

Fan housing with guard grille

ebm-papst Mulfingen GmbH & Co. KG

Bachmühle 2 · D-74673 Mulfingen

Phone +49 7938 81-0

Fax +49 7938 81-110

info1@de.fansco.com

www.fansco.com

Limited partnership · Headquarters Mulfingen

Amtsgericht (court of registration) Stuttgart · HRA 590344

General partner Elektrobau Mulfingen GmbH · Headquarters Mulfingen

Amtsgericht (court of registration) Stuttgart · HRB 590142

Nominal data

Type	W4D450-ZU22-01							
Motor	M4D094-HA							
Phase		3~	3~	3~	3~	3~	3~	3~
Nominal voltage	VAC	400	400	400	400	460	480	480
Wiring		Δ	Y	Δ	Y	Δ	Δ	Y
Frequency	Hz	50	50	60	60	60	60	60
Method of obtaining data		ml	ml	ml	ml	ml	ml	ml
Valid for approval/standard		CE	CE	CE	CE	CE	CE	CE
Speed (rpm)	min ⁻¹	1400	1200	1580	1170	1640	1650	1340
Power consumption	W	495	365	725	470	775	790	575
Current draw	A	1.25	0.65	1.35	0.85	1.4	1.4	0.85
Max. back pressure	Pa	200	145	255	140	275	280	185
Max. back pressure	in. wg	0.8	0.58	1.02	0.56	1.1	1.12	0.74
Min. ambient temperature	°C	-40	-40	-40	-40	-40	-40	-40
Max. ambient temperature	°C	65	65	65	55	65	60	55
Starting current	A	4.7	1.6	4.3	1.45	5.0	5.2	1.8

ml = Max. load · me = Max. efficiency · fa = Free air · cs = Customer specification · ce = Customer equipment
Subject to change

Data according to Commission Regulation (EU) 327/2011 (prEN 17166)

		Actual	Req. 2015			
01 Overall efficiency η_{es}	%	42	31.7	09 Power consumption P_e	kW	0.48
02 Measurement category		A		09 Air flow q_v	m³/h	4125
03 Efficiency category		Static		09 Pressure increase p_{fs}	Pa	178
04 Efficiency grade N		50.3	40	10 Speed (rpm) n	min ⁻¹	1405
05 Variable speed drive		No		11 Specific ratio*		1.00

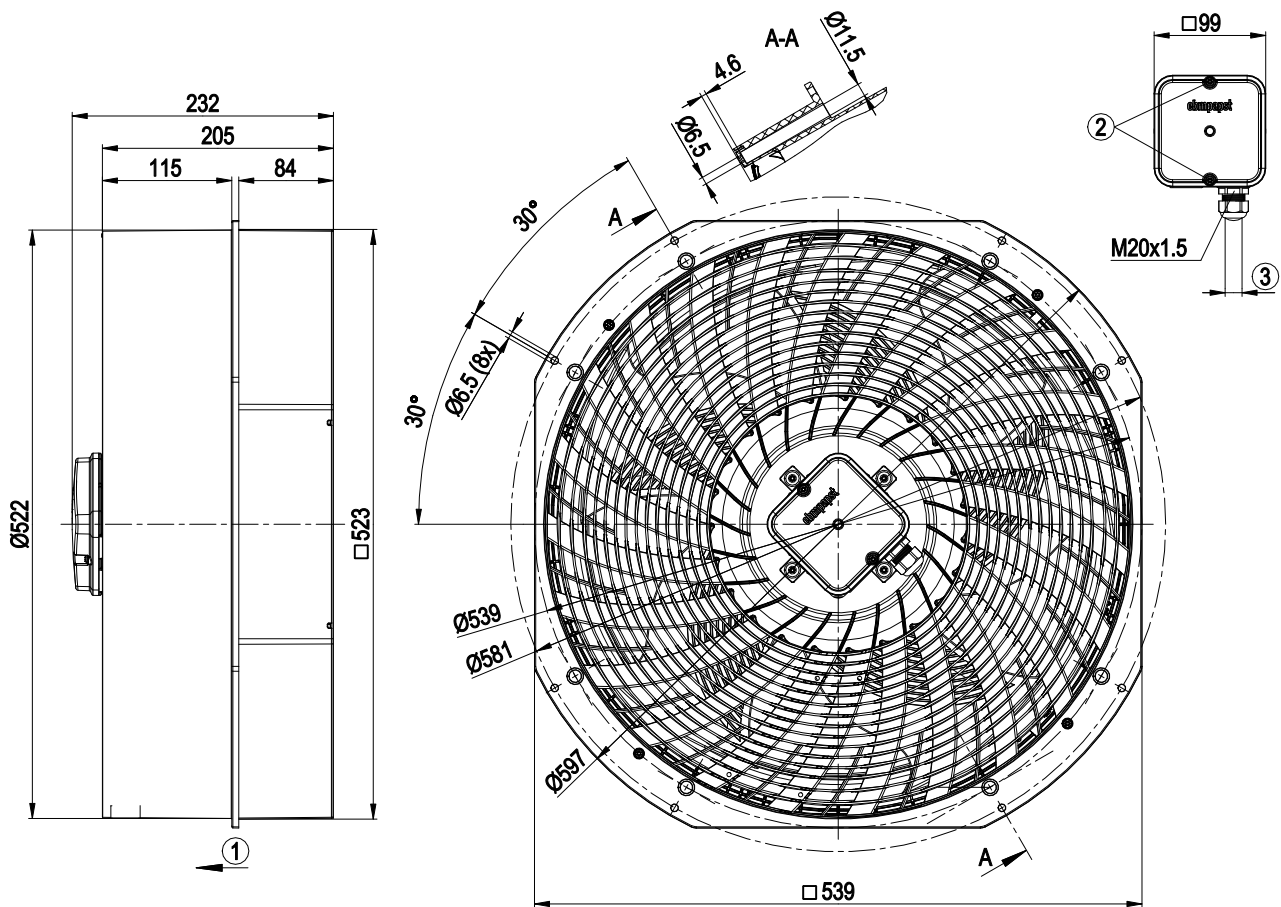
Data obtained at optimum efficiency level.
The efficiency values displayed for achieving conformity with the Ecodesign Regulation EU 327/2011 has been reached with defined air duct components (e.g. inlet rings).
The dimensions must be requested from ebm-papst. If other air conduction geometries are used on the installation side, the ebm-papst evaluation loses its validity/the conformity must be confirmed again.
The product does not fall within the scope of Regulation (EU) 2019/1781 due to the exception specified in Article 2 (2a) (motors completely integrated into a product).

* Specific ratio = $1 + p_{fs} / 100\,000\text{ Pa}$ LU-209653

Technical description

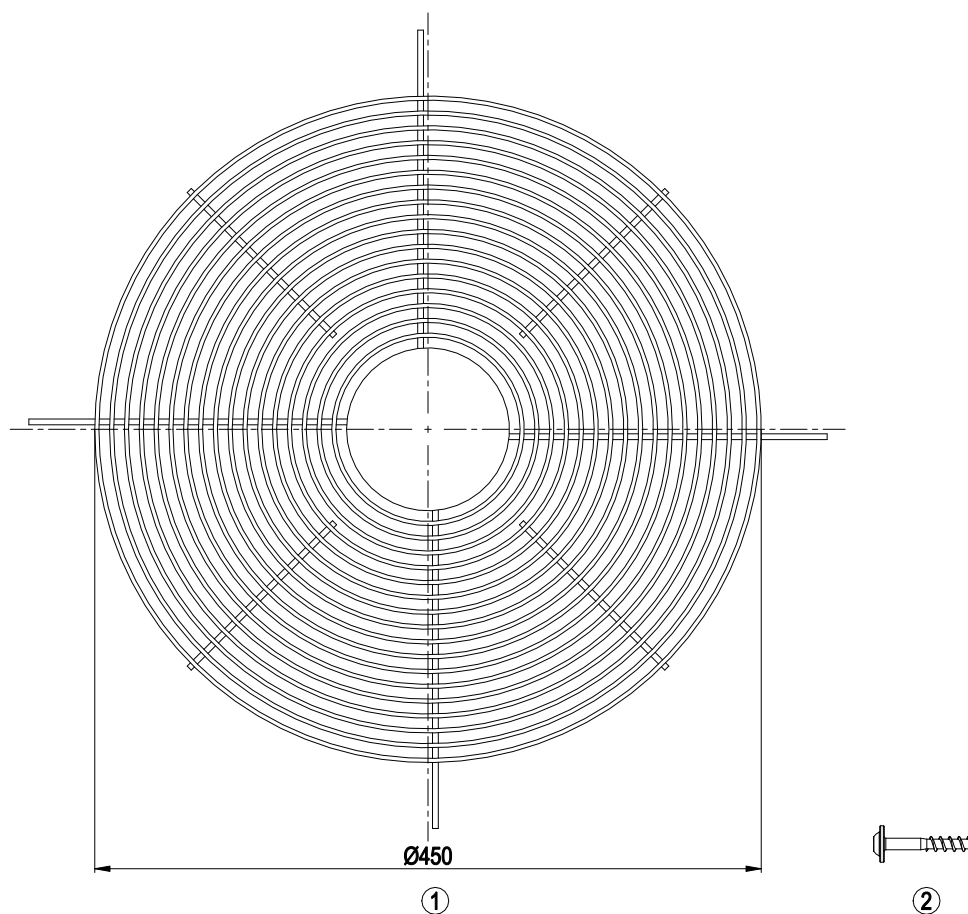
Weight	10.88 kg
Size	450 mm
Motor size	94
Rotor surface	Painted black
Terminal box material	PP plastic
Impeller material	PP plastic, galvanized sheet-metal plate
Fan housing material	PP plastic
Number of blades	5
Airflow direction	V
Direction of rotation	Clockwise, viewed toward rotor
Degree of protection	IP54
Insulation class	"F"
Moisture (F) / Environmental (H) protection class	H2
Ambient temperature note	Occasional start-up at temperatures between -40°C and -25°C is permitted. For continuous operation at ambient temperatures below -25°C (such as refrigeration applications), use must be made of a fan design with special low-temperature bearings.
Max. permitted ambient temp. for motor (transport/storage)	+80 °C
Min. permitted ambient temp. for motor (transport/storage)	-40 °C
Installation position	Shaft horizontal or rotor on bottom; rotor on top on request
Condensation drainage holes	On rotor side
Mode	S1
Motor bearing	Ball bearing
Touch current according to IEC 60990 (measuring circuit Fig. 4, TN system)	<= 3.5 mA
Electrical hookup	Terminal box
Motor protection	Thermal switch auto reset, lead out, with basic insulation
Protection class assignment	I; If a protective earth is connected. The built-in component has several local protection class assignments. The final protection class is determined by the intended installation.
Conformity with standards	EN 60034-1; CE
Approval	CSA C22.2 No. 100; EAC; UL 1004-1; CCC

Product drawing



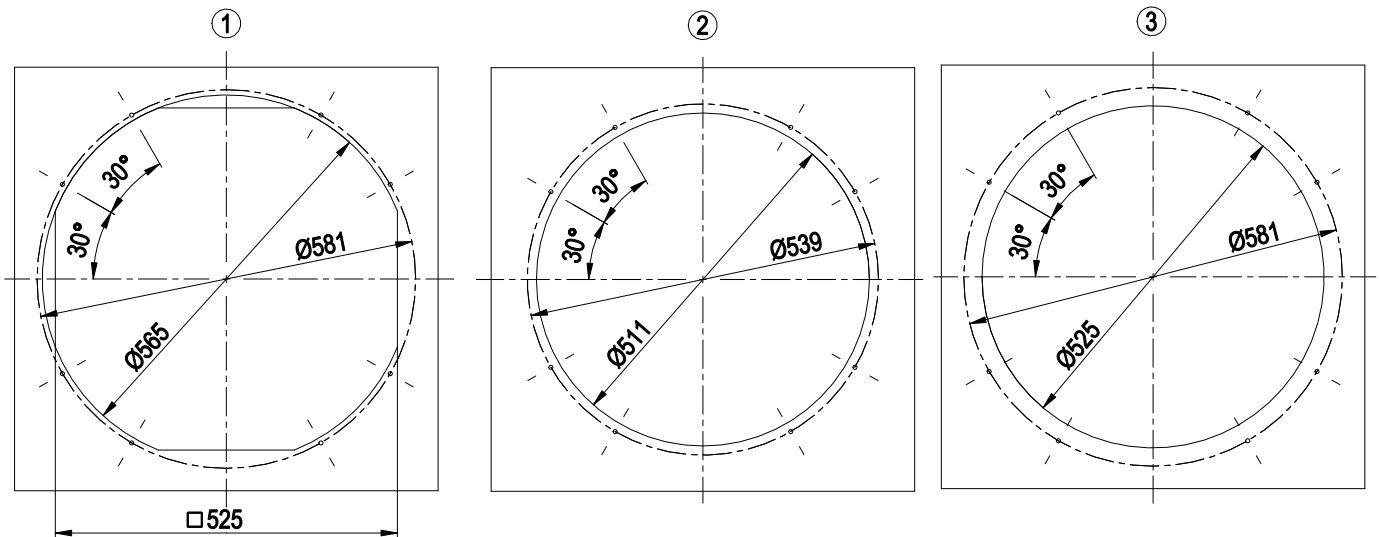
1	Airflow direction "V"
2	Tightening torque 1.5 ± 0.2 Nm
3	Cable diameter min. 6 mm, max. 12 mm, tightening torque 2 ± 0.3 Nm
	Accessory part: Guard grill 45050-2-4039 with oval head screw 60080-7-6201 (4x), can be fitted on the intake side. Not included in scope of delivery.
	The installation of accessories may change the air performance and noise values.

Accessory part



1	Guard grill 45050-2-4039
2	Oval head screw 60080-7-6201 (4x)

Mounting dimensions



All 8 holes on the relevant pitch circle must always be used for all types of fastening.

1 intake-side mounting on flange

2 intake-side mounting on suction nozzle

The Ø6.5 mm holes must be pierced from the underside with a mandrel or similar tool.

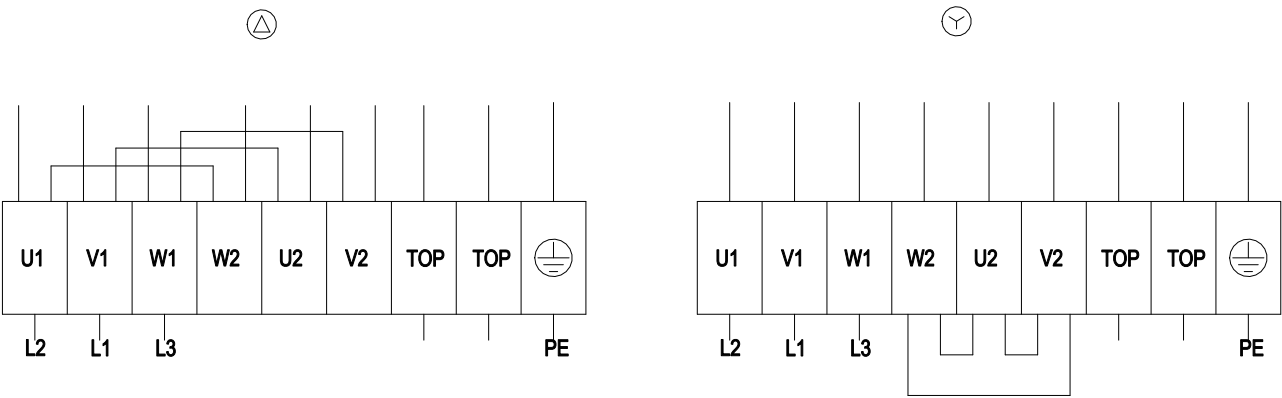
We recommend using M6 cheese-head screws with hexagon socket (DIN 912/DIN EN ISO 4762) for fastening.

3 outlet-side mounting on flange

AC axial panel fan - AxiEco

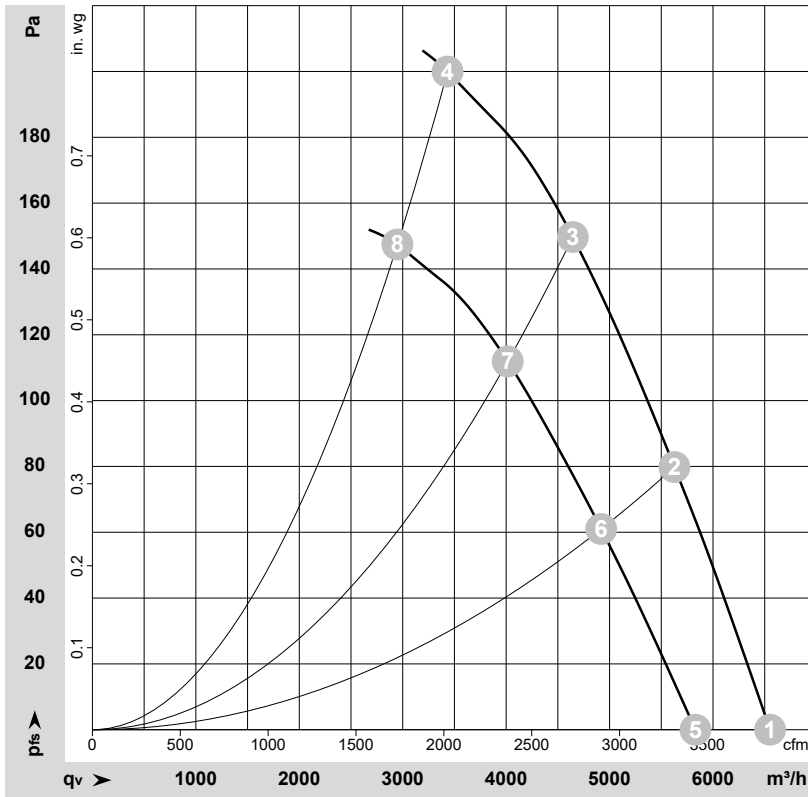
Fan housing with guard grille

Connection diagram



Δ	Delta connection	Y	Star connection	L1	= V1 = blue
L2	= U1 = black	L3	= W1 = brown	W2	yellow
U2	green	V2	white	TOP	2x gray
PE	green/yellow				

Curves: Air performance 50 Hz



$$\rho = 1.15 \text{ kg/m}^3 \pm 2 \%$$

Measurement: LU-209653-1
Date: 2020-11-09
Nozzle: 45000-2-2943

Measurement: LU-209735-1
Date: 2020-11-09
Nozzle: 45000-2-2943

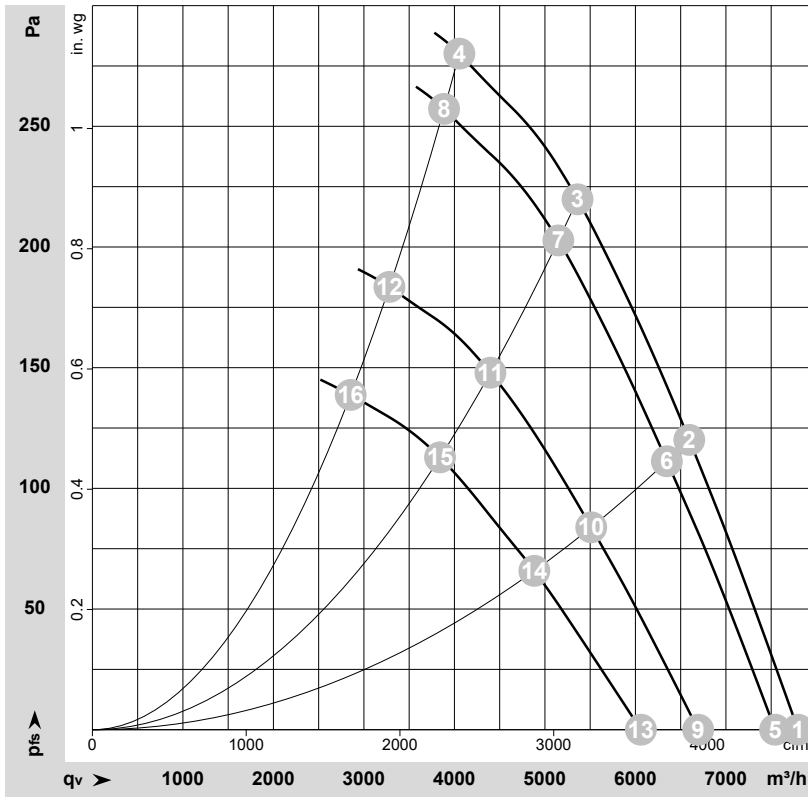
Air performance measured according to ISO 5801 installation category A. For detailed information on the measurement setup, contact ebm-papst. Intake sound level: Sound power level according to ISO 13347 / sound pressure level measured at 1 m distance from fan axis. The values given are valid under the specified measuring conditions and may vary due to conditions of installation. For deviations from the standard configuration, the parameters have to be checked on the installed unit.

Measured values

	Wired	U	f	n	P _e	I	LpA _{in}	LwA _{in}	LwA _{out}	q _V	p _{fs}	q _V	p _{fs}
		V	Hz	min ⁻¹	W	A	dB(A)	dB(A)	dB(A)	m ³ /h	Pa	cfm	in. wg
1	Δ	400	50	1425	407	1.17	69	75	76	6550	0	3855	0.00
2	Δ	400	50	1415	451	1.19	67	73	74	5625	80	3310	0.32
3	Δ	400	50	1410	474	1.20	66	72	74	4645	150	2735	0.60
4	Δ	400	50	1400	495	1.25	68	74	77	3435	200	2020	0.80
5	Y	400	50	1270	308	0.55	66	72	73	5830	0	3430	0.00
6	Y	400	50	1240	338	0.60	64	69	71	4920	61	2895	0.24
7	Y	400	50	1220	354	0.63	62	68	70	4015	112	2365	0.45
8	Y	400	50	1200	365	0.65	64	70	72	2950	145	1735	0.58

Wired = Wiring · U = Voltage · f = Frequency · n = Speed (rpm) · P_e = Power consumption · I = Current draw · LpA_{in} = Sound pressure level intake side · LwA_{in} = Sound power level intake side
LwA_{out} = Sound power level outlet side · q_V = Air flow · p_{fs} = Pressure increase

Curves: Air performance 60 Hz



$$\rho = 1.15 \text{ kg/m}^3 \pm 2 \%$$

Measurement: LU-209706-1
Date: 2020-11-09
Nozzle: 45000-2-2943

Measurement: LU-209719-1
Date: 2020-11-09
Nozzle: 45000-2-2943

Measurement: LU-209749-1
Date: 2020-11-09
Nozzle: 45000-2-2943

Measurement: LU-209750-1
Date: 2020-11-10
Nozzle: 45000-2-2943

Air performance measured according to ISO 5801 installation category A. For detailed information on the measurement setup, contact ebm-papst. Intake sound level: Sound power level according to ISO 13347 / sound pressure level measured at 1 m distance from fan axis. The values given are valid under the specified measuring conditions and may vary due to conditions of installation. For deviations from the standard configuration, the parameters have to be checked on the installed unit.

Measured values

	Wired	U	f	n	P _e	I	LpA _{in}	LwA _{in}	LwA _{out}	q _v	p _{fs}	q _v	p _{fs}
		V	Hz	min ⁻¹	W	A	dB(A)	dB(A)	dB(A)	m ³ /h	Pa	cfm	in. wg
1	Δ	480	60	1690	647	1.29	73	79	81	7800	0	4590	0.00
2	Δ	480	60	1675	724	1.34	71	77	79	6595	120	3880	0.48
3	Δ	480	60	1660	763	1.37	70	77	78	5360	220	3155	0.88
4	Δ	480	60	1650	790	1.40	72	79	82	4055	280	2385	1.12
5	Δ	400	60	1635	591	1.14	72	78	80	7545	0	4440	0.00
6	Δ	400	60	1610	663	1.23	70	76	78	6345	111	3735	0.45
7	Δ	400	60	1595	699	1.28	69	75	77	5150	204	3030	0.82
8	Δ	400	60	1580	725	1.35	71	78	80	3885	255	2285	1.02
9	Y	480	60	1455	498	0.73	70	75	77	6695	0	3940	0.00
10	Y	480	60	1400	543	0.80	66	72	74	5510	84	3245	0.34
11	Y	480	60	1365	561	0.82	65	71	73	4400	148	2590	0.59
12	Y	480	60	1340	575	0.85	67	73	75	3280	185	1930	0.74
13	Y	400	60	1320	438	0.78	67	73	74	6060	0	3565	0.00
14	Y	400	60	1245	460	0.83	64	70	71	4885	66	2875	0.26
15	Y	400	60	1195	465	0.83	62	68	70	3840	113	2260	0.45
16	Y	400	60	1170	470	0.85	63	70	71	2855	140	1680	0.56

Wired = Wiring · U = Voltage · f = Frequency · n = Speed (rpm) · P_e = Power consumption · I = Current draw · LpA_{in} = Sound pressure level intake side · LwA_{in} = Sound power level intake side
LwA_{out} = Sound power level outlet side · q_v = Air flow · p_{fs} = Pressure increase