R3G250-RR04-N1

EC centrifugal fan - RadiCal

backward curved, single inlet

for railway applications

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Nominal data

Type	**R3G250-RR04-N1**
Motor	**M3G084-DF**

Phase		3~
Nominal voltage	VAC	400
Nominal voltage range	VAC	380 .. 480
Frequency	Hz	50/60
Type of data definition		ml
Speed (rpm)	min^{-1}	4000
Power input	W	595
Current draw	A	0.95
Min. ambient temperature	°C	-40
Max. ambient temperature	°C	70

ml = Max. load · me = Max. efficiency · fa = Running at free air · cs = Customer specs · cu = Customer unit
Subject to alterations

Data in accordance with ecodesign regulation EU 327/2011 (EN 17166)

		Actual	Request 2015
01 Overall efficiency η_{es}	%	60.9	49.1
02 Measurement category		A	
03 Efficiency category		Static	
04 Efficiency grade N		73.8	62
05 Variable speed drive		Yes	

09 Power input P_{ed}	kW	0.59
09 Air flow q_v	m^3/h	1355
09 Pressure increase p_{fs}	Pa	872
10 Speed (rpm) n	min^{-1}	4005
11 Specific ratio*		1.01

Data definition with optimum efficiency.
The ErP data is determined using a motor-impeller combination in a standardised measurement configuration.

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

LU-156471

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Technical features

Mass	5.1 kg
Size	250 mm
Motor size	84
Surface of rotor	Coated in black
Material of impeller	PA UL94 V0 plastic
Housing material	Die-cast aluminium
Number of blades	7
Direction of rotation	Clockwise, seen on rotor
Type of protection	IP55
Insulation class	"F"
Humidity (F) / environmental protection class (H)	H3
Max. permissible ambient motor temp. (transp./ storage)	+80 °C
Min. permissible ambient motor temp. (transp./storage)	-40 °C
Mounting position	Shaft horizontal or rotor on bottom; rotor on top on request
Condensation drainage holes	Rotor-side
Operation mode	S1
Motor bearing	Ball bearing; (sealed)
Technical features	- Output 10 VDC, max. 10 mA - Alarm relay - Integrated PID controller - Run monitoring - Output limit - Motor current limit - Emergency operation - PFC, passive - RS485 MODBUS RTU - Soft start -Maximum EEPROM write cycles 100,000 - Control input 0-10 VDC / PWM - Control interface with SELV potential safely disconnected from the mains - Overvoltage detection - Over-temperature protected electronics / motor - Line undervoltage / phase failure detection
EMC directives	According to EN 50121-3-2
Touch current acc. IEC 60990 (measuring network Fig. 4, TN system)	<= 3.5 mA
Motor protection	Thermal overload protector (TOP) wired internally
Cable exit	Lateral
Protection class	I (if protective earth is connected by customer)
Product conforming to standard	EN 15085-1, CPC3; EN 45545-2, HL3; EN 50155; EN 61373, Cat. 1B; CE
Approval	EAC

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Remark	A prerequisite for operation is a Class 1 vehicle electrical system architecture according to EN 50533; if voltage (e.g. 230 VAC) is passed through the alarm relay, the reinforced insulation property of the SELV signal wires will be lost and they will then have only basic insulation The SELV property (reinforced insulation) is not lost when voltages of up to 110 VDC are passed through the alarm relay; EMC regulation: EN 50121-3-2 in preparation

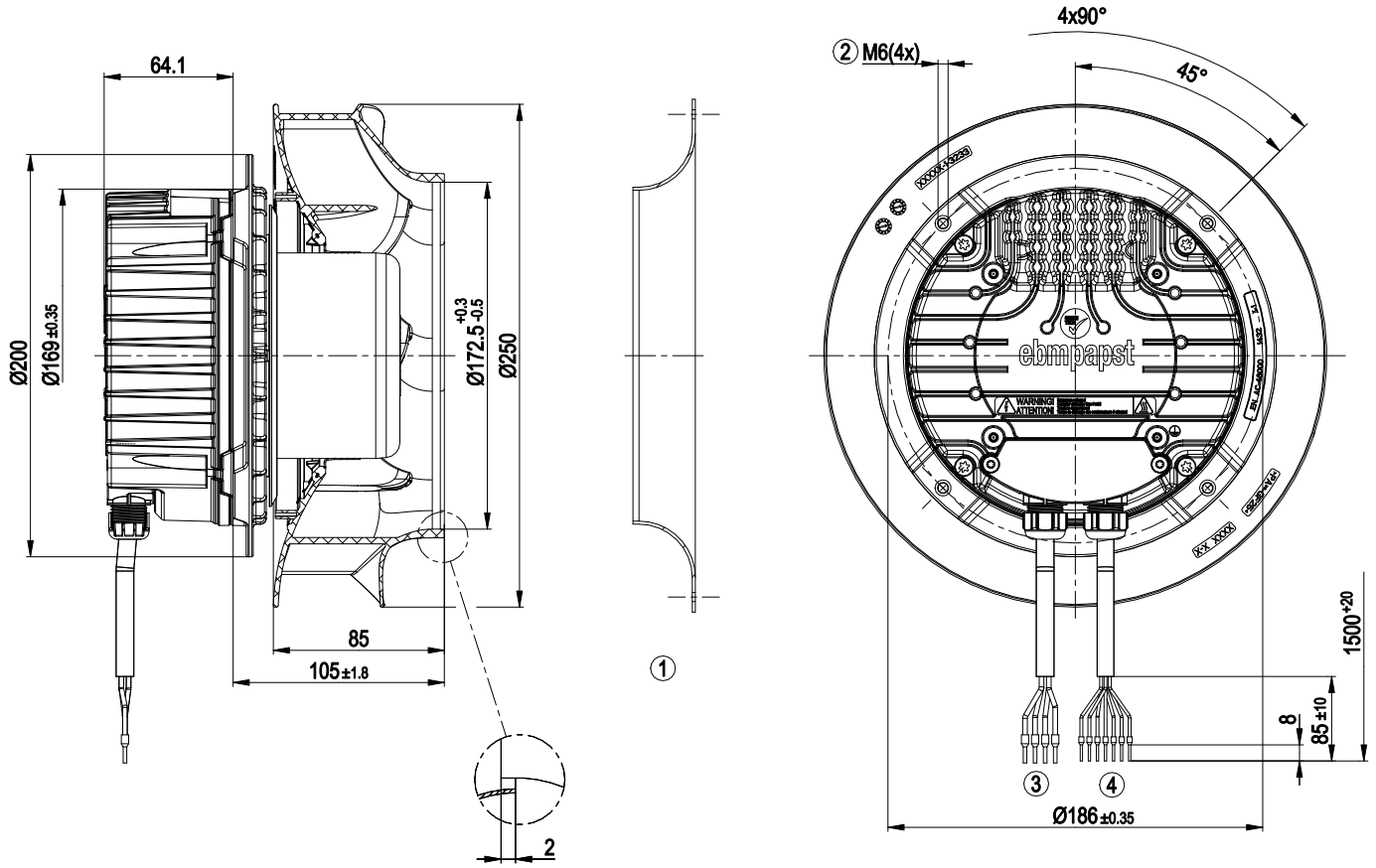
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Product drawing



1	Accessory part: Inlet nozzle 96359-2-4013 not included in scope of delivery
2	Thread reach max. 16 mm
3	Connection line, halogen-free, railway application EN 45545, 4G 1.5 mm²
	4x core-end sleeve
4	Connection line, halogen-free, railway application EN 45545, 7x 0.5 mm²
	7x core-end sleeve

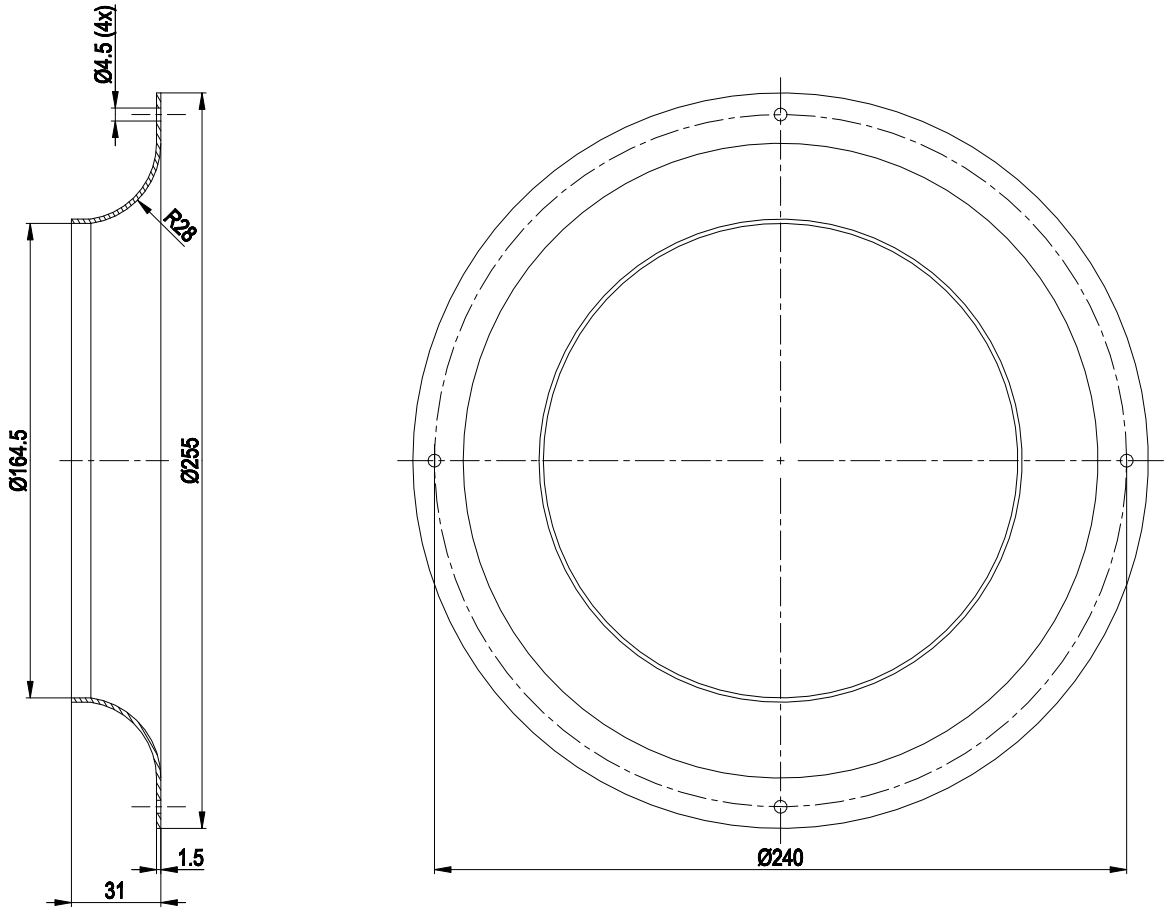
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Accessory part



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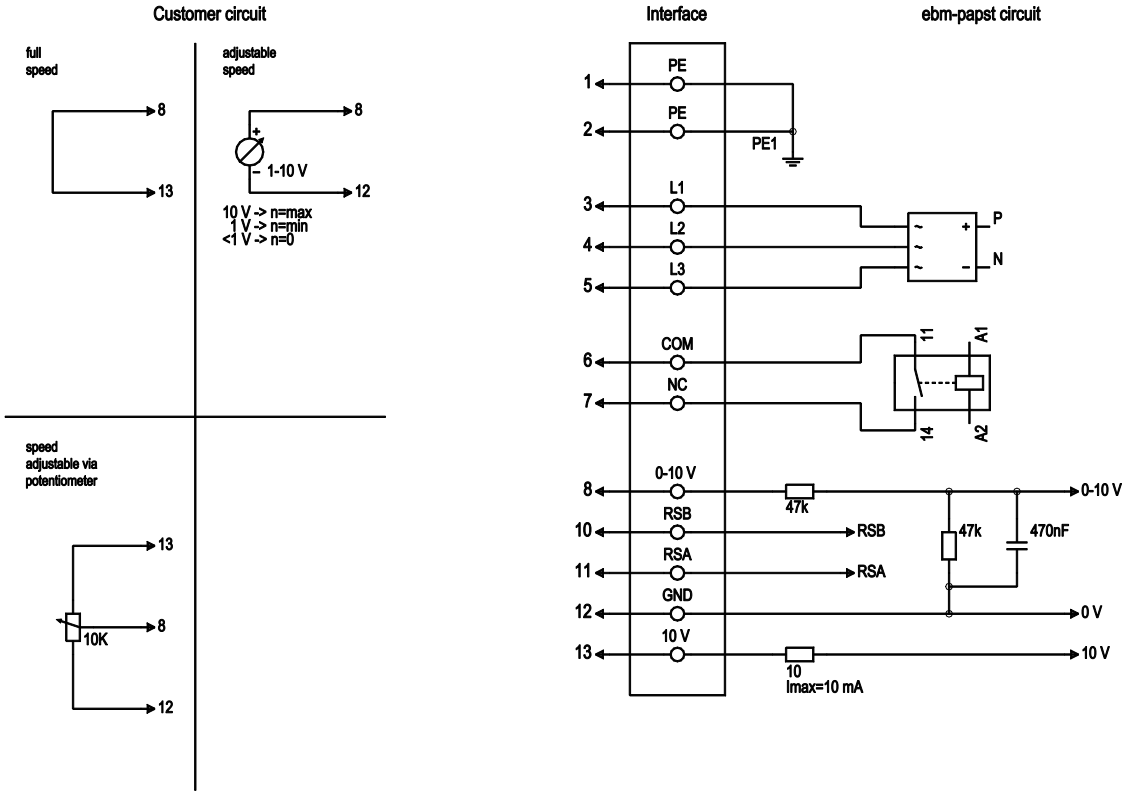
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Connection screen



No.	Conn.	Designation	Colour	Function / assignment
1	1	PE	green/yellow	Protective earth
1	2	PE	-	not brought out via lead
1	3	L1	black	Power supply, phase, 50/60 Hz
1	4	L2	blue	Power supply, phase, 50/60 Hz
1	5	L3	brown	Power supply, phase, 50/60 Hz
2	6	COM	grey	Status relay, floating status contact, common connection, contact rating, 250 VAC / max. 2 A (AC1), min. 1 mA / 5 VDC, reinforced insulation with respect to control interface, basic insulation on mains side according to EN 50124-1
2	7	NC	orange	Status relay, floating status contact, break for failure, contact rating 250 VAC / max. 2 A (AC1), min. 1 mA / 5 VDC, reinforced insulation on control interface side, basic insulation on supply side according to EN 50124-1
2	8	0-10V	yellow	Analogue input (set value) SELV, 0-10 V, Ri=100kΩ, parametrisable curve
2	10	RSB	brown	RS485 interface for MODBUS, RSB; SELV
2	11	RSA	white	RS485 interface for MODBUS, RSA; SELV
2	12	GND	blue	Signal ground for control interface, SELV
2	13	+10V	red	Fixed voltage output 10 VDC, +10 V +/-3 %, max. 10 mA, short-circuit-proof, power supply for ext. devices (e.g. potentiometer); SELV

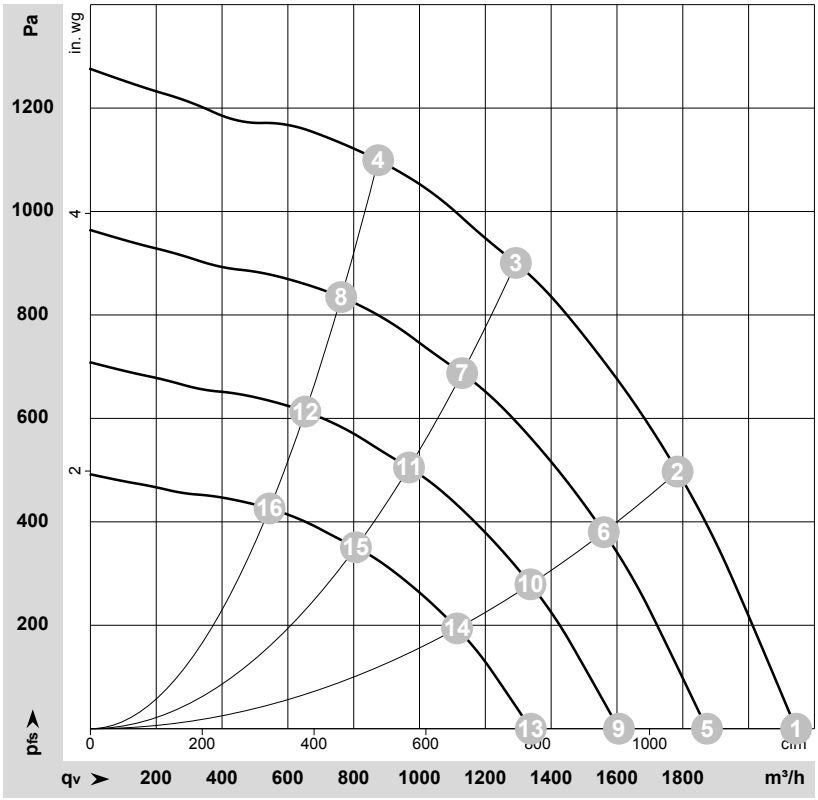
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Charts: Air flow 50 Hz



ρ = 1.15 kg/m³ ± 2 %

Measurement: LU-156471-1

Air performance measured as per ISO 5801 Installation category A. For detailed information on the measuring set-up, please contact ebm-papst. Suction-side noise levels: LwA measured as per ISO 13347 / LpA measured with 1m distance to fan axis. The values given are valid under the measuring conditions mentioned above and may vary according to the actual installation situation. With any deviation from the standard set-up, the specific values have to be checked and reviewed with the unit installed.

Measured values

	Conn.	U	f	n	P_{ed}	I	LpA_{in}	LwA_{in}	q_V	p_{fs}	q_V	p_{fs}
		V	Hz	min^{-1}	W	A	dB(A)	dB(A)	m^3/h	Pa	cfm	in. wg
1	3~	400	50	4000	458	0.78	80	88	2145	0	1260	0.00
2	3~	400	50	4000	532	0.89	76	83	1785	500	1050	2.01
3	3~	400	50	4000	595	0.95	72	80	1295	900	760	3.61
4	3~	400	50	4000	546	0.92	74	81	875	1100	515	4.42
5	3~	400	50	3500	305	0.52	77	85	1875	0	1105	0.00
6	3~	400	50	3500	356	0.59	72	80	1560	380	920	1.53
7	3~	400	50	3500	397	0.65	69	77	1130	688	665	2.76
8	3~	400	50	3500	361	0.61	70	78	760	835	450	3.35
9	3~	400	50	3000	192	0.33	73	81	1605	0	945	0.00
10	3~	400	50	3000	224	0.37	68	76	1335	279	785	1.12
11	3~	400	50	3000	250	0.41	65	73	970	505	570	2.03
12	3~	400	50	3000	228	0.38	66	74	655	614	385	2.46
13	3~	400	50	2500	111	0.19	68	76	1340	0	790	0.00
14	3~	400	50	2500	130	0.22	64	72	1115	194	655	0.78
15	3~	400	50	2500	145	0.24	60	68	805	351	475	1.41
16	3~	400	50	2500	132	0.22	62	69	545	426	320	1.71

Conn. = Connection · U = Supply voltage · f = Frequency · n = Speed (rpm) · P_{ed} = Power input · I = Current draw · LpA_{in} = Sound pressure level inlet side · LwA_{in} = Sound power level inlet side
q_V = Air flow · p_{fs} = Pressure increase

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