R3G450-RH33-01

EC centrifugal fan - RadiCal

backward-curved, single-intake

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ErP2015 EXCEEDS THE NORM

Nominal data

Type	**R3G450-RH33-01**
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}	1550
Power consumption	W	970
Current draw	A	1.7
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}	%	63.7	51.3
02 Measurement category		A	
03 Efficiency category		Static	
04 Efficiency grade N		74.4	62
05 Variable speed drive		Yes	

09 Power consumption P_{ed}	kW	0.96
09 Air flow q_v	m^3/h	5005
09 Pressure increase p_{fs}	Pa	407
10 Speed (rpm) n	min^{-1}	1555
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-140613

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Technical description

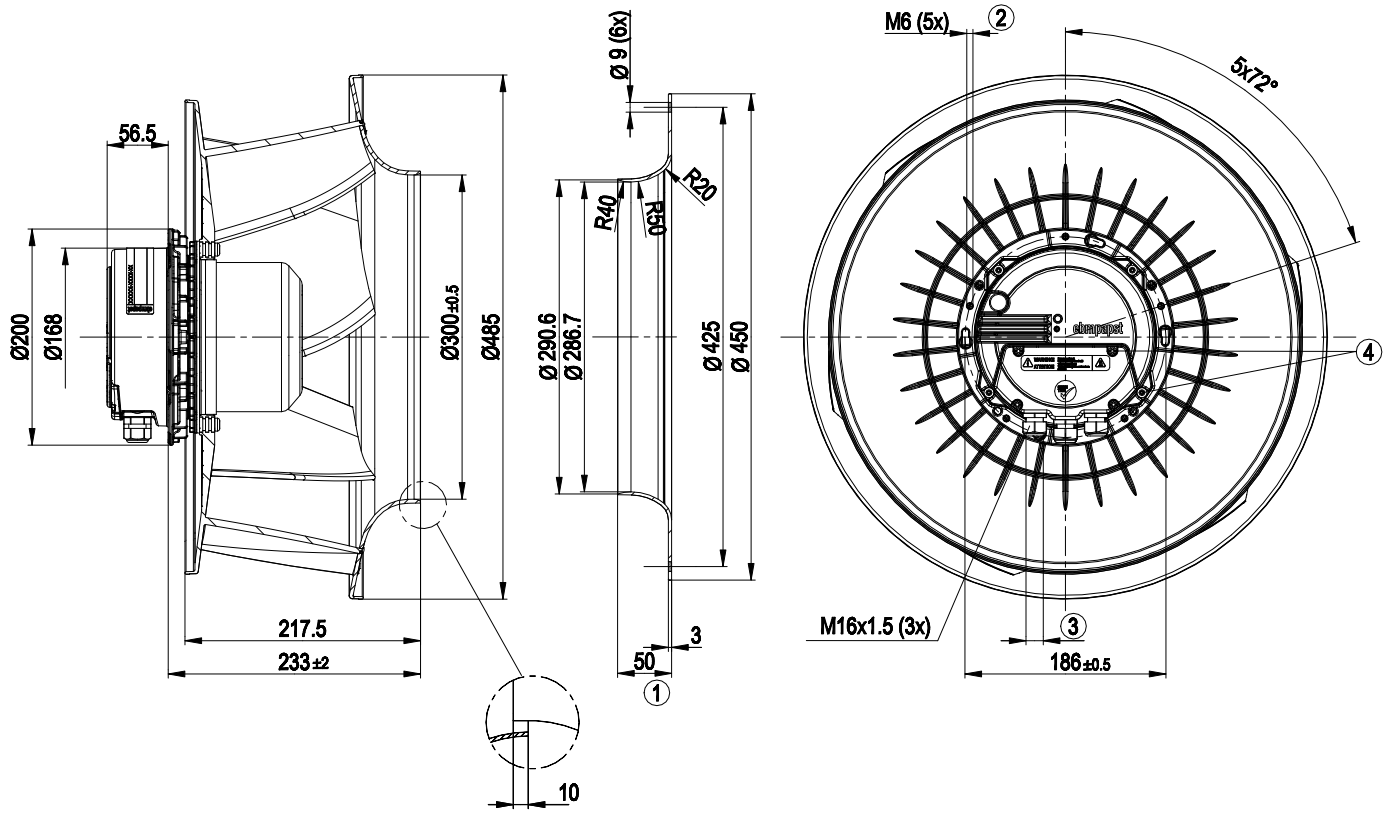
Weight	12 kg
Fan size	450 mm
Rotor surface	Painted black
Electronics housing material	Die-cast aluminum
Impeller material	PP plastic
Number of blades	6
Direction of rotation	Clockwise, viewed toward rotor
Degree of protection	IP54
Insulation class	"B"
Moisture (F) / Environmental (H) protection class	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	Via terminal box
Motor protection	Thermal overload protector (TOP) internally connected
With cable	Variable
Conformity with standards	EN 61800-5-1; CE
Approval	EAC; CCC

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Product drawing



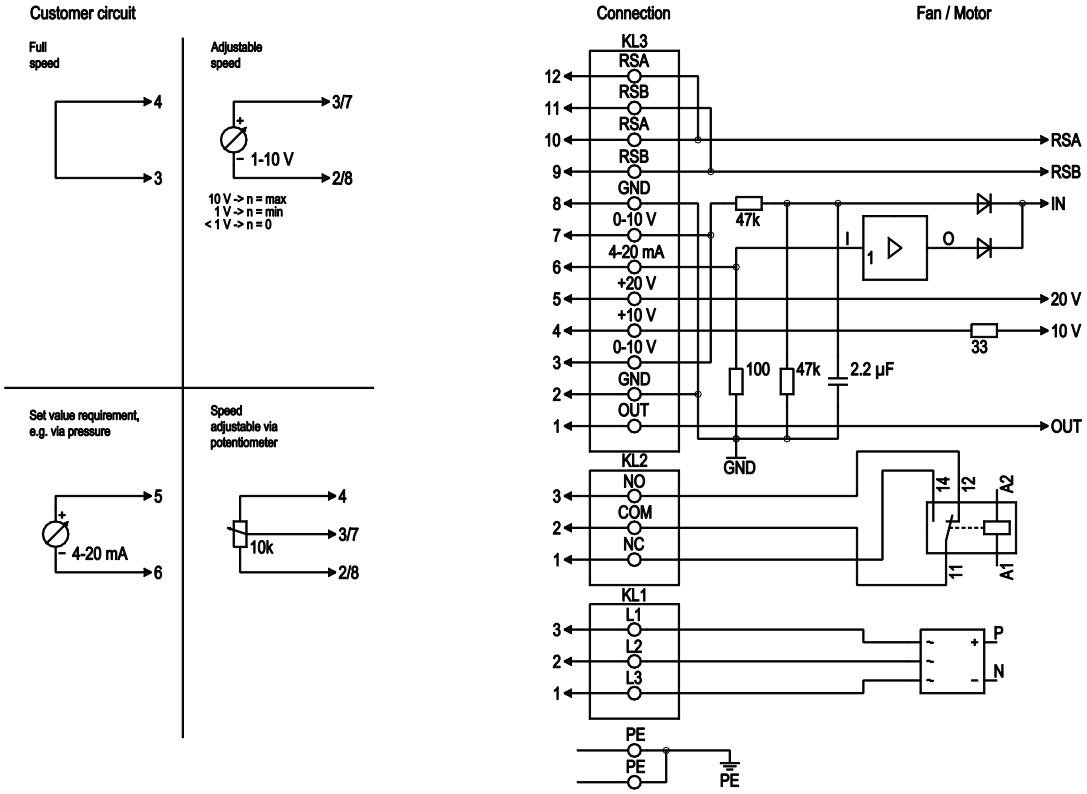
1	Accessory part: inlet ring 45901-2-2943 not included in scope of delivery
2	Max. clearance for screw 16 mm
3	Cable diameter min. 4 mm, max. 10 mm; tightening torque 2.5±0.4 Nm
4	Tightening torque 3.5 ± 0.5 Nm

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Connection diagram



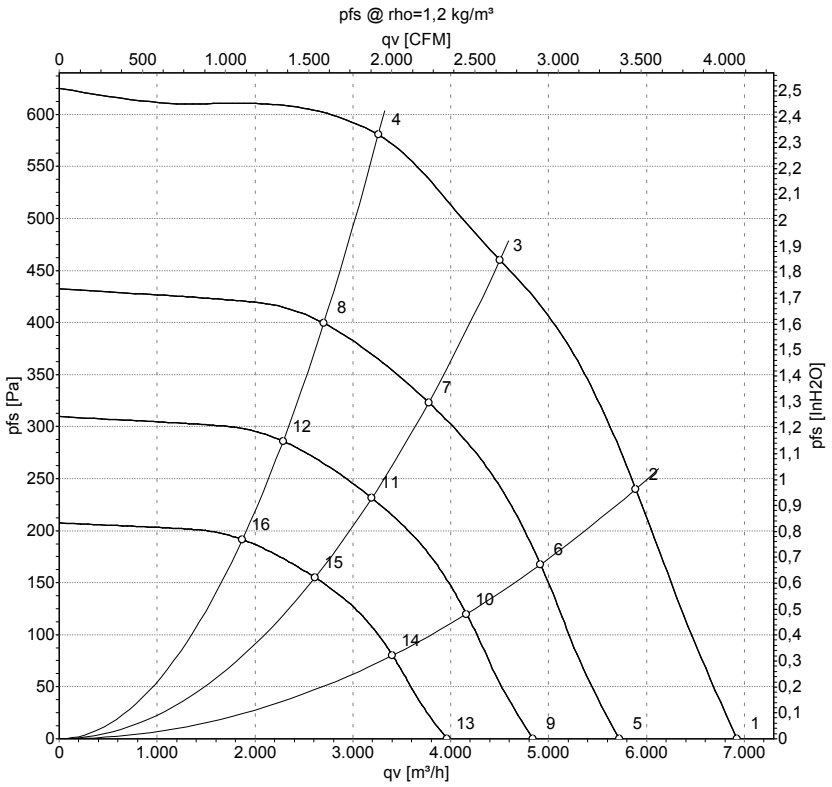
No.	Conn.	Designation	Function/assignment
PE		PE	Protective earth terminal
KL1	1, 2, 3	L1, L2, L3	Power supply, voltage range (see nameplate), 50/60 Hz
KL2	1	NC	Floating status contact, break for failure
KL2	2	COM	floating status contact, changeover contact, common connection (2 A, max. 250 VAC, min. 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-140613-1

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	1575	651	1.20	72	80	87	6925	0	4075	0.00
2	400	50	1555	843	1.46	69	78	84	5890	240	3465	0.96
3	400	50	1550	970	1.70	66	74	80	4505	460	2650	1.85
4	400	50	1570	939	1.59	67	75	81	3260	580	1920	2.33
5	400	50	1300	367	0.68	67	75	82	5720	0	3365	0.00
6	400	50	1300	492	0.85	65	73	80	4920	168	2895	0.67
7	400	50	1300	570	0.99	61	69	76	3775	323	2220	1.30
8	400	50	1300	535	0.91	62	70	76	2705	400	1590	1.61
9	400	50	1100	222	0.41	63	71	78	4840	0	2850	0.00
10	400	50	1100	298	0.52	61	69	75	4160	120	2450	0.48
11	400	50	1100	346	0.60	57	65	72	3195	232	1880	0.93
12	400	50	1100	324	0.55	58	66	72	2290	286	1345	1.15
13	400	50	900	122	0.22	58	66	73	3960	0	2330	0.00
14	400	50	900	163	0.28	56	64	70	3405	81	2005	0.33
15	400	50	900	189	0.33	52	60	67	2615	155	1540	0.62
16	400	50	900	178	0.30	53	61	67	1870	192	1100	0.77

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

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