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General partner Elektrobau Mulfingen GmbH · Headquarters Mulfingen

Amtsgericht (court of registration) Stuttgart · HRB 590142

Nominal data

Type	R3G560-PB31-65	
Motor	M3G150-IF	

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

Method of obtaining data		ml
Speed (rpm)	min ⁻¹	1700
Power consumption	W	4250
Current draw	A	6.5
Min. ambient temperature	°C	-40
Max. ambient temperature	°C	40

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}	%	70.1	58
02 Measurement category		A	
03 Efficiency category		Static	
04 Efficiency grade N		74.1	62
05 Variable speed drive		Yes	

09 Power consumption P_{ed}	kW	4.15
09 Air flow q_v	m ³ /h	9600
09 Pressure increase p_{fs}	Pa	1052
10 Speed (rpm) n	min ⁻¹	1695
11 Specific ratio*		1.01

Data obtained at optimum efficiency level.

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

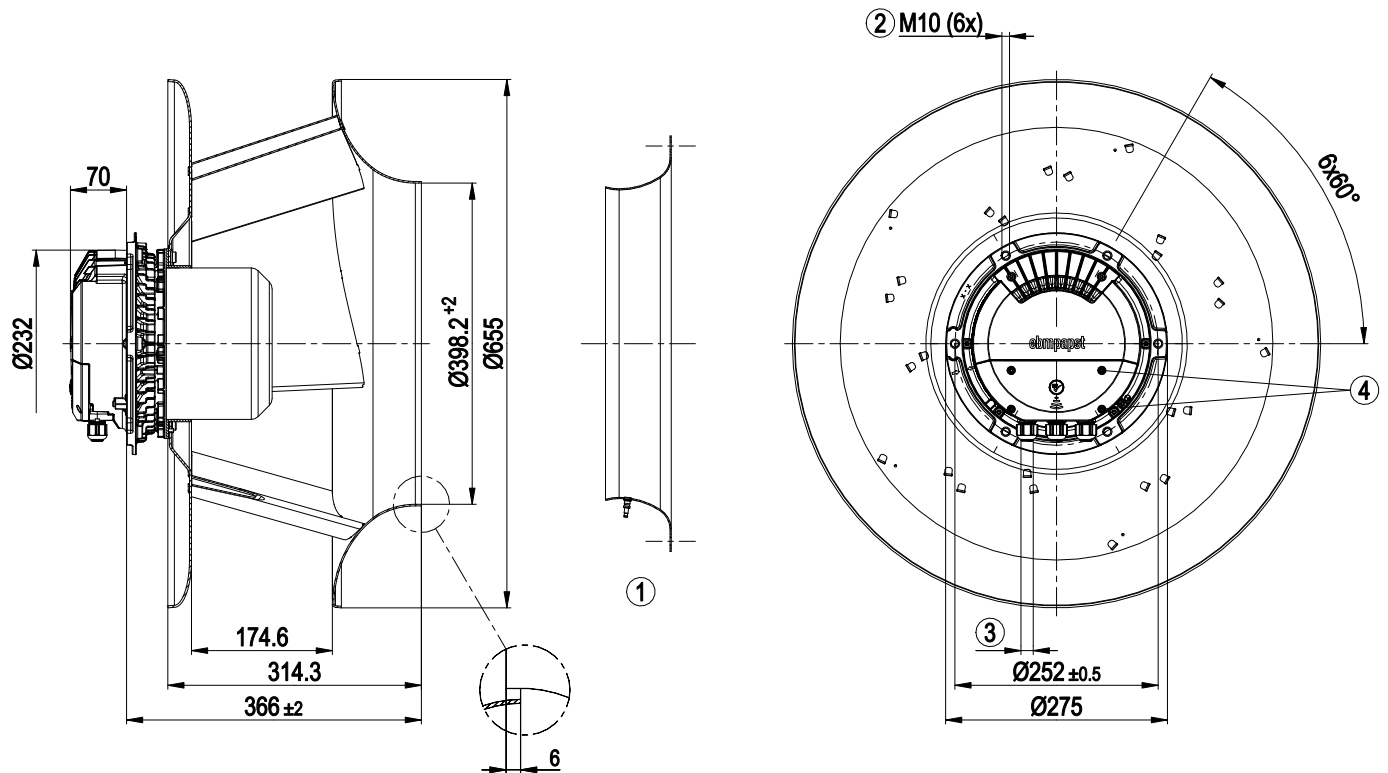
LU-204600

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).

Technical description

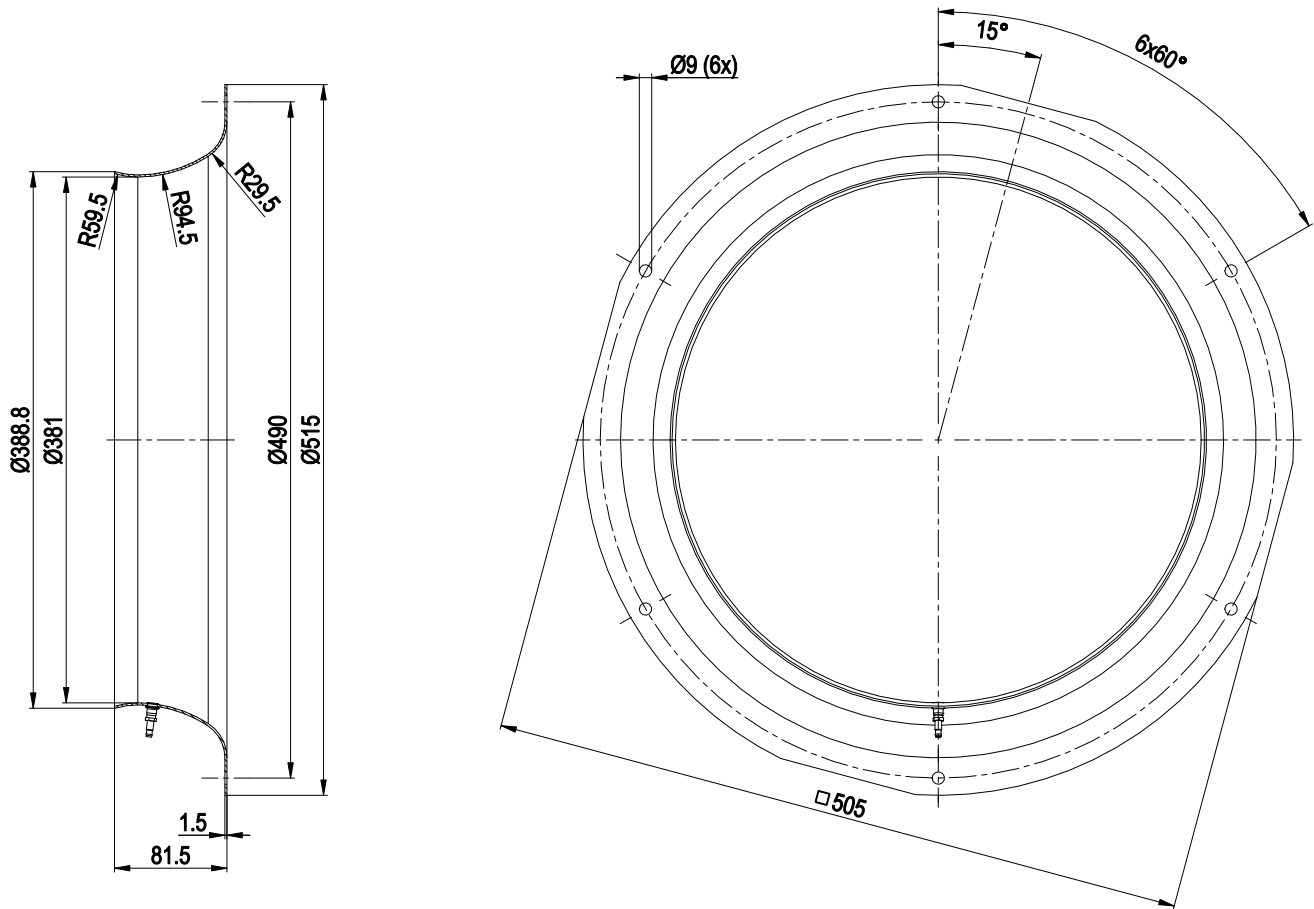
Weight	26.3 kg
Size	560 mm
Motor size	150
Rotor surface	Painted black
Electronics housing material	Die-cast aluminum
Impeller material	Sheet aluminum
Number of blades	5
Direction of rotation	Clockwise, viewed toward rotor
Degree of protection	IP55
Insulation class	"F"
Moisture (F) / Environmental (H) 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	- 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 - Vibration sensor
Power Factor Correction (PFC)	Passive (through low-capacitance DC link)
Touch current according to IEC 60990 (measuring circuit Fig. 4, TN system)	<= 3.5 mA
Electrical hookup	Terminal box
Motor protection	Reverse polarity and locked-rotor protection
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 61800-5-1; CE
Approval	UL 1004-7 + 60730-1; EAC; CSA C22.2 No. 77 + CAN/CSA-E60730-1

Product drawing



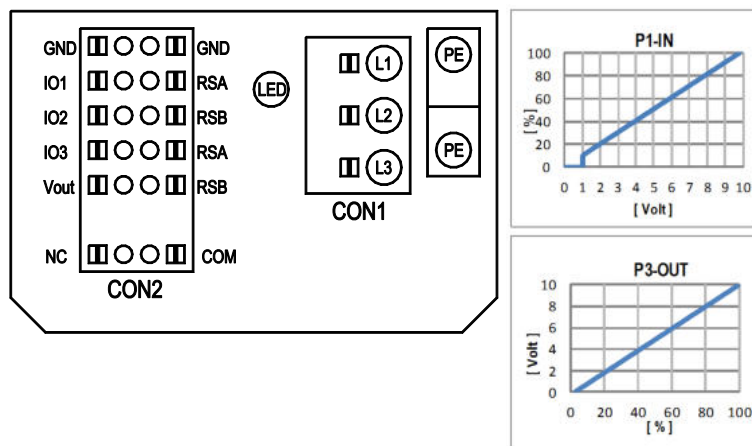
1	Accessory part: Inlet ring 64030-2-4013 with pressure tap (k-factor: 348) not included in scope of delivery
2	Max. clearance for screw 20 mm
3	Cable diameter min. 4 mm, max. 10 mm, tightening torque 4 ± 0.6 Nm (The tightening torque is designed for PVC cables. If the cable materials are different, the tightening torque may have to be adjusted)
4	Tightening torque 1.5 ± 0.2 Nm

Accessory part



Inlet ring 64030-2-4013 with pressure tap (k-factor: 348)

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

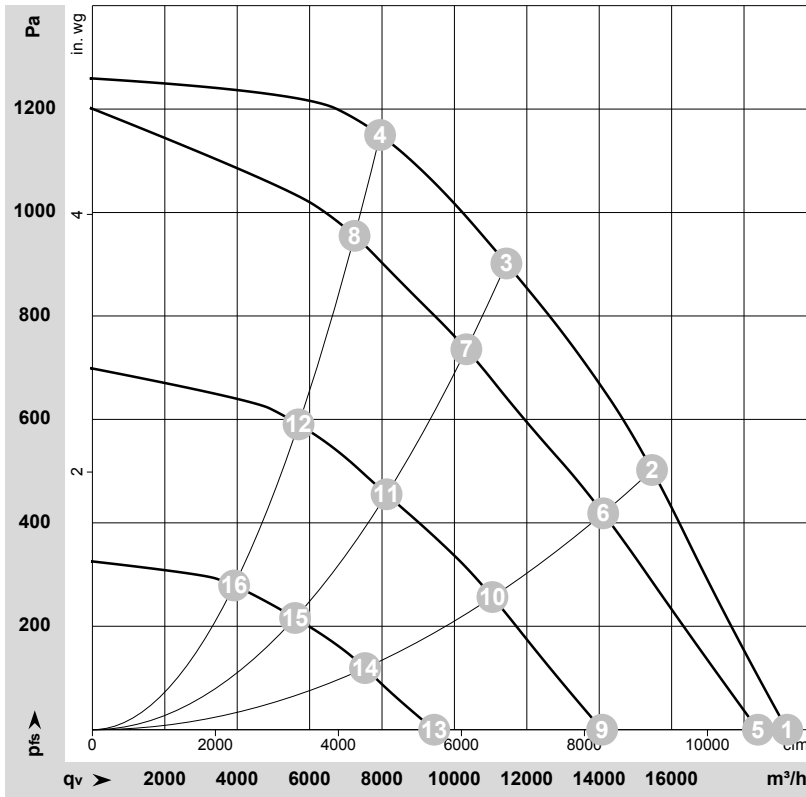
Terminal/plug assignment

configurable option																																																				
For further information and additional functions see EC Control Software, Fan-Set-App, or MODBUS Parameter Specification V6.3																																																				
CON2	configurable IO mode	electrical specification	configurable IO functions: normal / inverse	MODBUS Register for IO mode configuration	INPUT										OUTPUT																																					
					D158 [0]	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]	D16E [..]	D101 [..]	D147 [..]	D104 [..]	D12E [..]	D148 [..]	D16C [..]	D16A [..]	(selected directly via IO mode)	D130 [0]	D130 [1]	D130 [2]	D130 [5]	D00C [1]	D130 [4]																			
					switch: set value source										switch: fan enable / disable																																					
					switch: direction of rotation: cw / ccw										switch: control function: heating (pos.) / cooling (neg.)																																					
	IO1	Din1 (active high): digital input	active: applied voltage 3.5-50VDC, SELV not active: pin open or applied voltage < 1,5VDC RI = 100K, characteristic curve parameterizable, f _{PWM} = 1k..10KHz SELV U _{max} = 50VDC, I _{max} = 20mA SELV U _{max} = 50VDC, I _{max} = 20mA SELV	D158 [0]	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]	D16E [..]	D101 [..]	D147 [..]	D104 [..]	D12E [..]	D148 [..]	D16C [..]	D16A [..]	(selected directly via IO mode)	D130 [0]	D130 [1]	D130 [2]	D130 [5]	D00C [1]	D130 [4]																				
																																	switch: parameter set: #1 / #2										switch: tach out									
																																	source: sensor value										signal: diagnostics out									
																																	source: set value										signal: fan enable / disable									
	IO2	Din2 (active high): digital input	active: applied voltage 3.5-50VDC, SELV not active: pin open or applied voltage < 1,5VDC RI = 100K, characteristic curve parameterizable, f _{PWM} = 1k..10KHz SELV RI = 125R, characteristic curve parameterizable, SELV	D158 [0]	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]	D16E [..]	D101 [..]	D147 [..]	D104 [..]	D12E [..]	D148 [..]	D16C [..]	D16A [..]	(selected directly via IO mode)	D130 [0]	D130 [1]	D130 [2]	D130 [5]	D00C [1]	D130 [4]																				
																																	switch: control function: heating (pos.) / cooling (neg.)										signal: tach out									
source: sensor value																																	signal: diagnostics out																			
source: set value																																	switch: fan enable / disable																			
IO3	Din3 (active high): digital input	active: applied voltage 3.5-50VDC, SELV not active: pin open or applied voltage < 1,5VDC active: applied voltage < 1,5VDC, SELV not active: pin open or applied voltage 3.5-50VDC 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	D158 [0]	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]	D16E [..]	D101 [..]	D147 [..]	D104 [..]	D12E [..]	D148 [..]	D16C [..]	D16A [..]	(selected directly via IO mode)	D130 [0]	D130 [1]	D130 [2]	D130 [5]	D00C [1]	D130 [4]																					
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																																source: sensor value										signal: diagnostics out										
																																source: set value										switch: fan enable / disable										
RSA RSB	RS485 bus connection,	MODBUS RTU, specification V6.3, SELV	configurable IO functions: normal / inverse	MODBUS Register for IO mode configuration	INPUT										OUTPUT																																					
					D158 [0]	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]	D16E [..]	D101 [..]	D147 [..]	D104 [..]	D12E [..]	D148 [..]	D16C [..]	D16A [..]	(selected directly via IO mode)	D130 [0]	D130 [1]	D130 [2]	D130 [5]	D00C [1]	D130 [4]																			
					switch: parameter set: #1 / #2										switch: tach out																																					
					source: sensor value										signal: diagnostics out																																					
Vout	voltage output	voltage parameterizable 3.3...24VDC +/- 5%, P _{max} =800mW, short-circuit-proof, supply for external devices, SELV 15...50VDC	configurable IO functions: normal / inverse	MODBUS Register for IO mode configuration	INPUT										OUTPUT																																					
					D158 [0]	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]	D16E [..]	D101 [..]	D147 [..]	D104 [..]	D12E [..]	D148 [..]	D16C [..]	D16A [..]	(selected directly via IO mode)	D130 [0]	D130 [1]	D130 [2]	D130 [5]	D00C [1]	D130 [4]																			
Vout	alternatively: Input auxiliary power supply for parameterization via RS485/MODBUS RTU without line voltage	voltage parameterizable 3.3...24VDC +/- 5%, P _{max} =800mW, short-circuit-proof, supply for external devices, SELV 15...50VDC	configurable IO functions: normal / inverse	MODBUS Register for IO mode configuration	INPUT										OUTPUT																																					
					D158 [0]	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]	D16E [..]	D101 [..]	D147 [..]	D104 [..]	D12E [..]	D148 [..]	D16C [..]	D16A [..]	(selected directly via IO mode)	D130 [0]	D130 [1]	D130 [2]	D130 [5]	D00C [1]	D130 [4]																			

○ configurable option

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

Curves: Air performance 50 Hz



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

Measurement: LU-204600-1

Date: 2020-02-27

Nozzle: 63071-2-4013

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)	m ³ /h	Pa	cfm	in. wg
1	3~	400	50	1700	2501	3.86	96	102	101	19190	0	11295	0.00
2	3~	400	50	1700	3763	5.74	84	90	92	15460	500	9100	2.01
3	3~	400	50	1700	4250	6.50	75	82	87	11435	900	6730	3.61
4	3~	400	50	1700	4069	6.20	77	85	90	7945	1150	4675	4.62
5	3~	400	50	1635	2275	3.53	96	100	100	18385	0	10820	0.00
6	3~	400	50	1555	2888	4.44	82	88	90	14110	423	8305	1.70
7	3~	400	50	1535	3165	4.85	73	80	85	10330	739	6080	2.97
8	3~	400	50	1550	3078	4.72	75	82	87	7240	958	4260	3.85
9	3~	400	50	1255	1064	1.78	86	92	92	14080	0	8285	0.00
10	3~	400	50	1225	1419	2.28	74	81	83	11050	258	6505	1.04
11	3~	400	50	1210	1547	2.47	67	74	79	8125	455	4785	1.83
12	3~	400	50	1215	1494	2.39	68	75	81	5695	591	3350	2.37
13	3~	400	50	855	378	0.85	72	79	80	9440	0	5555	0.00
14	3~	400	50	840	494	1.02	63	71	74	7530	120	4430	0.48
15	3~	400	50	835	546	1.09	57	65	70	5600	216	3295	0.87
16	3~	400	50	840	522	1.06	59	66	72	3915	280	2305	1.12

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