

8300100890
VBS0500CSPLS

EC centrifugal fan - RadiPac

backward-curved, single-intake

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

Item	8300100890	
Motor	E09002-55	

Phase		1~
Nominal voltage	VAC	230
Nominal voltage range	VAC	200 .. 277
Frequency	Hz	50/60

Method of obtaining data		ml
Status		prelim.
Speed (rpm)	min ⁻¹	1190
Power consumption	W	500
Current draw	A	2.2
Min. ambient temperature	°C	-40
Max. ambient temperature	°C	55

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}	%	71.8	48.3
02 Measurement category		A	
03 Efficiency category		Static	
04 Efficiency grade N		85.5	62
05 Variable speed drive		Yes	

09 Power consumption P_{ed}	kW	0.49
09 Air flow q_v	m ³ /h	4600
09 Pressure increase p_{fs}	Pa	250
10 Speed (rpm) n	min ⁻¹	1190
11 Specific ratio*		1.00

Data obtained at optimum efficiency level.

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

LU-223320

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).

8300100890
VBS0500CSPLS

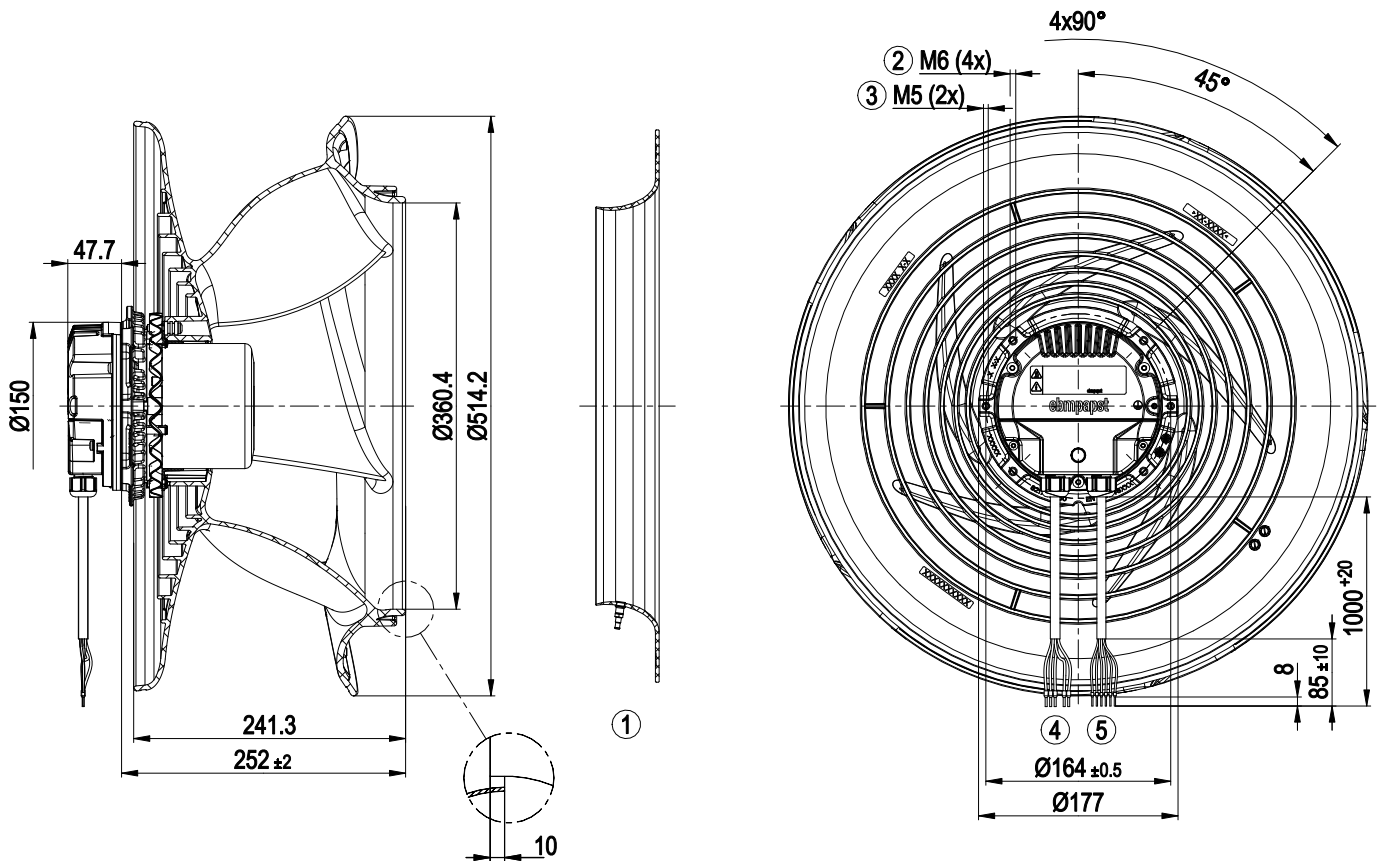
EC centrifugal fan - RadiPac

backward-curved, single-intake

Technical description

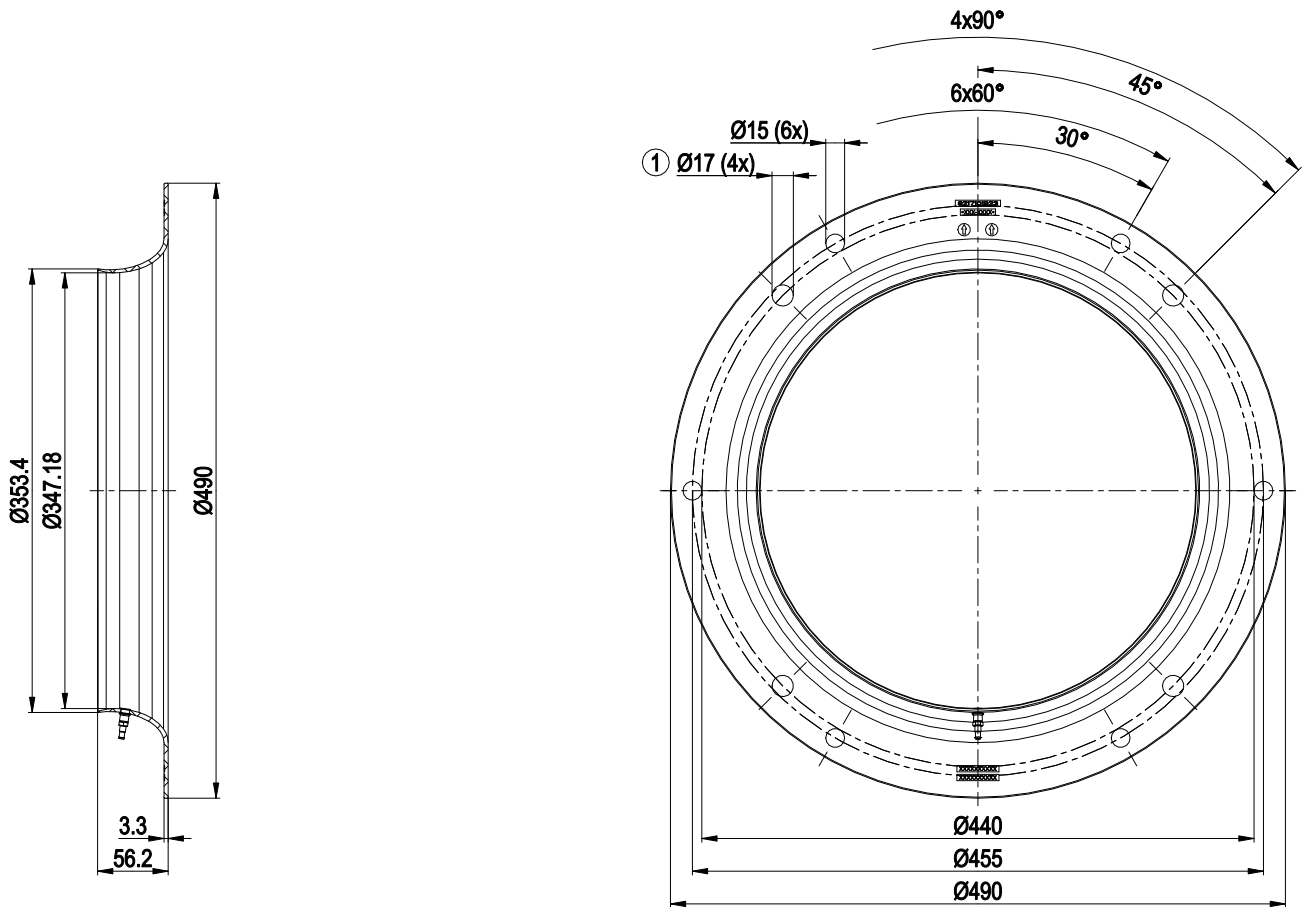
Size	500 mm
Motor size	90
Rotor surface	Painted black
Electronics housing material	Die-cast aluminum
Impeller material	PP plastic
Number of blades	5
Direction of rotation	Clockwise, viewed toward rotor
Degree of protection	IP55
Insulation class	"F"
Moisture (F) / Environmental (H) protection class	H1
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
Technical features	- Output 10 VDC, max. 10 mA - Operation and alarm display with LED - Locked-rotor detection - Speed control - External 15-30 VDC input (parameterization) - Alarm relay - Configurable inputs/outputs (I/O) - Power limiter - MODBUS - Motor current limitation - PFC, active - RS-485 MODBUS-RTU - Soft start - Control interface with SELV potential safely disconnected from the mains - Temperature derating - Thermal overload protection for electronics/motor - Line undervoltage / phase failure detection
Touch current according to IEC 60990 (measuring circuit Fig. 4, TN system)	<= 3.5 mA
Motor protection	Electronic motor protection
With cable	Lateral
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 60335-1; EN 61800-5-1; CE; UKCA
Approval	CSA C22.2 No. 77 + CAN/CSA-E60730-1; UL 1004-7 + 60730-1

Product drawing



1	Accessory part: Inlet ring 8217102238 with pressure tap (k-factor: 290) (not included in scope of delivery)
2	Max. clearance for screw 10 mm
3	Max. clearance for screw 10 mm The M5 tapped holes (2x) can be used to attach hoisting equipment.
4	Supply line (PWR) PVC AWG18 5x wire-end ferrule
5	Control wire (CTRL) PVC AWG22 6x wire-end ferrule

Accessory part

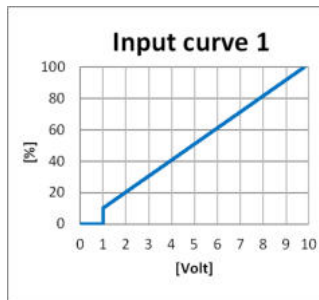


- | | |
|---|--|
| 1 | Fastening holes for FlowGrid 35505-2-2957 (not included in scope of delivery) are provided and must be subsequently opened as required |
| | Inlet ring 8217102238 with pressure tap (k-factor: 290) |

EC centrifugal fan - RadiPac

backward-curved, single-intake

Connection diagram

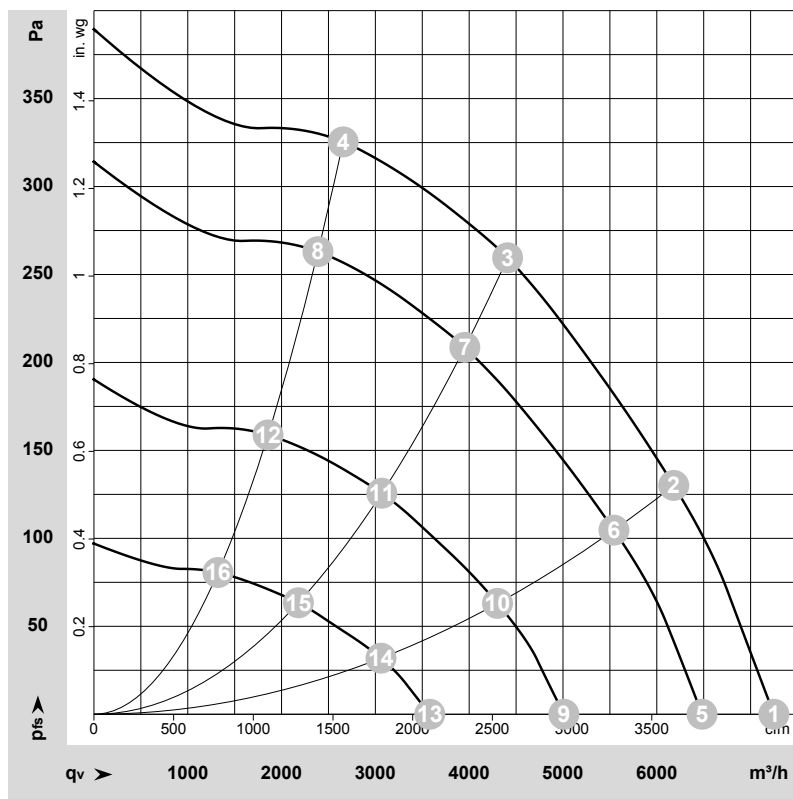


No.	Conn.	Designation	Color	Function/assignment
	PWR	PE	green/yellow	Protective earth
	PWR	L	black	Power supply, phase, see nameplate for voltage range
	PWR	N	blue	Power supply, neutral conductor, see nameplate for voltage range
	PWR	COM	orange	Status relay, floating status contact, common connection, contact rating 250 VAC / 2 A (AC1) / min. 10 mA, reinforced insulation on supply side and on control interface side
	PWR	NC	orange	Status relay, floating status contact, break for failure
	CTRL	GND	blue	Reference ground for control interface, SELV
	CTRL	Vout	red	Voltage output 10 VDC +/-3%, I _{max} =10 mA Short-circuit-proof, power supply for external devices, SELV alternative: 15-30 VDC input for parameterization via MODBUS without line voltage
	CTRL	IO1	yellow	Factory setting: Analog input 0-10 V / PWM, R _i =100 kΩ, function: set value Characteristic curve parameterizable (see input characteristic curve "Input curve 1"), SELV Function parameterizable (see table Optional interface functions)
	CTRL	IO2	white	Factory setting: Open collector output, U _{max} =50 VDC, I _{max} =20 mA, function:Tacho output 1 pulse/revolution, SELV Function parameterizable (see table Optional interface functions)
	CTRL	RSA	gray	RS-485 interface for MODBUS RSA, SELV dielectric strength to MODBUS RSB +/-14 V, dielectric strength to GND +/-7 V
	CTRL	RSB	brown	RS-485 interface for MODBUS RSB, SELV dielectric strength to MODBUS RSA +/-14 V, dielectric strength to GND +/-7 V
		LED		green: status = good, ready for operation orange: status = warning red: status = failure

Terminal/plug assignment

Medium (M2)		Functions and parameter description MODBUS V7.1		configurable IO mode		electrical specification		MODBUS Register for IO mode configuration		configurable IO functions: normal / inverse	
IO1	Dim1 (high active); digital input	active: applied voltage 3.5 - 50 VDC not active: pin open or applied voltage < 1.5 VDC, SELV	D158 [0]	active: applied voltage 3.5 - 50 VDC not active: pin open or applied voltage < 1.5 VDC, SELV	D158 [0]	active: applied voltage 3.5 - 50 VDC not active: pin open or applied voltage < 1.5 VDC, SELV	D158 [0]	source: set value	D101 [...]	source: sensor value	D147 [...]
IO2	Dim1 (low active); digital input	active: applied voltage < 1.5 VDC not active: pin open or applied voltage 3.5 - 50 VDC, SELV	D158 [1]	active: applied voltage < 1.5 VDC not active: pin open or applied voltage 3.5 - 50 VDC, SELV	D158 [1]	active: applied voltage < 1.5 VDC not active: pin open or applied voltage 3.5 - 50 VDC, SELV	D158 [1]	switch: parameter set: #1 / #2	D104 [...]	switch: control function: heating (pos.) / cooling (neg.)	D12E [...]
IO2	Ain1 0-10 V/PWM: analog input	RI = 100 kΩ, characteristic curve parameterizable, $f_{PWM} = 1 \text{ k} - 10 \text{ kHz}$, SELV	D158 [2]	RI = 100 kΩ, characteristic curve parameterizable, $f_{PWM} = 1 \text{ k} - 10 \text{ kHz}$, SELV	D158 [2]	active: applied voltage 3.5 - 50 VDC not active: pin open or applied voltage < 1.5 VDC, SELV	D158 [2]	switch: direction of rotation: cw / ccw	D148 [...]	switch: set value source	D16C [...]
IO2	Ain1 0-10 V/PWM (with pull up): analog input	RI = 100 kΩ, characteristic curve parameterizable, $f_{PWM} = 1 \text{ k} - 10 \text{ kHz}$, SELV	D158 [3]	RI = 100 kΩ, characteristic curve parameterizable, $f_{PWM} = 1 \text{ k} - 10 \text{ kHz}$, SELV	D158 [3]	active: applied voltage 3.5 - 50 VDC not active: pin open or applied voltage < 1.5 VDC, SELV	D158 [3]	source: input pulses autoaddressing	D00C [1]	source: DCI in	D638 [...]
IO2	Dim1 (active high); digital input	active: applied voltage 3.5 - 50 VDC not active: pin open or applied voltage < 1.5 VDC, SELV	D159 [0]	active: applied voltage 3.5 - 50 VDC not active: pin open or applied voltage < 1.5 VDC, SELV	D159 [0]	active: applied voltage 3.5 - 50 VDC not active: pin open or applied voltage < 1.5 VDC, SELV	D159 [0]	signal: tach out	(c)	signal: diagnostics out	(c)
IO2	Ain1 0-10 V/PWM: analog input	RI = 100 kΩ, characteristic curve parameterizable, $f_{PWM} = 1 \text{ k} - 10 \text{ kHz}$, SELV	D159 [2]	RI = 100 kΩ, characteristic curve parameterizable, $f_{PWM} = 1 \text{ k} - 10 \text{ kHz}$, SELV	D159 [2]	active: applied voltage 3.5 - 50 VDC not active: pin open or applied voltage < 1.5 VDC, SELV	D159 [2]	signal: output pulses autoaddressing	D130 [4]	signal: DCI out	D61B
IO2	Tach out (open collector)	Umax = 50 VDC, Imax = 20 mA, SELV	D159 [5]	Umax = 50 VDC, Imax = 20 mA, SELV	D159 [5]	active: applied voltage 3.5 - 50 VDC not active: pin open or applied voltage < 1.5 VDC, SELV	D159 [5]	signal: fan modulation level %	D130 [0]	signal: actual speed 1/min	D130 [1]
IO2	Diagnostics out (open collector)	Umax = 50 VDC, Imax = 20 mA, SELV	D159 [6]	Umax = 50 VDC, Imax = 20 mA, SELV	D159 [6]	active: applied voltage 3.5 - 50 VDC not active: pin open or applied voltage < 1.5 VDC, SELV	D159 [6]	signal: system modulation level %	D130 [2]	signal: remote control output 0-10 V	D130 [3]
IO2	Alarm out (open collector)	Umax = 50 VDC, Imax = 20 mA, SELV	D159 [10]	Umax = 50 VDC, Imax = 20 mA, SELV	D159 [10]	active: applied voltage 3.5 - 50 VDC not active: pin open or applied voltage < 1.5 VDC, SELV	D159 [10]	signal: alarm out	D130 [10]	signal: run monitoring	D145
IO2	Autodressing pulse output (open collector)	Umax = 50 VDC, Imax = 20 mA, SELV	D159 [11]	Umax = 50 VDC, Imax = 20 mA, SELV	D159 [11]	active: applied voltage 3.5 - 50 VDC not active: pin open or applied voltage < 1.5 VDC, SELV	D159 [11]	signal: tach out	(c)	signal: diagnostics out	(c)
IO2	DCI-output (open collector)	Umax = 50 VDC, Imax = 20 mA, SELV	D159 [12]	Umax = 50 VDC, Imax = 20 mA, SELV	D159 [12]	active: applied voltage 3.5 - 50 VDC not active: pin open or applied voltage < 1.5 VDC, SELV	D159 [12]	signal: output pulses autoaddressing	D130 [4]	signal: DCI out	D61B
RSA	RSB	RS485 bus connection		MODBUS RTU, parameter specification V7.1, SELV							
COM	NC	Relay		250 VAC / 2 A (AC1)							
Vout	Voltage output	Voltage 10 VDC, SELV		15 - 30 VDC		active: applied voltage 3.5 - 50 VDC not active: pin open or applied voltage < 1.5 VDC, SELV	D158 [0]	signal: tach out	(c)	signal: diagnostics out	(c)

Curves: Air performance 50 Hz



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

Measurement: LU-223320-1
Date: 2022-10-13
Nozzle: 8217101923

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}	LwA	q _V	P _{fs}	q _V	P _{fs}
		V	Hz	min ⁻¹	W	A	dB(A)	dB(A)	dB(A)	dB	m³/h	Pa	cfm	in. wg
1	1~	230	50	1190	320	1.43	68	76	80	81	7250	0	4265	0.00
2	1~	230	50	1190	426	1.88	63	71	75	76	6180	130	3640	0.52
3	1~	230	50	1190	500	2.20	57	64	69	70	4410	260	2595	1.04
4	1~	230	50	1190	449	1.98	58	65	70	71	2655	326	1565	1.31
5	1~	230	50	1070	236	1.07	65	73	77	79	6480	0	3815	0.00
6	1~	230	50	1070	310	1.38	60	68	72	73	5545	105	3260	0.42
7	1~	230	50	1070	356	1.58	54	61	66	67	3955	209	2325	0.84
8	1~	230	50	1070	326	1.45	55	62	66	68	2390	263	1405	1.06
9	1~	230	50	830	120	0.57	60	68	72	74	5010	0	2950	0.00
10	1~	230	50	830	151	0.70	54	63	67	68	4300	63	2530	0.25
11	1~	230	50	830	171	0.78	48	56	60	62	3070	126	1805	0.51
12	1~	230	50	830	158	0.73	49	55	60	61	1855	159	1090	0.64
13	1~	230	50	595	51	0.32	52	60	66	67	3580	0	2105	0.00
14	1~	230	50	595	62	0.36	46	53	59	60	3060	32	1800	0.13
15	1~	230	50	595	68	0.38	41	48	54	55	2180	63	1285	0.25
16	1~	230	50	595	64	0.36	40	46	51	52	1320	81	780	0.33

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