R3G450-RG53-21

EC centrifugal fan - RadiCal

backward-curved, single-intake

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ErP2015 EXCEEDS THE NORM

Nominal data

Type	**R3G450-RG53-21**
Motor	**M3G112-EA**

Phase		1~
Nominal voltage	VAC	230
Nominal voltage range	VAC	200 .. 277
Frequency	Hz	50/60
Method of obtaining data		ml
Speed (rpm)	min^{-1}	1385
Power consumption	W	700
Current draw	A	3.1
Min. ambient temperature	°C	-25
Max. ambient temperature	°C	50

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}	%	63.9	49.9
02 Measurement category		A	
03 Efficiency category		Static	
04 Efficiency grade N		76	62
05 Variable speed drive		Yes	

09 Power consumption P_{ed}	kW	0.7
09 Air flow q_v	m^3/h	3880
09 Pressure increase p_{fs}	Pa	380
10 Speed (rpm) n	min^{-1}	1385
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-141467

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Technical description

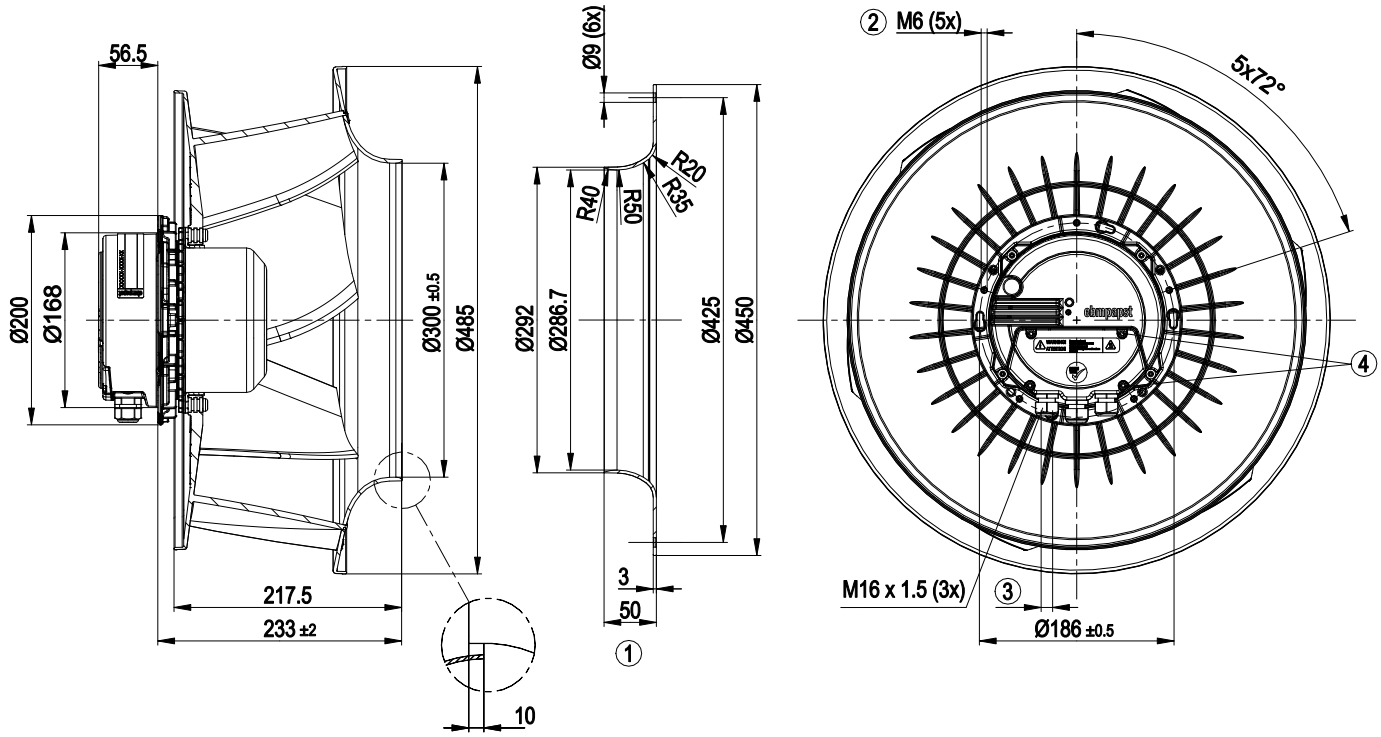
Weight	12 kg
Fan size	450 mm
Rotor surface	Painted black
Electronics housing material	Die-cast aluminum
Impeller material	PP plastic
Number of blades	6
Direction of rotation	Clockwise, viewed toward rotor
Degree of protection	IP54
Insulation class	"B"
Moisture (F) / Environmental (H) protection class	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 - Operation and alarm display - Selection of direction of rotation left/right - 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, active - 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 61000-6-4 (industrial 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



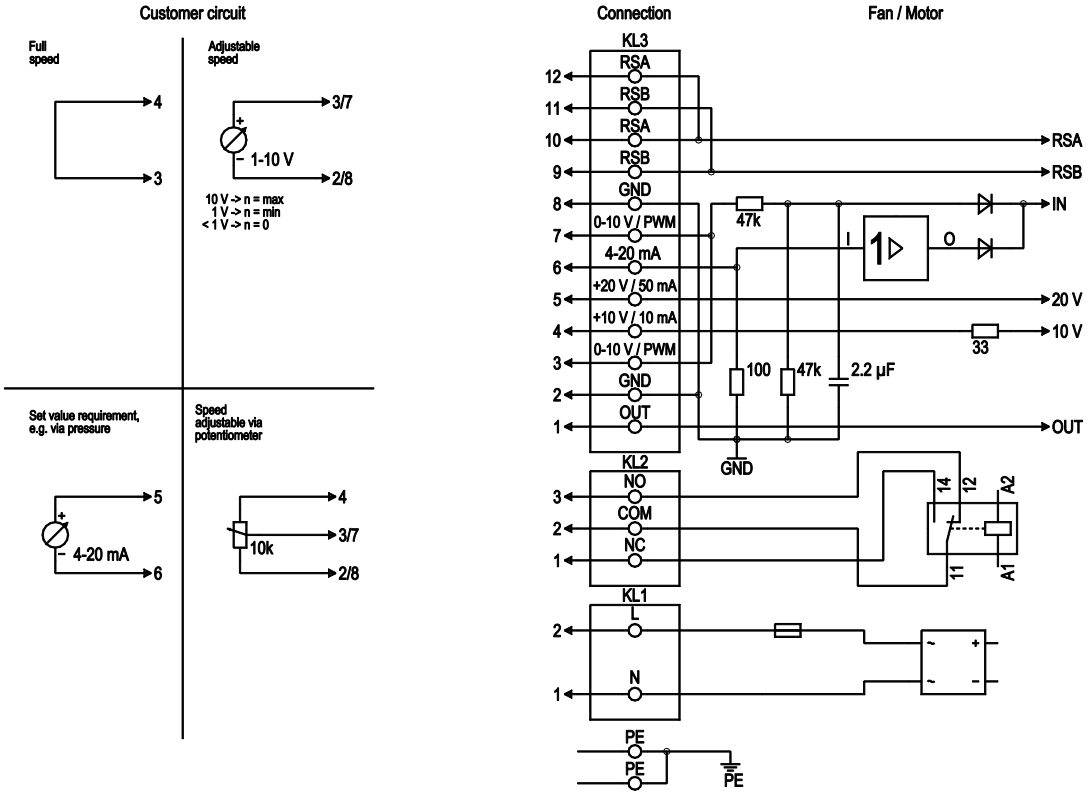
1	Accessory part: Inlet ring 45901-2-2943 not included in scope of delivery.
2	Max. clearance for screw 16 mm
3	Cable diameter min. 4 mm, max. 10 mm; tightening torque 4±0.6 Nm
4	Tightening torque 4±0.6 Nm

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Connection diagram



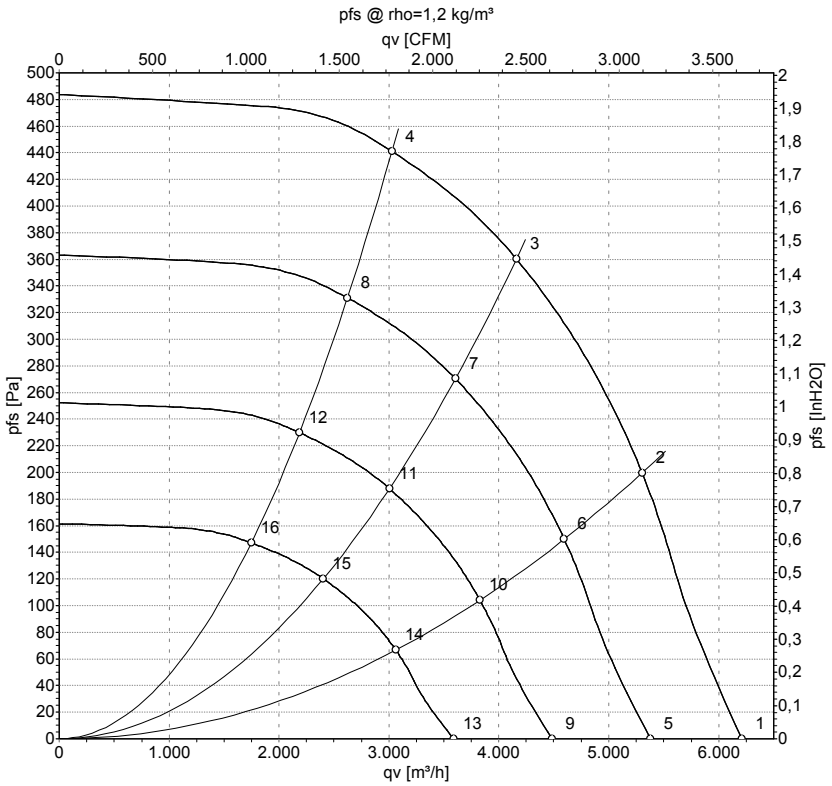
No.	Conn.	Designation	Function/assignment
PE	-	PE	Protective earth terminal
KL1	1, 2	N, L	Power supply 50/60 Hz
KL2	1	NC	Floating status contact, break for failure
KL2	2	COM	Floating status contact, changeover contact, common connection (2 A, max. 250 VAC, min. 10 mA, AC1)
KL2	3	NO	Floating status contact, 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	Control/current sensor value input 0-10 VDC, impedance 100 kΩ, use only as alternative to 4-20 mA input, SELV
KL3	4	+10 V	Voltage output 10 VDC (+/- 3%), max. 10 mA, power supply for ext. devices (e.g. potentiometer), SELV
KL3	5	+20 V	Voltage output 20 VDC (+25%/-10%), max. 50 mA power supply for ext. devices (e.g. sensors), SELV
KL3	6	4-20 mA	Control/current sensor value input 4-20 mA, impedance 100 Ω, use 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-141467-1

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	230	50	1385	417	1.84	68	77	84	6210	0	3655	0.00
2	230	50	1385	606	2.66	66	75	82	5305	200	3120	0.80
3	230	50	1385	700	3.10	62	71	77	4160	360	2450	1.45
4	230	50	1385	654	2.87	63	71	78	3025	440	1780	1.77
5	230	50	1200	271	1.20	65	73	80	5380	0	3165	0.00
6	230	50	1200	394	1.73	63	71	78	4595	150	2705	0.60
7	230	50	1200	452	1.98	59	67	74	3605	270	2120	1.08
8	230	50	1200	425	1.86	60	68	74	2620	332	1545	1.33
9	230	50	1000	157	0.69	60	68	75	4485	0	2640	0.00
10	230	50	1000	228	1.00	58	67	74	3830	104	2255	0.42
11	230	50	1000	261	1.15	54	62	69	3005	188	1770	0.75
12	230	50	1000	246	1.08	55	63	70	2185	230	1285	0.92
13	230	50	800	80	0.35	54	63	70	3585	0	2110	0.00
14	230	50	800	117	0.51	53	61	68	3065	67	1805	0.27
15	230	50	800	134	0.59	49	57	64	2405	120	1415	0.48
16	230	50	800	126	0.55	49	58	64	1750	147	1030	0.59

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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