EC centrifugal fan - RadiCal

backward-curved, single-intake

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

ErP2015 EXCEEDS THE NORM

Nominal data

Type	**R3G500-RH34-05**
Motor	**M3G112-GA**

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}	1160
Power consumption	W	860
Current draw	A	1.5
Min. ambient temperature	°C	-25
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 ErP Directive

		Actual	Req. 2015
01 Overall efficiency η_{es}	%	65.5	50.7
02 Measurement category		A	
03 Efficiency category		Static	
04 Efficiency grade N		76.8	62
05 Variable speed drive		Yes	

09 Power consumption P_{ed}	kW	0.84
09 Air flow q_v	m^3/h	5000
09 Pressure increase p_{fs}	Pa	367
10 Speed (rpm) n	min^{-1}	1160
11 Specific ratio*		1.00

Data obtained at optimum efficiency level.
The ErP data is determined using a motor-impeller combination in a standardized measurement setup.

* Specific ratio = 1 + p_{fs} / 100 000 Pa

LU-125039

ebmpapst

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Technical description

Weight	13.1 kg
Fan size	500 mm
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	IP54
Insulation class	"B"
Moisture (F) / Environmental (H) protection class	F4-1
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 - Output 20 VDC, max. 50 mA - Output for slave 0-10 V - Input for sensor 0-10 V or 4-20 mA - External 24 V input (parameter setting) - Alarm relay - Integrated PID controller - Motor current limitation - PFC, passive - RS-485 MODBUS-RTU - Soft start - Control input 0-10 VDC / PWM - Control interface with SELV potential safely disconnected from supply - Thermal overload protection for electronics/motor - Line undervoltage / phase failure detection
EMC immunity to interference	According to EN 61000-6-2 (industrial environment)
EMC circuit feedback	According to EN 61000-3-2/3
EMC interference emission	According to EN 61000-6-3 (household environment)
Touch current according to IEC 60990 (measuring circuit Fig. 4, TN system)	<= 3.5 mA
Electrical hookup	With plug
Motor protection	Thermal overload protector (TOP) internally connected
With cable	Variable
Protection class	I (with customer connection of protective earth)
Conformity with standards	EN 61800-5-1; CE
Approval	CCC

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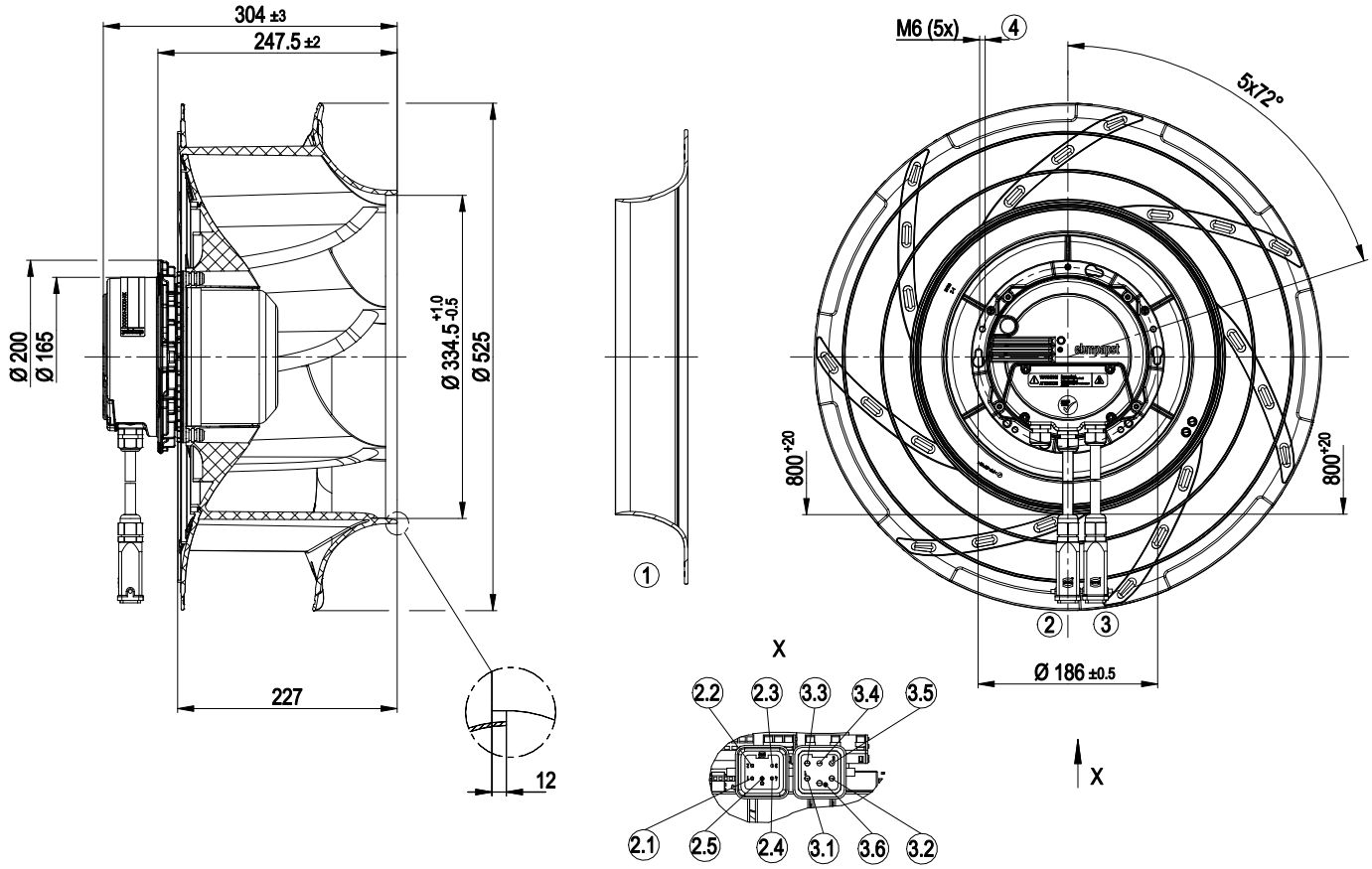
Product drawing



1	Accessory part: inlet ring 50901-2-2943, not included in scope of delivery
2	Control wire with connector housing Harting 19 20 003 0420 and pin insert Harting 09 20 004 2611
2.1	NC (black1)
2.2	COM (black2)
2.3	GND (black3)
2.4	0-10 V (black4)
2.5	PE (not used)
3	Supply line with connector housing Harting 19 20 003 0420 and pin insert Harting 09 12 005 3001
3.1	L1 (black1)
3.2	L2 (black2)
3.3	L3 (black3)
3.4	not used
3.5	not used
3.6	PE (green/yellow)
4	Clearance for screw 12-16 mm

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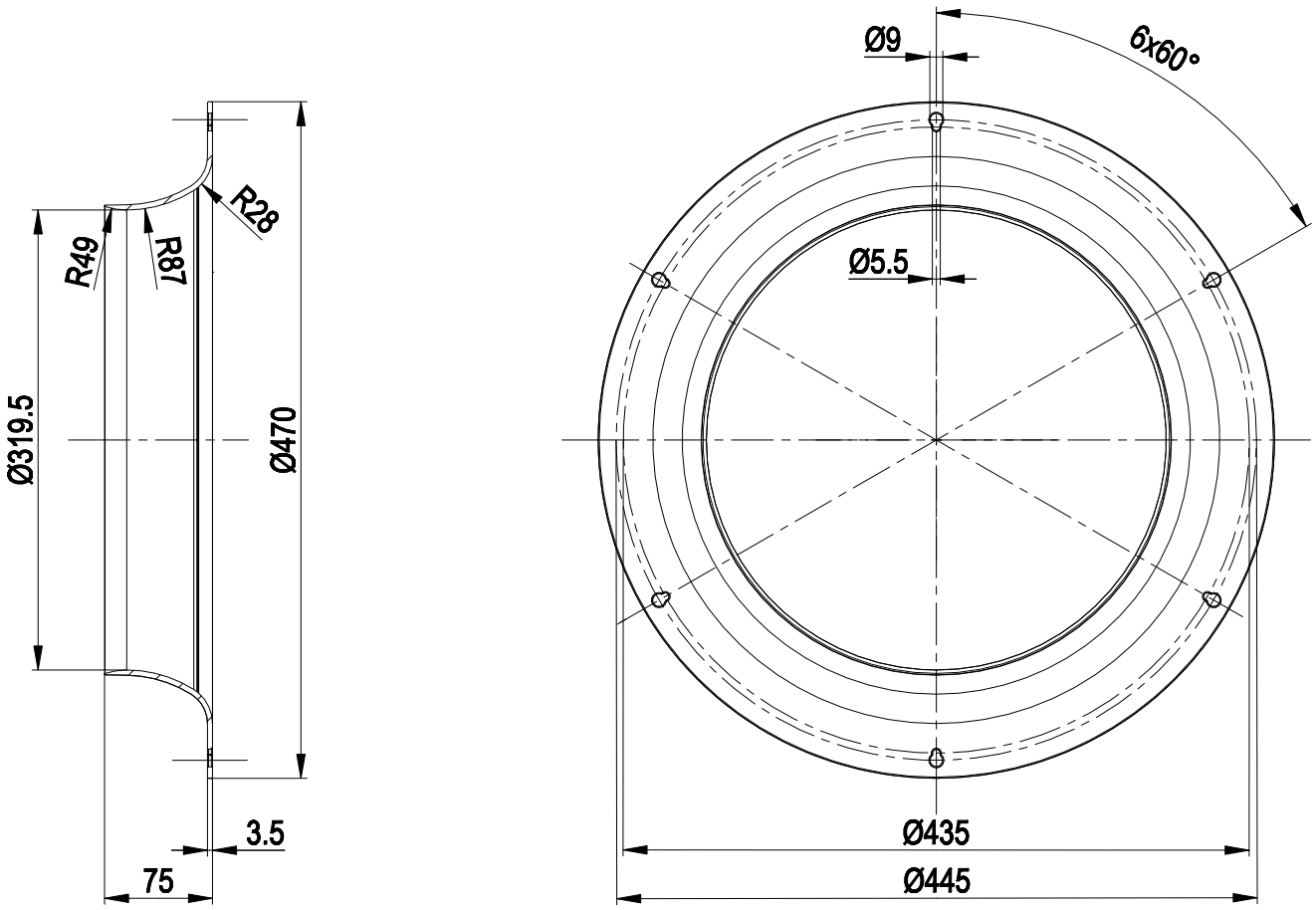
Accessory part



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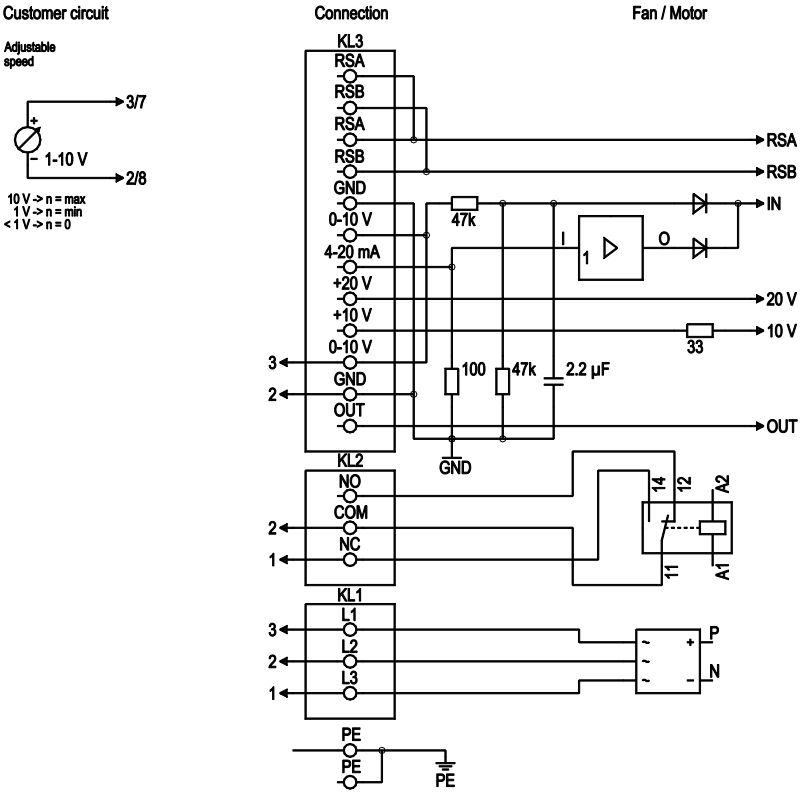
Connection diagram



No.	Conn.	Designation	Function/assignment
PE		PE	Protective earth terminal
KL1	1, 2, 3	L1, L2, L3	Power supply, voltage range (see nameplate), 50/60 Hz
KL2	1	NC	Floating status contact, break for failure
KL2	2	COM	floating status contact, changeover contact, common connection (2 A, max. 250 VAC, min. 10 mA, AC1)
KL2	3	NO	Floating status contact, make for failure
KL3	1	OUT	Analog output, 0-10 VDC, max. 3 mA, SELV, output of current motor modulation level: 1 V corresponds to 10% modulation level. 10 V corresponds to 100% modulation level.
KL3	2, 8	GND	Reference ground for control interface, SELV
KL3	3, 7	0-10 V	Use control / current sensor value input 0-10 VDC, impedance 100 kΩ only as alternative to 4-20 mA input, SELV
KL3	4	+10 V	Voltage output 10 VDC (±3%), max. 10 mA, power supply for external devices (e.g. potentiometer), SELV
KL3	5	+20 V	Voltage output 20 VDC (+25%/-10%), max. 50 mA, power supply for external devices (e.g. sensors), SELV
KL3	6	4-20 mA	Use control / current sensor value input 4-20 mA, impedance 100 Ω only as alternative to 0-10 V input, SELV
KL3	9, 11	RSB	RS485 interface for MODBUS, RSB
KL3	10, 12	RSA	RS485 interface for MODBUS, RSA

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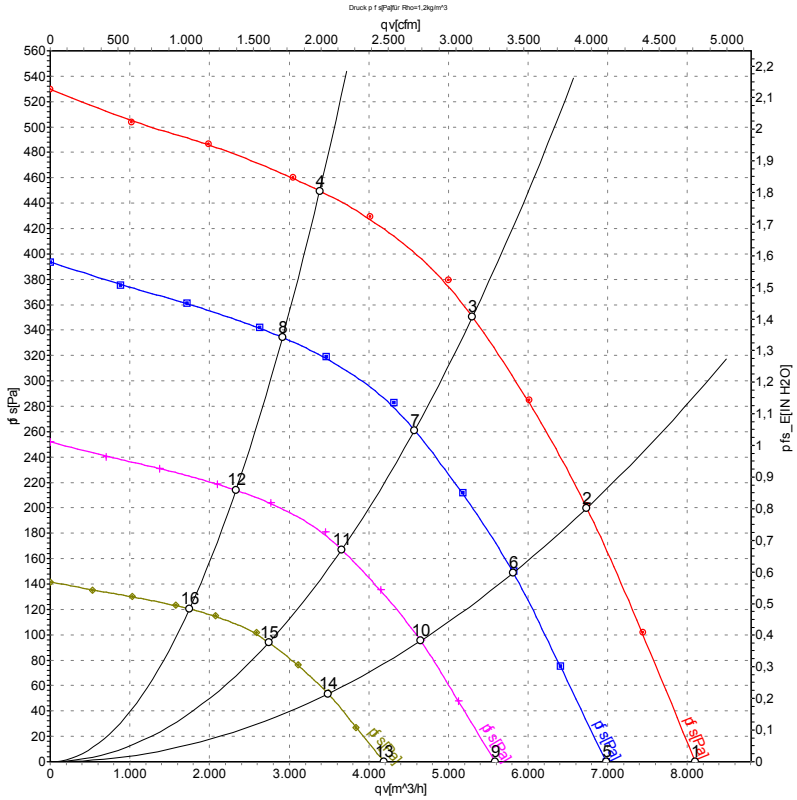
Curves: Air performance 50 Hz



Measurement: LU-125039-1

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

	U	f	n	P_{ed}	I	LpA_{in}	LwA_{in}	LwA_{out}	qv	p_{fs}	qv	p_{fs}
	V	Hz	min^{-1}	W	A	dB(A)	dB(A)	dB(A)	m^3/h	Pa	CFM	inH2O
1	400	50	1160	588	0.99	68	75	82	8095	0	4765	0.00
2	400	50	1160	766	1.22	64	71	77	6735	200	3965	0.80
3	400	50	1160	860	1.50	60	67	72	5300	350	3120	1.41
4	400	50	1160	777	1.25	61	68	73	3385	450	1990	1.81
5	400	50	1000	377	0.64	65	72	78	6980	0	4110	0.00
6	400	50	1000	493	0.78	61	68	74	5815	151	3420	0.61
7	400	50	1000	540	0.89	56	63	69	4575	262	2695	1.05
8	400	50	1000	498	0.80	58	65	69	2915	334	1715	1.34
9	400	50	800	193	0.33	60	67	73	5585	0	3285	0.00
10	400	50	800	252	0.40	56	63	69	4650	97	2735	0.39
11	400	50	800	276	0.45	52	59	64	3660	168	2155	0.67
12	400	50	800	255	0.41	53	60	65	2335	214	1375	0.86
13	400	50	600	81	0.14	54	61	67	4190	0	2465	0.00
14	400	50	600	106	0.17	50	56	63	3490	54	2055	0.22
15	400	50	600	117	0.19	45	52	58	2745	94	1615	0.38
16	400	50	600	108	0.17	46	54	58	1750	120	1030	0.48

U = Power supply · 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 · qv = Air flow · p_{fs} = Pressure increase