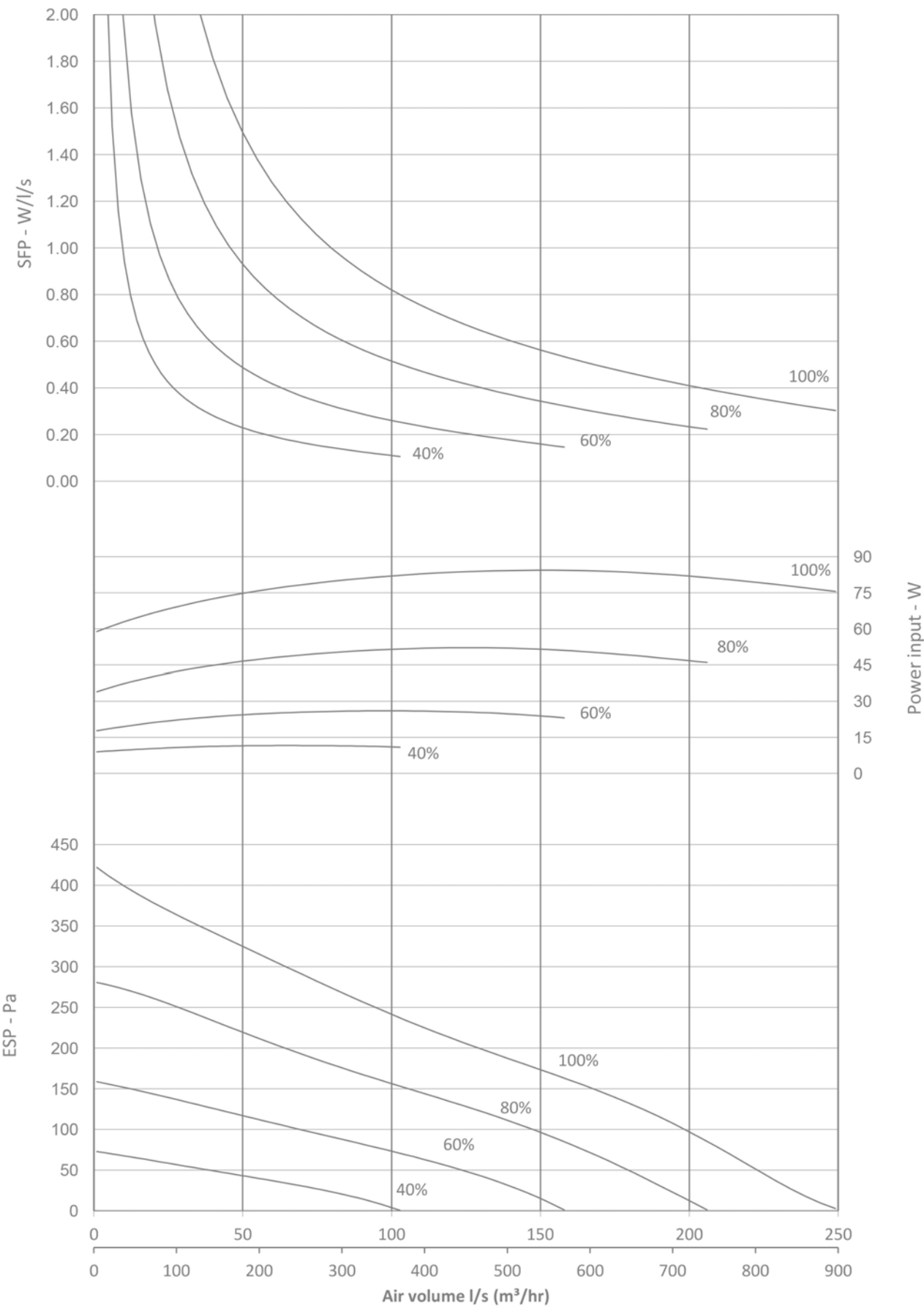


### Performance and Dimensions



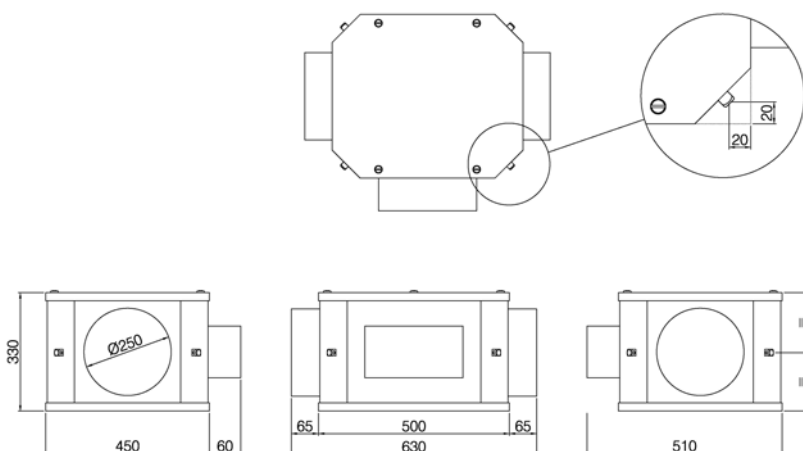
		Frequency (Hz)								LpA dB (3m)
Speed	Sound Power	63	125	250	500	1000	2000	4000	8000	
20%	Lw(Dcas)	42.1	34.2	28.5	24.6	22.2	15.5	8.5	12.7	6.8
20%	Lw(Din)	37.8	32.9	26.1	16.7	30.5	13.5	22.4	26.6	
20%	Lw(Din-1)	55.8	46.2	34.3	20.1	32.1	13.8	22.5	26.6	
20%	Lw(Dout)	43.4	29.8	23.4	19.6	25.9	19.7	21.6	22.4	
20%	Lw(Dout-1)	62.3	43.1	31.5	23.2	27.5	20.1	21.7	22.5	
40%	Lw(Dcas)	37.6	38.8	34.9	29.1	23.5	22.2	9.2	13.1	10.6
40%	Lw(Din)	37.7	44.3	40.6	30.1	35.2	39.5	24.3	26.7	
40%	Lw(Din-1)	56.4	57.4	48.7	33.6	36.4	39.9	24.4	26.7	
40%	Lw(Dout)	40.1	41.4	38.4	33.5	29.2	32.2	22.1	22.5	
40%	Lw(Dout-1)	58.7	54.3	46.5	37.4	30.6	32.7	22.2	22.5	
60%	Lw(Dcas)	42.4	46.5	39.0	37.2	29.0	25.4	18.9	13.5	17.5
60%	Lw(Din)	42.3	50.9	48.1	39.1	43.6	43.5	43.8	29.7	
60%	Lw(Din-1)	61.0	62.9	56.0	42.5	45.0	43.9	44.0	29.7	
60%	Lw(Dout)	52.7	49.4	46.2	42.5	38.5	37.9	34.5	23.2	
60%	Lw(Dout-1)	71.6	61.3	53.9	46.4	39.9	38.3	34.6	23.3	
80%	Lw(Dcas)	46.6	45.8	45.9	42.3	34.6	30.8	21.2	15.5	21.8
80%	Lw(Din)	47.4	53.5	55.6	45.5	49.7	47.4	48.4	38.6	
80%	Lw(Din-1)	66.1	65.6	63.9	48.9	51.0	47.8	48.5	38.6	
80%	Lw(Dout)	61.6	52.9	53.4	49.0	44.7	43.8	39.8	28.9	
80%	Lw(Dout-1)	80.4	65.4	61.6	53.0	46.1	44.3	40.0	29.0	
100%	Lw(Dcas)	50.0	49.2	49.9	46.1	38.7	34.9	24.4	20.0	25.8
100%	Lw(Din)	50.5	55.7	58.3	49.4	53.7	51.6	51.1	45.4	
100%	Lw(Din-1)	69.3	68.0	66.1	52.8	55.0	52.0	51.2	45.5	
100%	Lw(Dout)	67.7	57.8	57.0	53.0	49.0	48.0	43.3	35.1	
100%	Lw(Dout-1)	86.5	70.8	64.7	56.9	50.4	48.4	43.4	35.1	

\*Please refer to [Legend](#) on Page 31 for Sound Power classification.



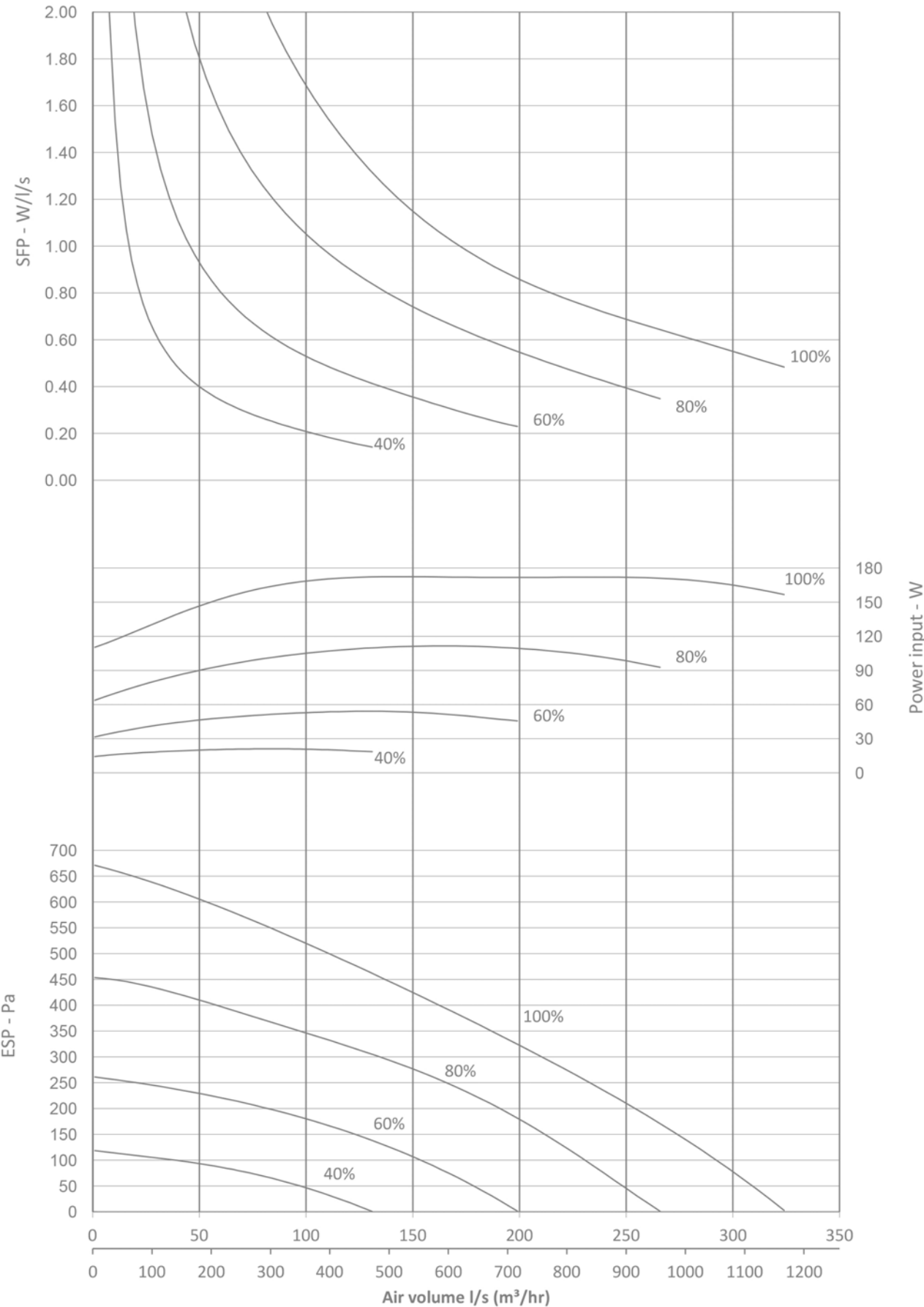


### Performance and Dimensions

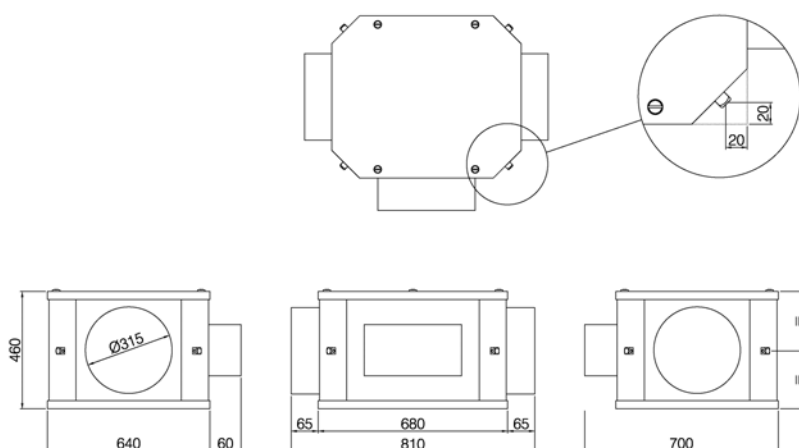


		Frequency (Hz)								LpA dB (3m)
Speed	Sound Power	63	125	250	500	1000	2000	4000	8000	
20%	Lw(Dcas)	35.8	38.1	29.5	27.3	25.9	16.3	11.8	15.3	9.7
20%	Lw(Din)	40.9	37.8	34.5	24.4	40.7	21.6	23.0	26.8	
20%	Lw(Din-1)	58.4	48.4	41.0	27.3	41.4	21.9	23.0	26.8	
20%	Lw(Dout)	37.9	36.1	32.0	27.2	33.1	21.4	21.7	22.5	
20%	Lw(Dout-1)	54.8	46.8	38.7	30.1	33.7	21.7	21.8	22.5	
40%	Lw(Dcas)	44.8	46.7	38.0	35.6	29.1	28.1	21.9	13.8	17.0
40%	Lw(Din)	48.0	53.9	51.3	40.1	45.2	51.5	48.1	31.4	
40%	Lw(Din-1)	64.7	64.5	57.7	42.8	46.1	51.7	48.2	31.4	
40%	Lw(Dout)	48.8	53.3	48.7	42.9	39.8	42.7	39.5	23.2	
40%	Lw(Dout-1)	65.1	63.6	55.2	45.8	40.7	42.9	39.6	23.3	
60%	Lw(Dcas)	49.7	52.4	48.0	45.0	37.9	34.4	28.4	15.9	25.0
60%	Lw(Din)	53.7	62.1	61.8	50.5	54.8	52.3	57.5	45.4	
60%	Lw(Din-1)	70.5	72.7	68.4	53.3	55.7	52.6	57.5	45.4	
60%	Lw(Dout)	56.1	60.7	59.3	53.0	49.4	48.8	46.3	32.6	
60%	Lw(Dout-1)	72.6	71.2	65.9	55.9	50.4	49.1	46.4	32.6	
80%	Lw(Dcas)	55.6	57.0	55.5	51.9	44.8	41.5	32.2	29.1	32.2
80%	Lw(Din)	59.2	65.3	67.9	57.2	61.6	59.4	59.8	61.8	
80%	Lw(Din-1)	76.0	75.6	74.0	60.0	62.6	59.7	59.8	61.8	
80%	Lw(Dout)	63.7	64.1	64.6	59.5	56.4	55.9	51.5	45.3	
80%	Lw(Dout-1)	80.4	74.4	70.9	62.4	57.3	56.2	51.6	45.3	
100%	Lw(Dcas)	64.4	61.0	61.6	57.2	49.4	45.7	37.1	31.0	37.7
100%	Lw(Din)	63.3	66.7	69.9	62.2	66.1	63.9	63.6	65.9	
100%	Lw(Din-1)	80.4	77.0	75.9	64.8	67.0	64.1	63.7	65.9	
100%	Lw(Dout)	69.8	66.1	67.5	64.0	60.9	60.2	56.4	49.4	
100%	Lw(Dout-1)	86.7	76.6	73.6	66.9	61.8	60.5	56.5	49.4	

\*Please refer to [Legend](#) on Page 31 for Sound Power classification.

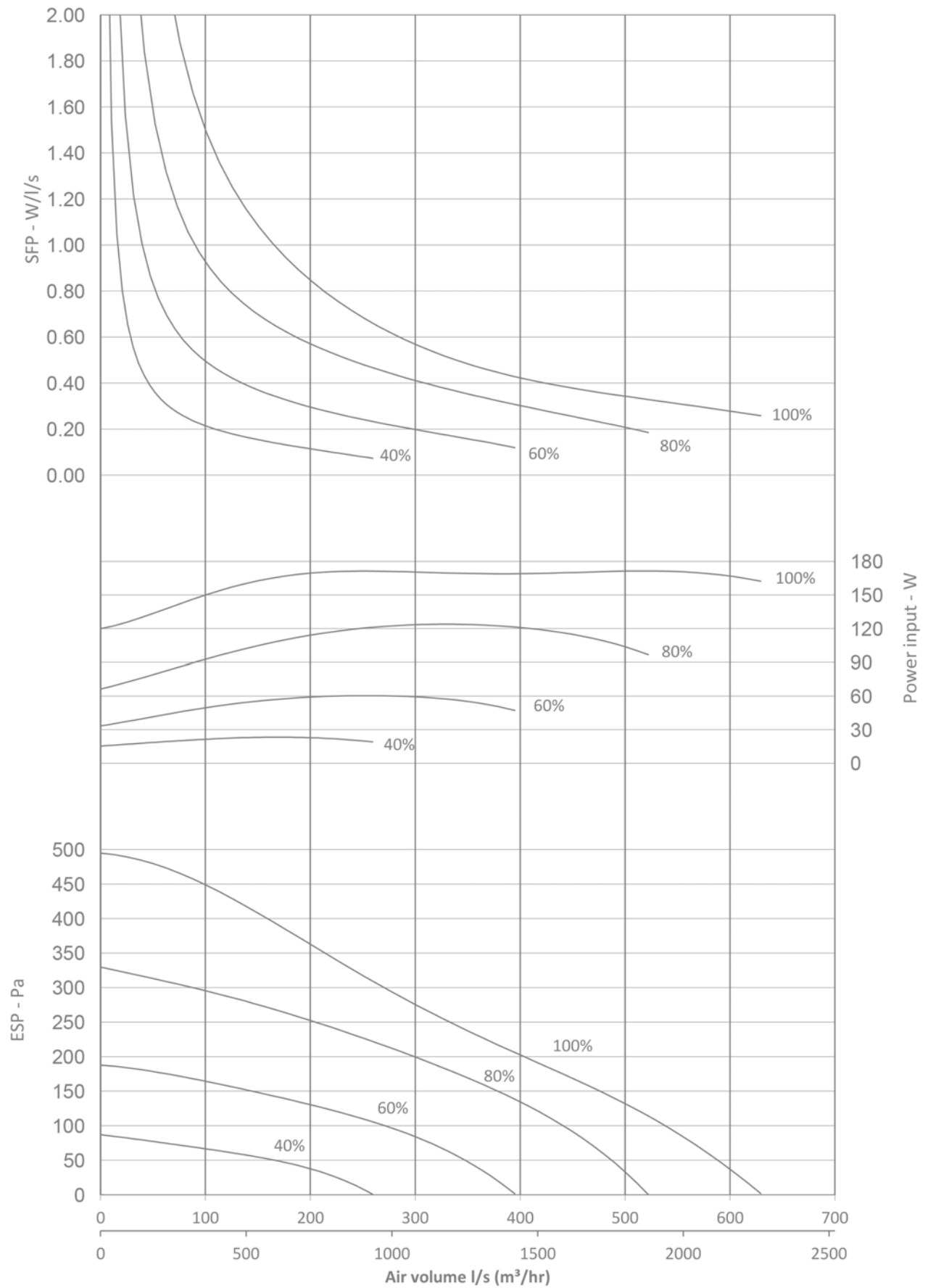


## Performance and Dimensions



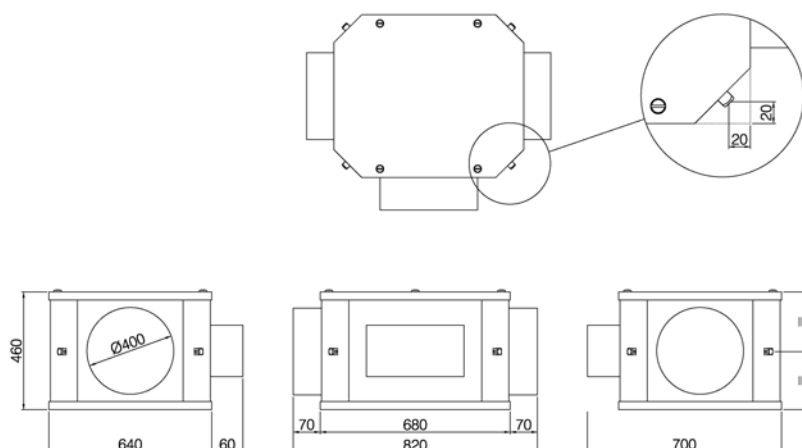
		Frequency (Hz)								LpA dB (3m)
Speed	Sound Power	63	125	250	500	1000	2000	4000	8000	
20%	Lw(Dcas)	41.4	39.1	36.3	27.6	21.3	16.5	10.0	15.0	10.4
20%	Lw(Din)	41.5	36.4	33.5	31.5	26.3	23.6	22.8	26.7	
20%	Lw(Din-1)	57.0	45.9	38.9	33.3	27.0	23.8	22.8	26.7	
20%	Lw(Dout)	37.8	31.9	25.5	24.2	23.4	20.3	22.1	22.9	
20%	Lw(Dout-1)	52.9	41.6	30.6	26.0	24.1	20.5	22.2	22.9	
40%	Lw(Dcas)	48.1	40.0	36.6	32.3	26.6	19.2	10.3	17.1	13.2
40%	Lw(Din)	49.8	49.4	38.4	38.8	38.0	37.4	30.8	27.1	
40%	Lw(Din-1)	62.9	59.1	43.7	40.4	38.6	37.6	30.9	27.1	
40%	Lw(Dout)	52.6	47.1	39.2	36.9	37.3	32.0	25.7	23.0	
40%	Lw(Dout-1)	65.2	57.0	43.9	38.7	37.9	32.1	25.8	23.0	
60%	Lw(Dcas)	51.2	48.9	45.0	38.0	34.1	28.0	18.8	18.3	20.4
60%	Lw(Din)	49.3	61.6	47.1	47.9	46.5	47.1	43.3	32.6	
60%	Lw(Din-1)	63.4	70.8	52.3	49.4	47.1	47.3	43.3	32.6	
60%	Lw(Dout)	53.2	57.2	49.5	46.1	47.3	42.7	35.5	25.4	
60%	Lw(Dout-1)	67.3	66.5	54.4	47.9	47.9	42.9	35.5	25.4	
80%	Lw(Dcas)	56.1	50.9	51.1	44.8	40.2	33.3	25.3	20.5	26.4
80%	Lw(Din)	53.2	66.2	55.2	54.3	52.4	52.6	50.9	45.3	
80%	Lw(Din-1)	67.6	73.9	60.5	55.8	53.0	52.8	51.0	45.3	
80%	Lw(Dout)	59.4	61.5	57.0	52.9	53.8	49.5	43.5	35.4	
80%	Lw(Dout-1)	74.2	69.9	61.7	54.8	54.3	49.7	43.6	35.4	
100%	Lw(Dcas)	59.1	51.9	56.6	47.7	45.2	36.5	29.0	24.7	30.2
100%	Lw(Din)	55.8	63.7	60.9	57.6	55.8	55.3	54.5	50.3	
100%	Lw(Din-1)	70.3	72.1	66.5	59.1	56.4	55.5	54.6	50.4	
100%	Lw(Dout)	63.4	61.8	62.5	57.1	57.4	53.0	47.6	40.1	
100%	Lw(Dout-1)	78.3	70.5	67.8	59.0	57.9	53.2	47.6	40.1	

\*Please refer to [Legend](#) on Page 31 for Sound Power classification.



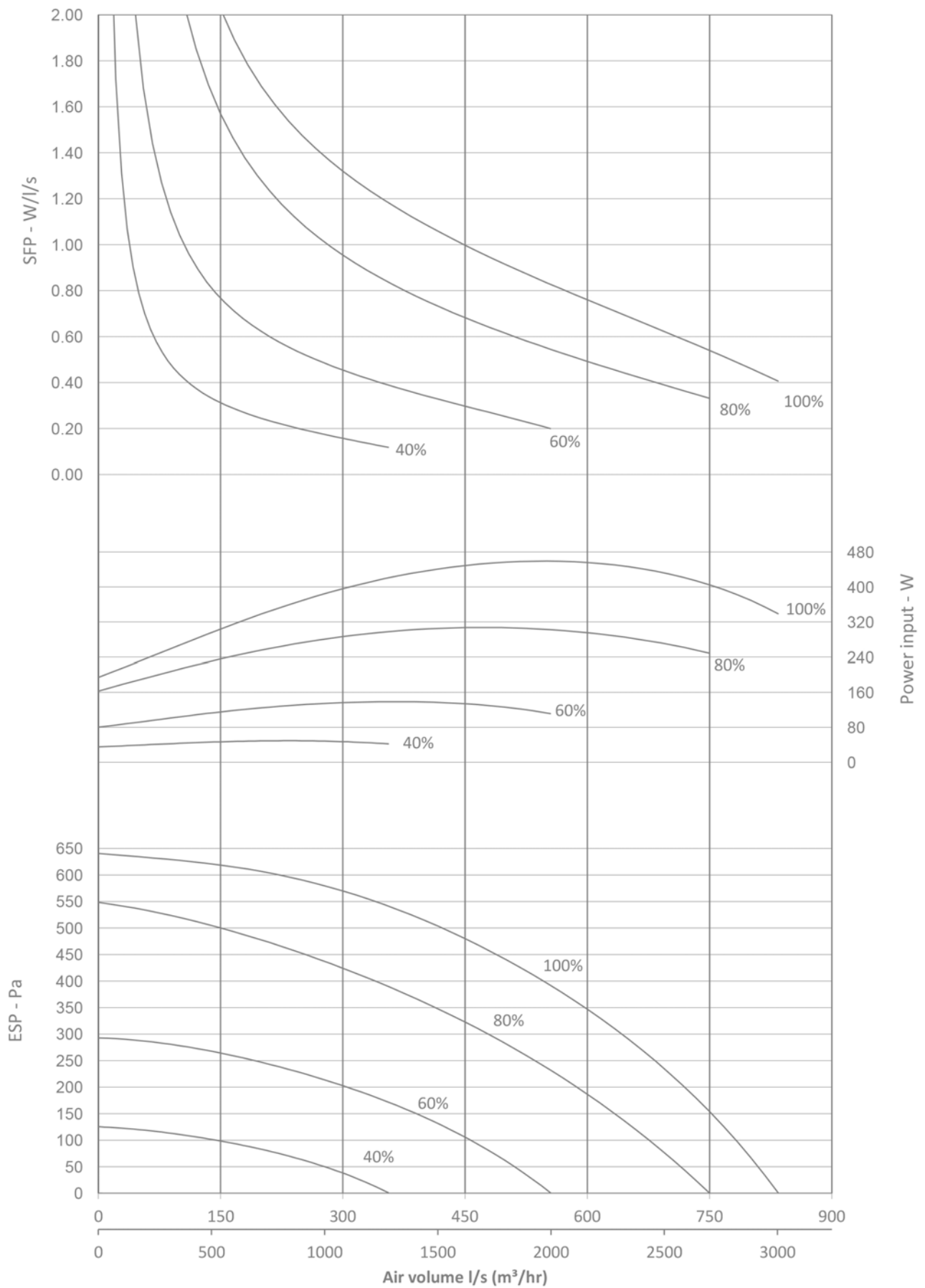


## Performance and Dimensions

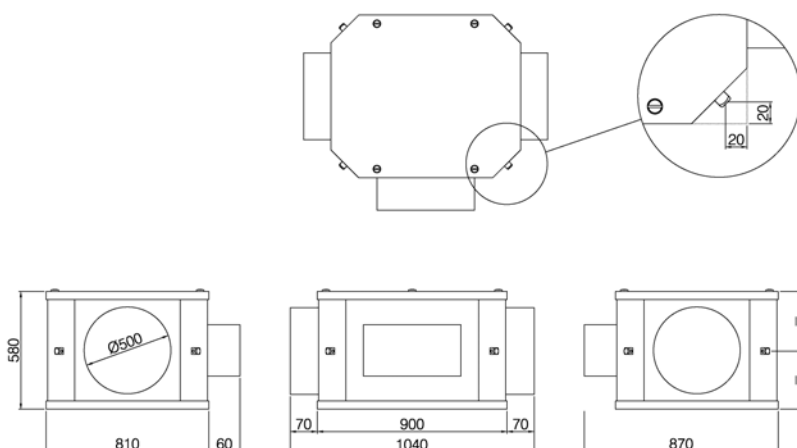


		Frequency (Hz)								LpA dB (3m)
Speed	Sound Power	63	125	250	500	1000	2000	4000	8000	
20%	Lw(Dcas)	44.0	34.3	27.9	24.8	20.2	14.5	10.0	16.5	6.4
20%	Lw(Din)	45.3	38.8	33.1	33.5	22.4	19.1	23.9	26.8	
20%	Lw(Din-1)	59.1	46.6	36.8	34.6	22.8	19.2	23.9	26.8	
20%	Lw(Dout)	43.3	38.8	32.0	32.5	27.6	20.7	22.2	23.0	
20%	Lw(Dout-1)	56.9	46.6	35.5	34.0	28.1	20.8	22.2	23.0	
40%	Lw(Dcas)	48.6	54.6	39.9	37.7	29.5	20.0	13.1	16.5	19.1
40%	Lw(Din)	52.0	60.4	47.6	47.7	43.4	40.4	37.5	27.9	
40%	Lw(Din-1)	63.4	69.0	51.6	48.7	43.8	40.5	37.5	28.0	
40%	Lw(Dout)	55.3	62.3	48.9	46.1	46.0	35.0	29.6	23.7	
40%	Lw(Dout-1)	66.5	71.0	52.8	47.2	46.3	35.2	29.7	23.7	
60%	Lw(Dcas)	54.0	55.5	49.9	44.1	38.9	29.8	18.9	17.2	26.1
60%	Lw(Din)	55.0	67.4	57.3	57.4	53.0	51.9	45.4	42.3	
60%	Lw(Din-1)	67.7	74.1	61.1	58.4	53.4	52.0	45.4	42.3	
60%	Lw(Dout)	59.5	67.1	58.5	55.3	55.9	47.6	40.6	34.2	
60%	Lw(Dout-1)	72.2	73.8	62.1	56.5	56.3	47.7	40.7	34.2	
80%	Lw(Dcas)	59.3	55.5	63.3	51.8	45.9	37.9	27.5	20.0	34.6
80%	Lw(Din)	60.2	67.4	70.3	64.5	60.1	59.9	53.5	49.6	
80%	Lw(Din-1)	73.1	74.2	74.7	65.4	60.5	60.0	53.6	49.6	
80%	Lw(Dout)	66.4	67.3	69.5	63.0	63.1	56.5	49.5	41.0	
80%	Lw(Dout-1)	79.3	74.4	73.6	64.2	63.5	56.6	49.6	41.0	
100%	Lw(Dcas)	61.9	56.6	63.7	54.2	49.1	41.3	32.6	23.0	36.4
100%	Lw(Din)	62.7	67.7	74.5	67.3	63.2	62.8	57.6	52.0	
100%	Lw(Din-1)	75.7	74.6	78.7	68.3	63.6	62.9	57.7	52.0	
100%	Lw(Dout)	69.7	68.9	72.0	66.4	66.3	59.8	53.9	44.4	
100%	Lw(Dout-1)	82.7	76.2	75.9	67.6	66.7	60.0	53.9	44.4	

\*Please refer to [Legend](#) on Page 31 for Sound Power classification.

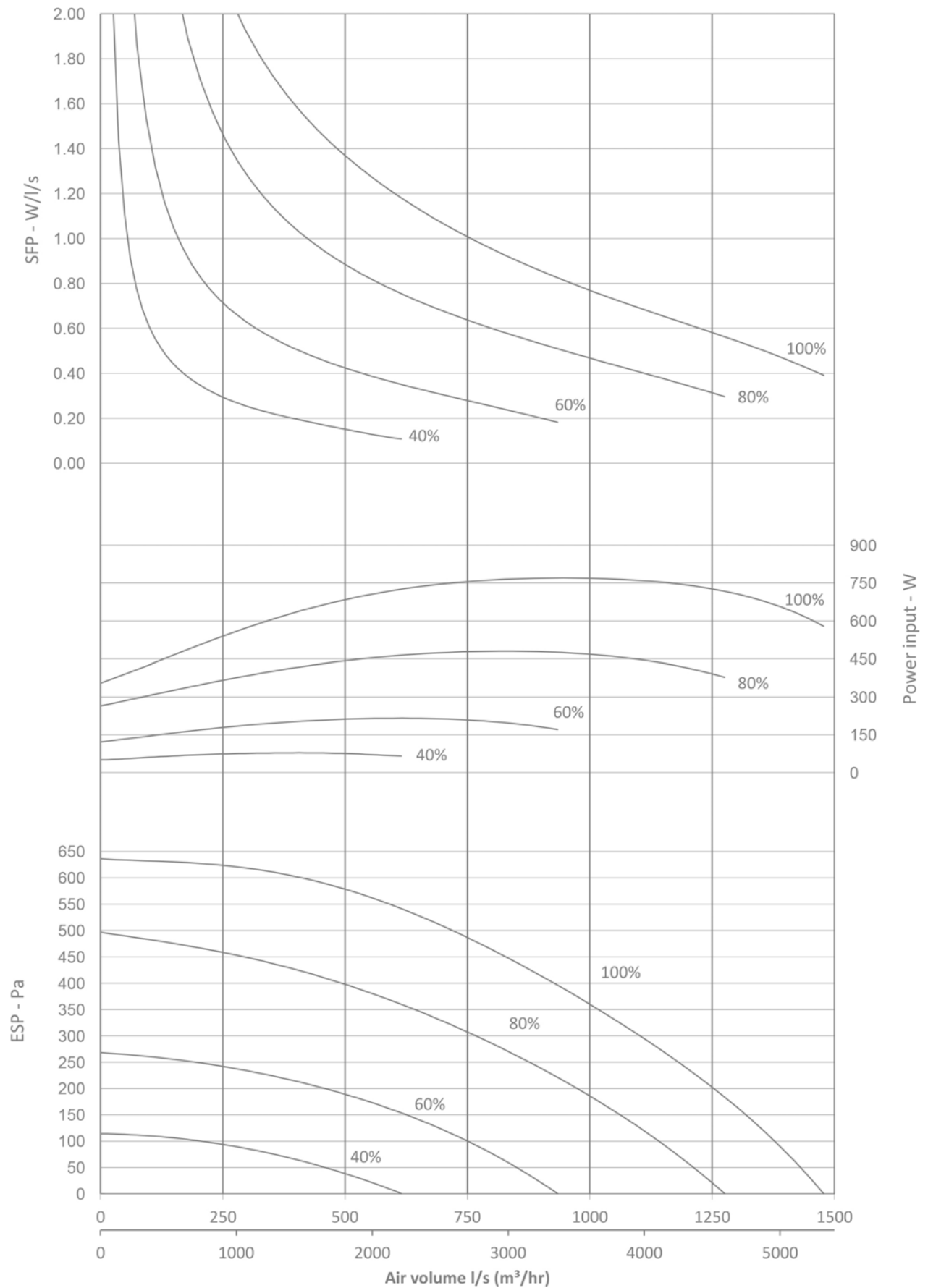


## Performance and Dimensions



		Frequency (Hz)								LpA dB (3m)
Speed	Sound Power	63	125	250	500	1000	2000	4000	8000	
20%	Lw(Dcas)	40.3	52.6	32.4	35.6	22.2	15.2	10.8	15.0	18.5
20%	Lw(Din)	42.3	41.6	29.4	34.2	34.5	20.6	23.2	26.8	
20%	Lw(Din-1)	54.0	47.4	32.0	35.1	34.8	20.7	23.2	26.8	
20%	Lw(Dout)	41.8	38.9	33.7	30.2	31.6	21.1	22.6	23.0	
20%	Lw(Dout-1)	53.2	44.8	36.0	31.0	31.8	21.2	22.6	23.0	
40%	Lw(Dcas)	54.0	52.7	45.3	34.7	29.5	21.6	18.4	14.9	20.6
40%	Lw(Din)	58.8	53.7	44.8	47.7	40.7	45.6	42.5	28.0	
40%	Lw(Din-1)	68.7	59.9	47.8	48.7	40.9	45.6	42.5	28.0	
40%	Lw(Dout)	58.3	53.5	47.7	44.9	43.4	37.5	31.9	24.1	
40%	Lw(Dout-1)	68.3	59.6	50.5	45.7	43.7	37.6	31.9	24.1	
60%	Lw(Dcas)	58.9	57.9	54.0	44.6	41.0	29.4	23.0	17.6	27.7
60%	Lw(Din)	59.9	68.7	56.8	58.6	52.2	49.6	55.0	43.2	
60%	Lw(Din-1)	69.9	75.3	60.0	59.5	52.5	49.6	55.0	43.2	
60%	Lw(Dout)	62.8	67.3	58.5	55.6	55.5	46.7	46.6	33.2	
60%	Lw(Dout-1)	72.6	74.0	61.4	56.4	55.8	46.8	46.6	33.2	
80%	Lw(Dcas)	62.1	63.5	59.6	50.8	47.1	38.7	29.4	26.1	34.3
80%	Lw(Din)	63.5	72.5	61.9	65.9	60.3	59.1	53.0	63.3	
80%	Lw(Din-1)	74.5	78.0	65.0	66.8	60.6	59.2	53.0	63.3	
80%	Lw(Dout)	66.8	72.7	65.7	63.0	63.3	56.7	47.2	49.7	
80%	Lw(Dout-1)	77.5	78.3	68.5	63.8	63.6	56.7	47.2	49.7	
100%	Lw(Dcas)	64.8	64.7	65.5	54.6	50.5	43.7	34.8	28.7	38.2
100%	Lw(Din)	66.0	80.0	70.8	69.6	64.7	64.2	56.7	65.8	
100%	Lw(Din-1)	77.1	84.6	74.1	70.6	64.9	64.2	56.7	65.8	
100%	Lw(Dout)	70.7	73.9	71.1	67.3	67.5	61.9	52.1	51.6	
100%	Lw(Dout-1)	81.7	79.3	74.1	68.1	67.8	61.9	52.2	51.6	

\*Please refer to [Legend](#) on Page 31 for Sound Power classification.





## Specification

### Chassis

The XSD range of EC single, inline, duct mounted units are manufactured from minimum 1.2mm galvanised sheet steel, and incorporate intake/discharge plenums fitted with quick connect circular spigots. All edges are deburred, and formed inwards, to produce an external finish with no sharp edges. All XSD units are suitable for top or bottom access and are designed with integral mounting points, which allow simple and quick installation via the included Gripple suspension system.

### Insulation

Units are insulated throughout with 90kg/m<sup>3</sup>, CFC & HFC free, Class 'O', open cell post treated expanded foam. Insulation adhesive is light and ageing resistant modified acrylic resin with high temperature stability.

### Fans

Single inlet, direct drive, backward curved impellers, matched with electronically commutated (EC) external rotor motors. The integral electronics include soft start and current limitation. The EC motors are housed within (minimum) IP44 enclosures, complete with permanently lubricated, maintenance free ball bearings [rated for a minimum of 40,000 hours continuous operation (up to 40°C ambient)] with complete assemblies statically, and dynamically, balanced in two planes to DIN/ISO 1940, to balancing quality G 6.3.

All models are ErP 2015 compliant, and meet all of the requirements for CE and EMC certification.

### Onboard Control

The unit features an onboard demand based controller to ensure the unit operates efficiently and effectively. The controller can interact with numerous inputs to activate/deactivate the unit, switch between min / max duty points, and / or proportionally control the air volume flow rate to suit the current requirements. Contained within an IPX4 enclosure, the onboard controller has a 24Vdc power output, suitable for the matched sensors. All units are suitable for single phase operation. Supply voltage range is 200-240Vac-1ph-50/60Hz.

Xpelair has a policy of continuous product development and we therefore reserve the right to change specification without prior notice.

## Performance

All units have been independently tested for both airflow and acoustic performance.

Airflow performance testing conducted by (BRE) Building Research Establishment (testing in accordance with BS EN ISO 5801:2008).

Acoustic performance testing conducted by (ISVR) Institute of Sound and Vibration Research at Southampton University (testing to BS EN ISO 3741:2010 & BS EN ISO 3744:2010).

Overall sound pressure levels are expressed in free field dB(A), with spherical propagation to 3m, and a reference level of  $2 \times 10^{-5}$  Pa [add 3dB(A) for hemi-spherical propagation].

Casing (breakout) and duct radiated sound power levels are as tested, converted from third to first octave for convenience. Spectra have a reference level of  $10^{-12}$  W (1pW).

The, as measured, duct radiated sound power levels have been corrected for end reflection, in accordance with BS EN 13053:2006, to provide in-duct sound power spectra.

$$ERL = \Delta L_R = 10 \log \left[ 1 + \left( \frac{c}{\pi f d} \right)^{1.88} \right]$$

Where:

- c is the speed of sound in air ( $\text{m} \cdot \text{s}^{-1}$ )
- f is the frequency (Hz)
- d is the effective duct diameter (m)

The calculations have been applied indiscriminately to the third octave sound power levels, with no higher or lower limits observed.

(All published data is 230Vac-1ph-50Hz.)

## Legend

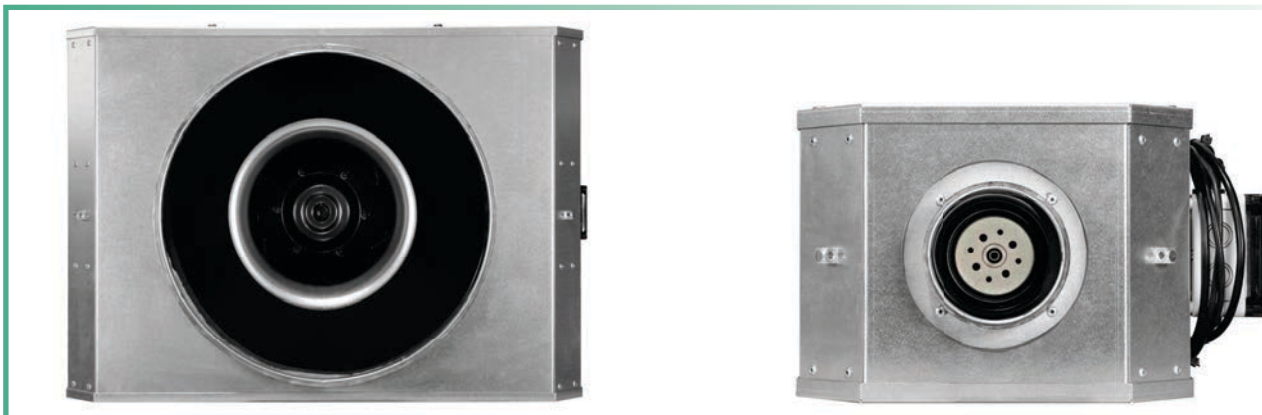
**Lw (Dcas)** - casing radiated sound power spectra with a reference level of  $10^{-12}$  W (1pW)

**Lw (Din)** - inlet duct radiated sound power spectra with a reference level of  $10^{-12}$  W (1pW)

**Lw (Dout)** - outlet duct radiated sound power spectra with a reference level of  $10^{-12}$  W (1pW)

**Lw (Din-1)** - inlet in-duct sound power spectra with a reference level of  $10^{-12}$  W (1pW)

**Lw (Dout-1)** - outlet in-duct sound power spectra with a reference level of  $10^{-12}$  W (1pW)





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