R3G250-RR04-N1

EC centrifugal fan - RadiCal

backward-curved, single-intake

for rail applications

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Nominal data

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

Phase		3~
Nominal voltage	VAC	480
Nominal voltage range	VAC	380 .. 480
Frequency	Hz	50/60
Method of obtaining data		ml
Speed (rpm)	min^{-1}	4000
Power consumption	W	615
Current draw	A	0.85
Min. ambient temperature	°C	-40
Max. ambient temperature	°C	70

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

		Actual	Req. 2015
01 Overall efficiency η_{es}	%	55.7	49.2
02 Measurement category		A	
03 Efficiency category		Static	
04 Efficiency grade N		68.5	62
05 Variable speed drive		Yes	

09 Power consumption P_{ed}	kW	0.6
09 Air flow q_v	m^3/h	1200
09 Pressure increase p_{fs}	Pa	917
10 Speed (rpm) n	min^{-1}	4005
11 Specific ratio*		1.01

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

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Technical description

Weight	4.6 kg
Fan size	250 mm
Rotor surface	Painted black
Impeller material	PA plastic UL94 V0
Housing material	Die-cast aluminum
Number of blades	7
Direction of rotation	Clockwise, viewed toward rotor
Degree of protection	IP55
Insulation class	"F"
Moisture (F) / Environmental (H) protection class	H3
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; (sealed)
Technical features	- Output 10 VDC, max. 10 mA - Alarm relay - Integrated PID controller - Run monitoring - Power limiter - Motor current limitation - Emergency operation - PFC, passive - RS-485 MODBUS-RTU - Soft start - EEPROM write cycles: 100,000 maximum - Control input 0-10 VDC / PWM - Control interface with SELV potential safely disconnected from the mains - Overvoltage detection - Thermal overload protection for electronics/motor - Line undervoltage / phase failure detection
Touch current according to IEC 60990 (measuring circuit Fig. 4, TN system)	<= 3.5 mA
Motor protection	Thermal overload protector (TOP) internally connected
With cable	Lateral
Protection class	I (with customer connection of protective earth)
Conformity with standards	EN 15085-1, CPC3: 2013; EN 45545-2, HL3: 2013; EN 50155: 2008; EN 61373, Cat. 1B: 2010
Approval	EAC

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Comment	A prerequisite for operation is a Class 1 vehicle electrical system architecture according to EN 50533; if supply potential (e.g. 230 VAC) is passed through the alarm relay, the SELV signal wires lose their property of reinforced insulation and they 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

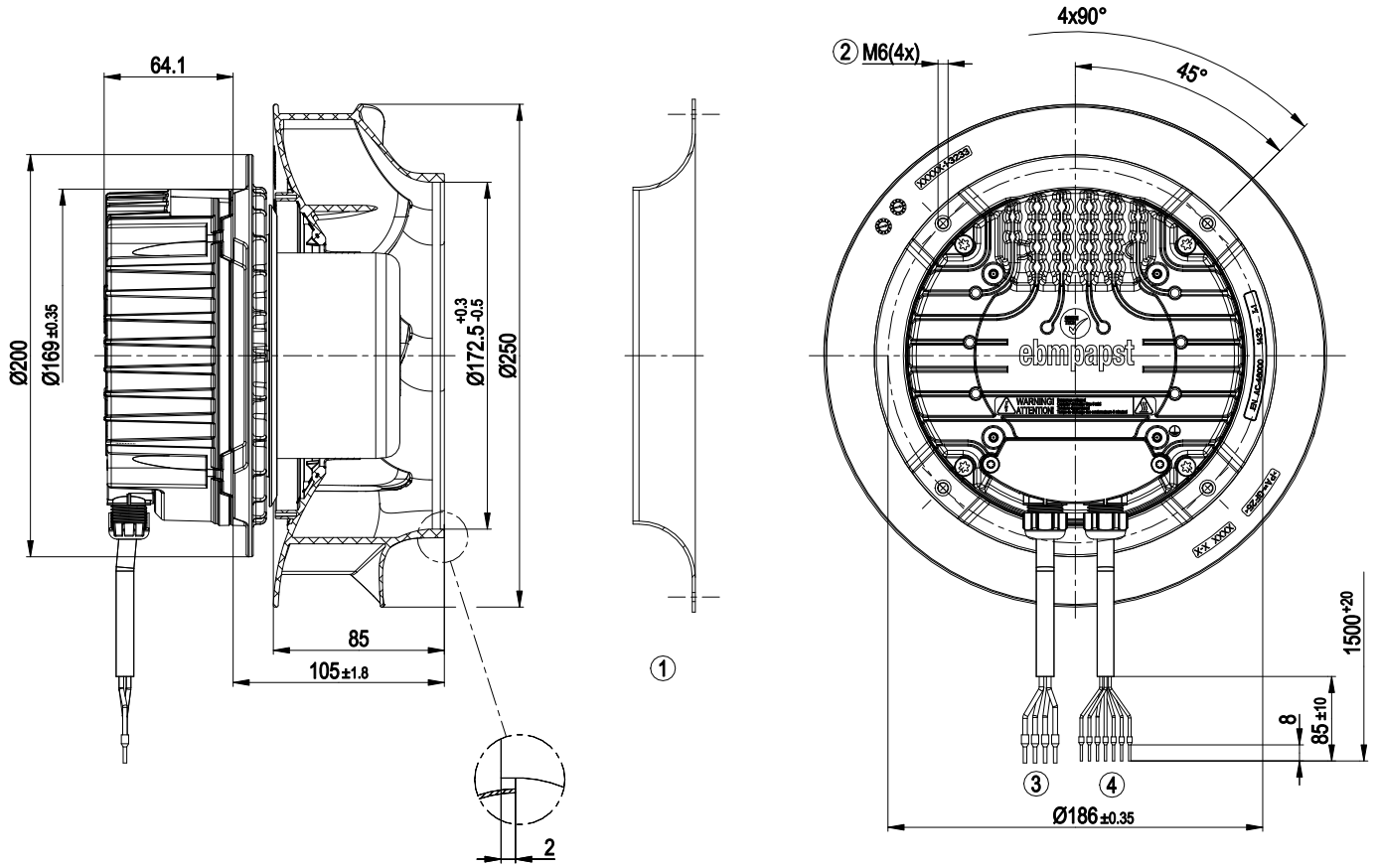
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Product drawing



1	Accessory part: inlet ring 96359-2-4013 not included in scope of delivery
2	Max. clearance for screw 16 mm
3	Cable halogen-free, BETAtrans® 3 GKW flex, 4G 1.5 mm², 4x crimped ferrules
4	Cable halogen-free, BETAtrans® 3 GKW flex, 7x 0.5 mm², 7x crimped ferrules

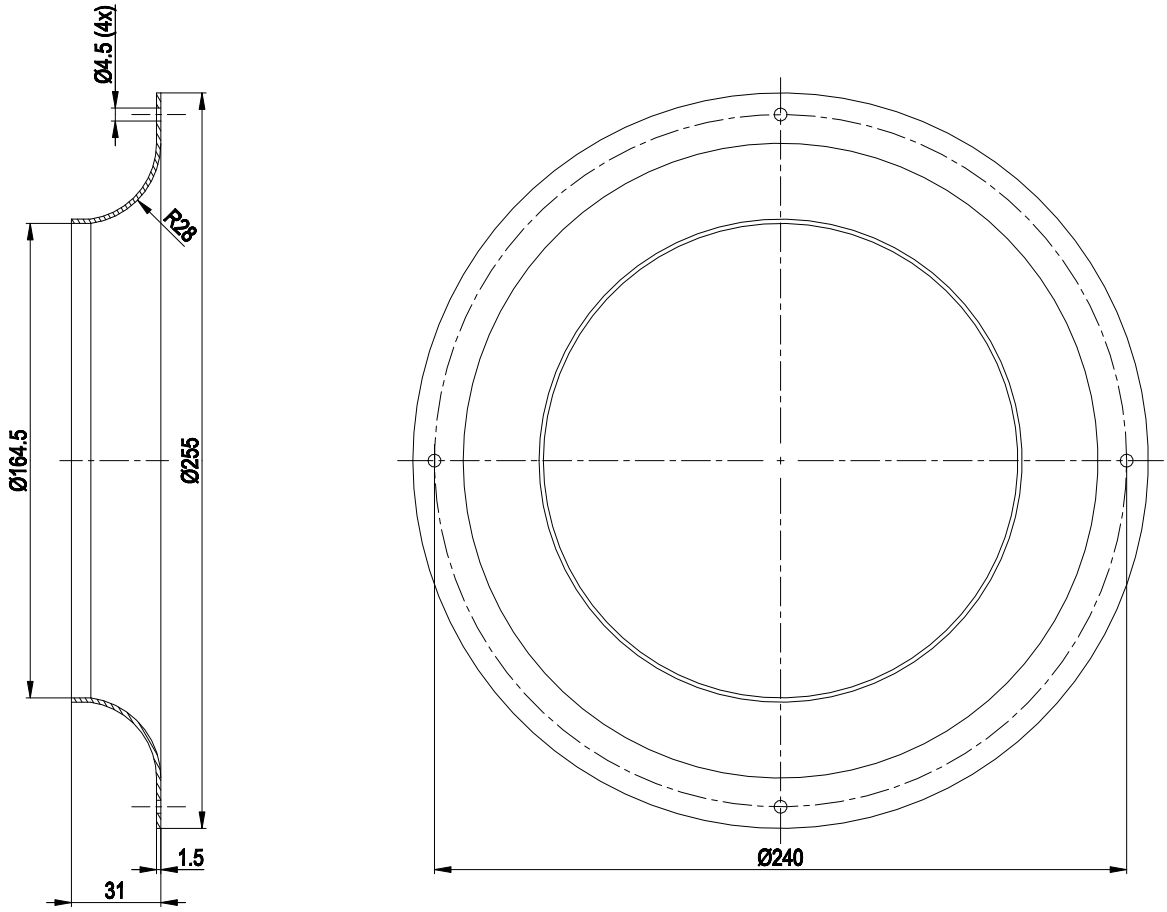
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Accessory part



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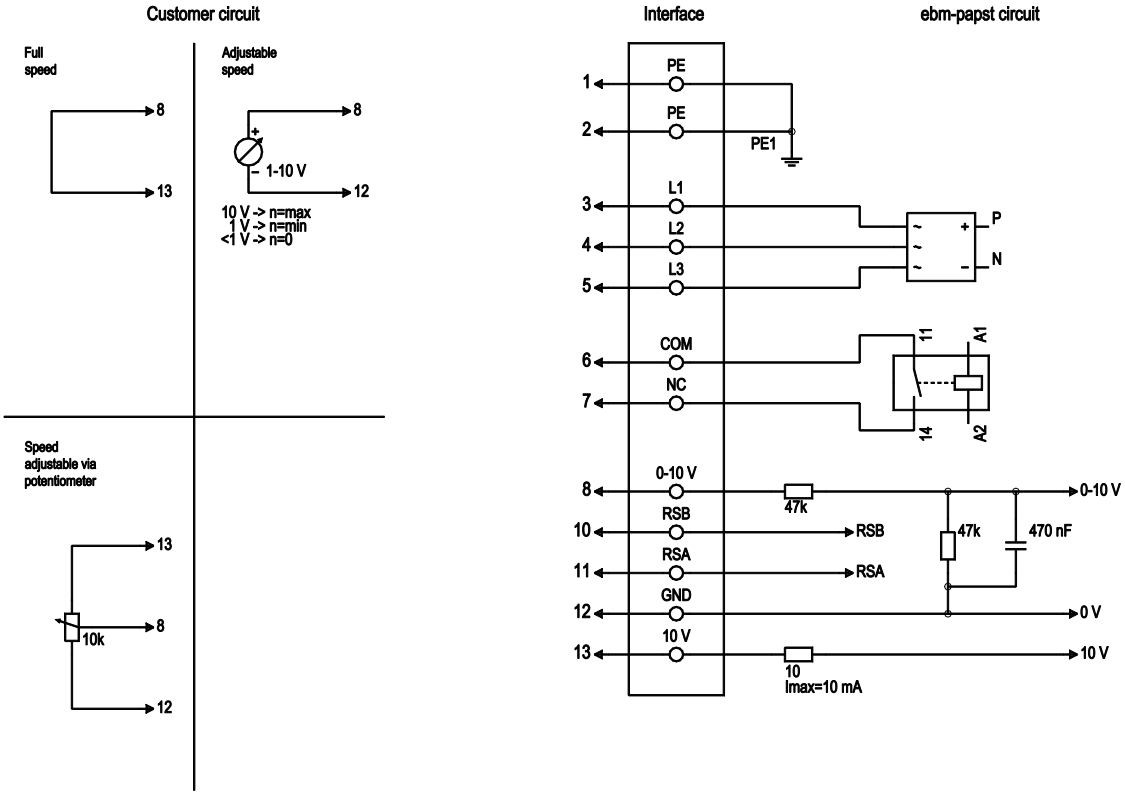
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Connection diagram



No.	Conn.	Designation	Color	Function/assignment
1	1, 2	PE	green/yellow	Protective earth
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	gray	Status relay, floating status contact, common connection, contact rating 250 VAC / 30 VDC 5 A minimum contact separation 1 mA / 5 VDC, reinforced insulation on supply side, basic insulation on control interface side
2	7	NC	orange	Status relay, floating status contact, break for failure, contact rating 250 VAC / 30 VDC 5 A minimum contact separation 1 mA / 5 VDC, reinforced insulation on supply side, basic insulation on control interface side
2	8	0-10V	yellow	Analog input (set value) SELV, 0-10 V, Ri = 100 kΩ, adjustable 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	Reference 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 external devices (e.g. pot); SELV

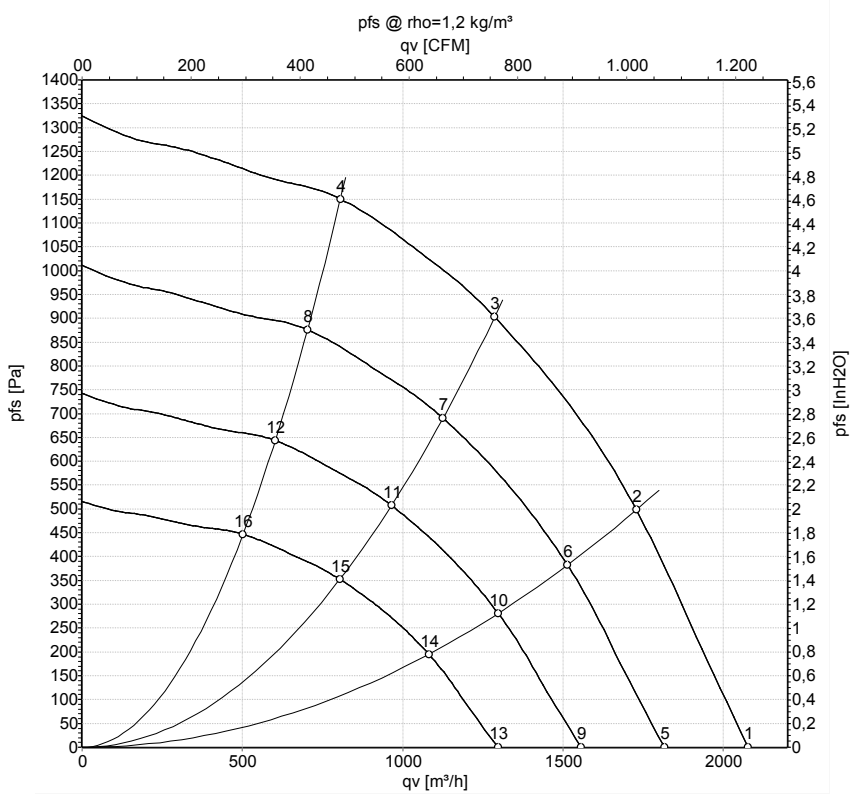
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Curves: Air performance 60 Hz



Measurement: LU-158298-1

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}	q_V	p_{fs}	q_V	p_{fs}
	V	Hz	min^{-1}	W	A	dB(A)	dB(A)	m^3/h	Pa	cfm	inH2O
1	480	60	4000	484	0.70	79	87	2080	0	1225	0.00
2	480	60	4000	562	0.79	76	84	1730	500	1020	2.01
3	480	60	4000	615	0.85	74	82	1285	900	755	3.61
4	480	60	4000	552	0.78	78	85	805	1150	475	4.62
5	480	60	3500	323	0.47	76	84	1815	0	1070	0.00
6	480	60	3500	377	0.53	73	80	1515	382	890	1.53
7	480	60	3500	407	0.57	71	79	1125	690	665	2.77
8	480	60	3500	367	0.52	75	82	705	876	415	3.52
9	480	60	3000	203	0.30	72	80	1555	0	915	0.00
10	480	60	3000	238	0.33	69	77	1300	281	765	1.13
11	480	60	3000	257	0.36	67	75	965	507	570	2.04
12	480	60	3000	231	0.33	71	78	605	644	355	2.59
13	480	60	2500	118	0.17	68	75	1295	0	765	0.00
14	480	60	2500	138	0.19	64	72	1080	195	635	0.78
15	480	60	2500	148	0.21	63	70	805	352	475	1.41
16	480	60	2500	134	0.19	66	74	500	447	295	1.79

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
q_V = Air flow · p_{fs} = Pressure increase

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