

KARTA KATALOGOWA

R3G500-RA28-05

Wentylator promieniowy EC RadiCal, łopatki zakrzywione do tyłu, jednostronnie ssący

Producent: ebm-papst



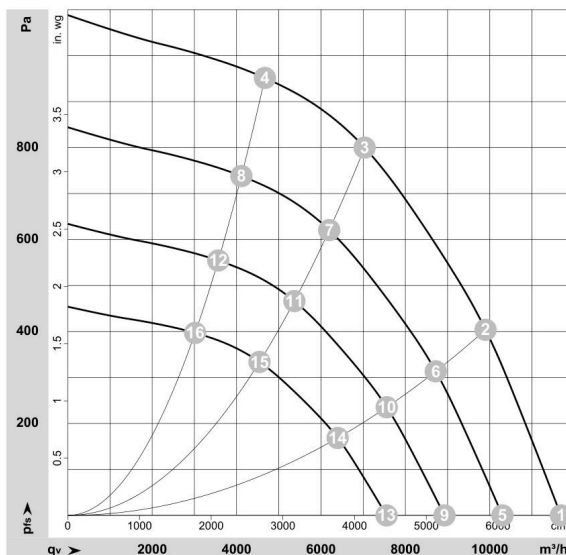
Zdjęcie poglądowe

Dane znamionowe		Budowa	
Napięcie znamionowe	3~ 400 V (380...480 V)	Średnica wirnika	500 mm
Częstotliwość	50/60 Hz	Materiał wirnika	tworzywo PP
Prędkość obrotowa	1700 obr/min	Liczba łopatek	7
Pobór mocy	2550 W	Stopień ochrony	IP55
Pobór prądu	3,9 A	Klasa izolacji	F
Maks. wydajność	11685 m³/h	Masa	20,94 kg
Maks. ciśnienie statyczne	1090 Pa		
Temperatura otoczenia	-40...+60 °C		

Dane ErP (UE 327/2011)	
Sprawność całkowita	65,4 %
Przepływ w pkt. optymalnym	7295 m³/h
Przyrost ciśnienia	781 Pa
Regulacja obrotów	tak (0-10 V / PWM / MODBUS)

Charakterystyka przepływowa

Curves: Air performance 50 Hz



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

Measurement: LU-209163-1

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.

Dane na podstawie karty producenta ebm-papst (oryginał na kolejnych stronach).

Wartości znamionowe dla punktu maksymalnego obciążenia; producent zastrzega możliwość zmian.

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R3G500-RA28-05

EC centrifugal fan - RadiCal

backward-curved, single-intake

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General partner Elektrobau Mulfingen GmbH · Headquarters Mulfingen

Amtsgericht (court of registration) Stuttgart · HRB 590142

Nominal data

Type	R3G500-RA28-05	
Motor	M3G150-FF	

Phase		3~
Nominal voltage	VAC	400
Nominal voltage range	VAC	380 .. 480
Frequency	Hz	50/60

Method of obtaining data		ml
Status		prelim.
Speed (rpm)	min ⁻¹	1700
Power consumption	W	2550
Current draw	A	3.9
Min. ambient temperature	°C	-40
Max. ambient temperature	°C	60

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 (EN 17166)

		Actual	Req. 2015			
01 Overall efficiency η_{es}	%	65.4	55.8	09 Power consumption P_{ed}	kW	2.55
02 Measurement category		A		09 Air flow q_v	m ³ /h	7295
03 Efficiency category		Static		09 Pressure increase p_{fs}	Pa	781
04 Efficiency grade N		71.6	62	10 Speed (rpm) n	min ⁻¹	1705
05 Variable speed drive		Yes		11 Specific ratio*		1.01

Data obtained at optimum efficiency level.

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

LU-209163

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).



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backward-curved, single-intake

Technical description

Weight	20.94 kg
Size	500 mm
Motor size	150
Rotor surface	Painted black
Electronics housing material	Die-cast aluminum
Impeller material	PP plastic
Number of blades	7
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	- Operation and alarm display with LED - External 15-50 VDC input (parameterization) - Alarm relay - Integrated PI controller - Configurable inputs/outputs (I/O) - MODBUS V6.3 - Motor current limitation - RS-485 MODBUS-RTU - Soft start - Voltage output 3.3-24 VDC, Pmax = 800 mW - Control interface with SELV potential safely disconnected from the mains - Thermal overload protection for electronics/motor - Line undervoltage / phase failure detection
EMC immunity to interference	According to EN 61000-6-2 (industrial environment)
EMC interference emission	According to EN 61000-6-3 (household environment), except EN 61000-3-2 for professionally used equipment with a total rated power greater than 1 kW
Touch current according to IEC 60990 (measuring circuit Fig. 4, TN system)	<= 3.5 mA
Electrical hookup	Terminal box
Protection class	I (with customer connection of protective earth)
Conformity with standards	EN 61800-5-1; CE
Approval	UL 1004-7 + 60730-1; EAC; CSA C22.2 No. 77 + CAN/CSA-E60730-1

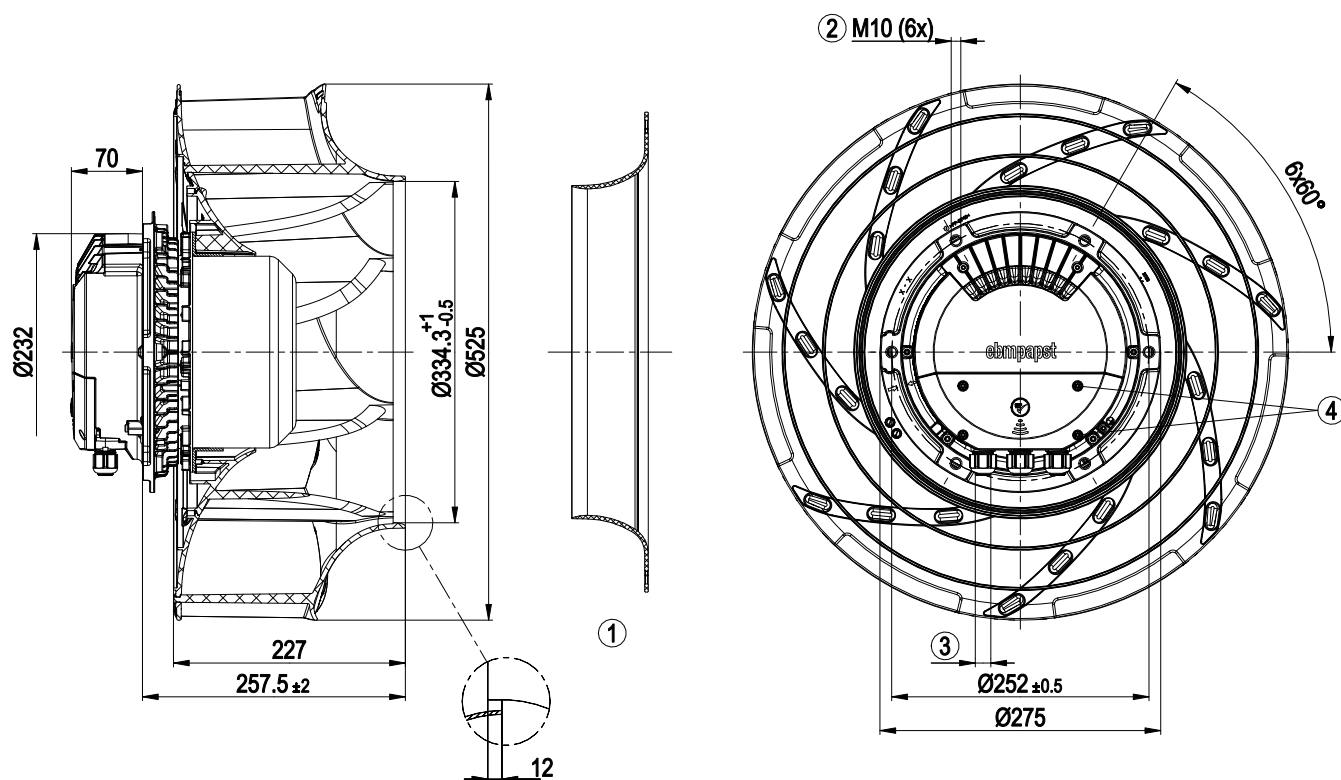


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Product drawing



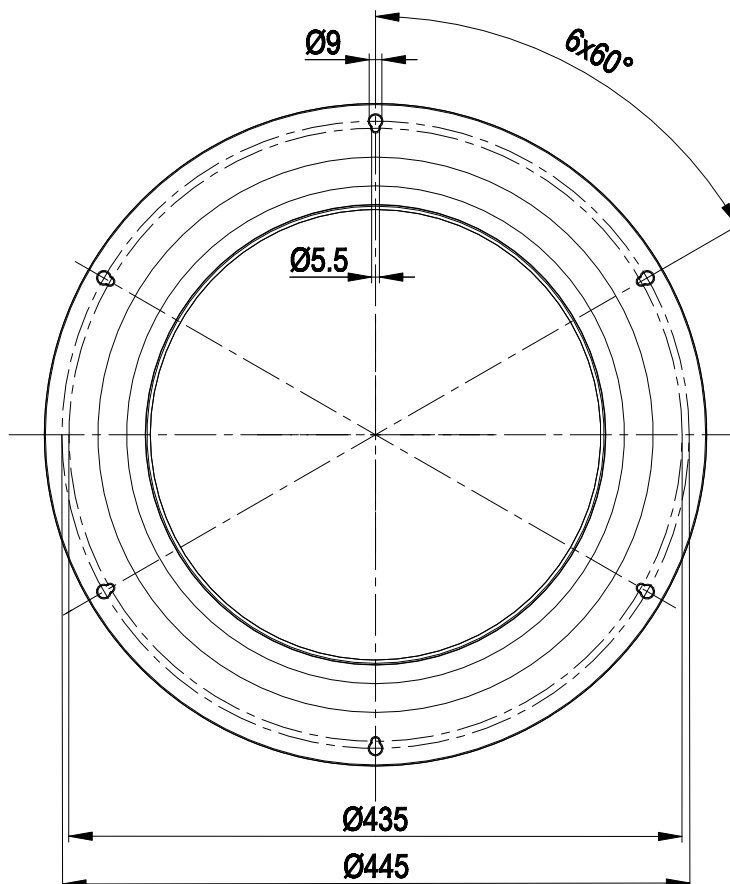
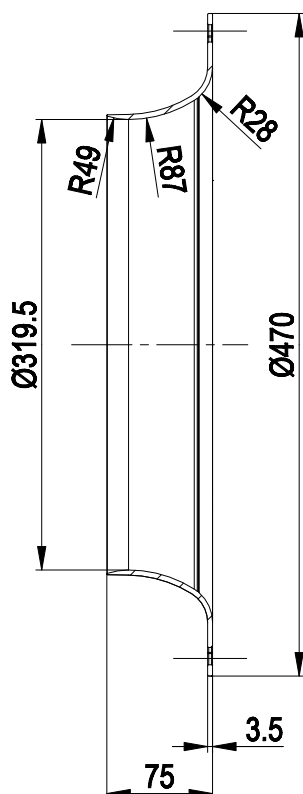
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|---|---|
| 1 | Accessory part: inlet ring 50901-2-2943 not included in scope of delivery |
| 2 | Max. clearance for screw 20 mm |
| 3 | Cable diameter min. 4 mm, max. 10 mm, tightening torque 4 ± 0.6 Nm
(The tightening torque is designed for PVC cables. If the cable materials are different, the tightening torque may have to be adjusted) |
| 4 | Tightening torque 1.5 ± 0.2 Nm |

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Accessory part



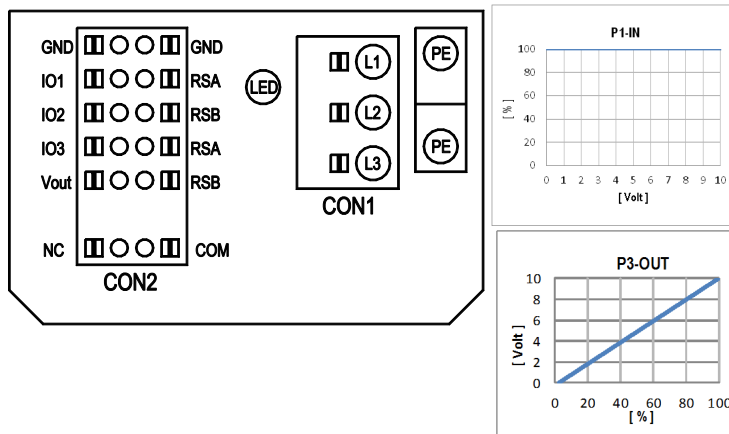
1 Accessory part: inlet ring 50901-2-2943

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Connection diagram



No.	Conn.	Designation	Function/assignment
	CON1	L1, L2, L3	Power supply, phase, see nameplate for voltage range
	PE	PE	Protective earth
	CON2	RSA	RS485 interface for MODBUS, RSA; SELV
	CON2	RSB	RS485 interface for MODBUS, RSB; SELV
	CON2	GND	Reference ground for control interface, SELV
	CON2	IO1	Function parameterizable (see "Optional interface functions" table) Factory setting: Digital input - high active, function: Disable input, SELV - inactive: Pin open or applied voltage < 1.5 VDC - active: applied voltage 3.5-50 VDC Reset function: Triggering of error reset on change of state from "enabled" to "disabled"
	CON2	IO2	Function parameterizable (see "Optional interface functions" table) Factory setting: Analog input 0-10 V/PWM, Ri=100 kΩ, function: Set value Characteristic curve parameterizable (see input characteristic curve P1-IN), SELV
	CON2	IO3	Function parameterizable (see "Optional interface functions" table) Factory setting: Analog output 0-10 V, max. 5 mA, function: Fan modulation level Characteristic curve parameterizable (see output characteristic curve P3-OUT), SELV
	CON2	Vout	Voltage output 3.3-24 VDC ±5%, Pmax=800 mW, voltage parameterizable Factory setting: 10 VDC short-circuit-proof, supply for external devices, SELV alternatively: 15-50 VDC input for parameterization via MODBUS without line voltage
	CON2	COM	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
	CON2	NC	Status relay, floating status contact, break for failure
		LED	green: status = good, ready for operation orange: status = warning red: status = failure
		P1-IN	Input characteristic curve
		P3-OUT	Output characteristic curve

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Terminal/plug assignment

○ configurable option		For further information and additional functions see EC Control Software, Fan-Set-App. or MODBUS Parameter Specification V6.3		configurable IO functions: normal/ inverse	MODBUS Register for IO mode configuration	electrical specification		configurable IO mode		CON2										
						active: applied voltage 3.5-50VDC, SELV not active: pin open or applied voltage < 1.5VDC		Din1 (active high): digital input		○ Din1 (active high): digital input										
IO1	○ Ain1 0-10V/PWM: analog input		RI = 100k, characteristic curve parameterizable, $f_{PWM} = 1k..10kHz$ SELV Umax = 50VDC, Imax = 20mA SELV Umax = 50VDC, Imax = 20mA SELV	D158 [2]	D158 [5]	D158 [6]	D159 [0]	D159 [2]	D159 [3]	D15A [0]	D15A [1]	D15A [7]	D15A [8]	D15A [4]	D15A [5]	D15A [6]	MODBUS RTU, specification V6.3, SELV	voltage parameterizable 3.3...24VDC +/- 5%, Pmax=800mW, short-circuit-proof, supply for external devices, SELV 15...50VDC	alternatively: Input auxiliary power supply for parameterization via RS485/MODBUS RTU without line voltage	Vout
	○ Tach out (open collector output)																			
	○ Diagnostics out (open collector output)																			
	○ Din2 (active high): digital input																			
IO2	○ Ain2 0-10V/PWM: analog input		RI = 100k, characteristic curve parameterizable, $f_{PWM} = 1k..10kHz$ SELV RI = 125R, characteristic curve parameterizable, SELV	D159 [2]	D159 [3]	D15A [0]	D15A [1]	D15A [7]	D15A [8]	D15A [4]	D15A [5]	D15A [6]	MODBUS RTU, specification V6.3, SELV	voltage parameterizable 3.3...24VDC +/- 5%, Pmax=800mW, short-circuit-proof, supply for external devices, SELV 15...50VDC	alternatively: Input auxiliary power supply for parameterization via RS485/MODBUS RTU without line voltage	Vout				
	○ Ain2 4-20mA: analog input																			
	○ Din3 (active high): digital input																			
	○ Din3 (active low): digital input																			
IO3	○ PWMIn3: digital input, idle level high		PWM = 40Hz - 10kHz, characteristics parameterizable active: pin open or applied voltage 3.5-50VDC not active: applied voltage < 1.5VDC, SELV 40Hz - 10kHz, characteristics parameterizable active: applied voltage 3.5-50VDC not active: pin open or applied voltage < 1.5VDC, SELV	D159 [2]	D159 [3]	D15A [0]	D15A [1]	D15A [7]	D15A [8]	D15A [4]	D15A [5]	D15A [6]	MODBUS RTU, specification V6.3, SELV	voltage parameterizable 3.3...24VDC +/- 5%, Pmax=800mW, short-circuit-proof, supply for external devices, SELV 15...50VDC	alternatively: Input auxiliary power supply for parameterization via RS485/MODBUS RTU without line voltage	Vout				
	○ PWMIn3: digital input, idle level low																			
	○ Aout3 0-10V: analog output																			
	○ Tacho out (pulses): analog output																			
IO3	○ Diagnostics out (pulses)		PWM = 40Hz - 10kHz, characteristics parameterizable active: pin open or applied voltage 3.5-50VDC not active: applied voltage < 1.5VDC, SELV 40Hz - 10kHz, characteristics parameterizable active: applied voltage 3.5-50VDC not active: pin open or applied voltage < 1.5VDC, SELV	D159 [2]	D159 [3]	D15A [0]	D15A [1]	D15A [7]	D15A [8]	D15A [4]	D15A [5]	D15A [6]	MODBUS RTU, specification V6.3, SELV	voltage parameterizable 3.3...24VDC +/- 5%, Pmax=800mW, short-circuit-proof, supply for external devices, SELV 15...50VDC	alternatively: Input auxiliary power supply for parameterization via RS485/MODBUS RTU without line voltage	Vout				
	○ Aout3 0-10V: analog output																			
	○ Tacho out (pulses): analog output																			
	○ Diagnostics out (pulses)																			
RSA	RS485 bus connection,																			
RSB	voltage output																			
Vout	alternatively: Input auxiliary power supply for parameterization via RS485/MODBUS RTU without line voltage																			

configurable option

For further information and additional functions see EC Control Software, Fan-Set-App,
or MODBUS Parameter Specification V6.3

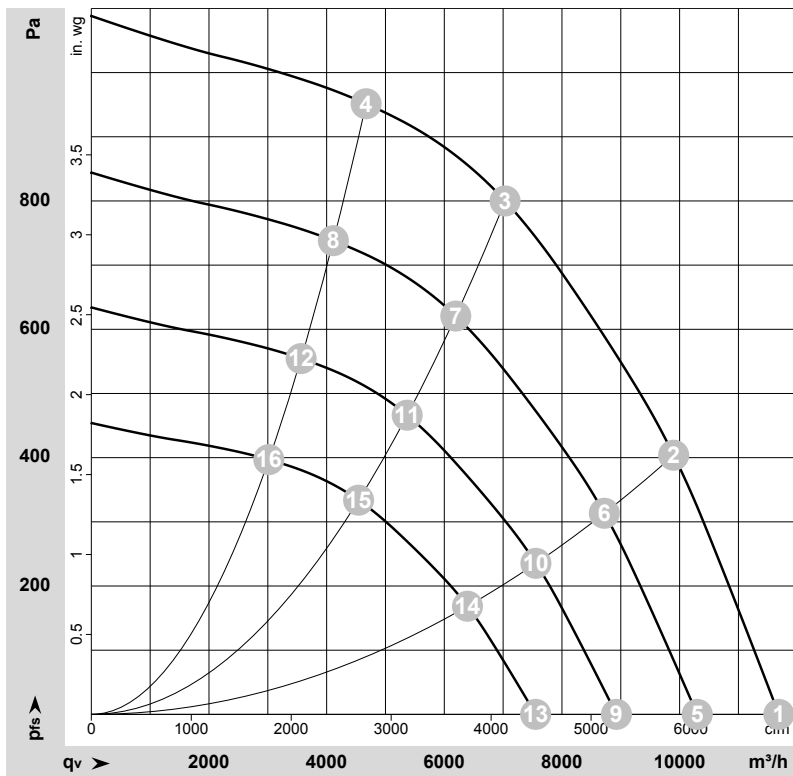


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Curves: Air performance 50 Hz



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

Measurement: LU-209163-1

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 _{ed}	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)	m³/h	Pa	cfm	in. wg
1	3~	400	50	1700	1832	2.89	79	86	93	11685	0	6880	0.00
2	3~	400	50	1700	2438	3.78	75	82	89	9900	400	5825	1.61
3	3~	400	50	1700	2550	3.90	69	76	83	7035	800	4140	3.21
4	3~	400	50	1700	2254	3.51	72	81	85	4670	950	2750	3.81
5	3~	400	50	1500	1254	1.98	75	83	89	10300	0	6060	0.00
6	3~	400	50	1500	1666	2.58	72	79	86	8720	320	5130	1.28
7	3~	400	50	1500	1734	2.68	66	73	80	6195	623	3645	2.50
8	3~	400	50	1500	1540	2.40	69	78	82	4115	740	2420	2.97
9	3~	400	50	1300	816	1.29	72	79	86	8925	0	5255	0.00
10	3~	400	50	1300	1085	1.68	68	75	82	7555	240	4450	0.96
11	3~	400	50	1300	1129	1.75	62	70	77	5370	468	3160	1.88
12	3~	400	50	1300	1002	1.56	66	74	78	3565	556	2100	2.23
13	3~	400	50	1100	495	0.78	68	75	82	7555	0	4445	0.00
14	3~	400	50	1100	657	1.02	64	71	78	6395	172	3765	0.69
15	3~	400	50	1100	684	1.06	58	65	72	4545	335	2675	1.34
16	3~	400	50	1100	607	0.94	61	70	74	3015	398	1775	1.60

Wired = Wiring · U = Voltage · f = Frequency · n = Speed (rpm) · P_{ed} = 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

