EC centrifugal fan - RadiCal

backward-curved, single-intake

R3G250-RI51-13 ebmpapst Datasheet
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Nominal data

Type	**R3G250-RI51-13**
Motor	**M3G074-DF**

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}	3780
Power consumption	W	500
Current draw	A	2.2
Min. ambient temperature	°C	-25
Max. ambient temperature	°C	55

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 (EN 17166)

		Actual	Req. 2015
01 Overall efficiency η_{es}	%	59.2	48.4
02 Measurement category		A	
03 Efficiency category		Static	
04 Efficiency grade N		72.8	62
05 Variable speed drive		Yes	

09 Power consumption P_{ed}	kW	0.5
09 Air flow q_v	m^3/h	1190
09 Pressure increase p_{fs}	Pa	818
10 Speed (rpm) n	min^{-1}	3780
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

LU-204706

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Technical description

Size	250 mm
Motor size	74
Rotor surface	Thick-film passivated
Impeller material	PA plastic, galvanized sheet-metal plate
Number of blades	7
Direction of rotation	Clockwise, viewed toward rotor
Degree of protection	IP54
Insulation class	"B"
Moisture (F) / Environmental (H) protection class	H1
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 top; rotor on bottom on request
Condensation drainage holes	On rotor side
Mode	S1
Motor bearing	Ball bearing
Technical features	- Output 10 VDC, max. 10 mA - Operation and alarm display - Tach output - Alarm relay - Integrated PID controller - Cable break detection with control line - Power limiter - Motor current limitation - PFC, active - Soft start - Control input 0-10 VDC / PWM - Control interface with SELV potential safely disconnected from the mains - 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	Connector with cable
Motor protection	Thermal overload protector (TOP) internally connected
With cable	Variable
Protection class	I (with customer connection of protective earth)
Conformity with standards	EN 60034-1; EN 60204-1; EN 60335-1; CE
Approval	CSA C22.2 No. 77 + CAN/CSA-E60730-1; EAC; UL 1004-7 + 60730-1

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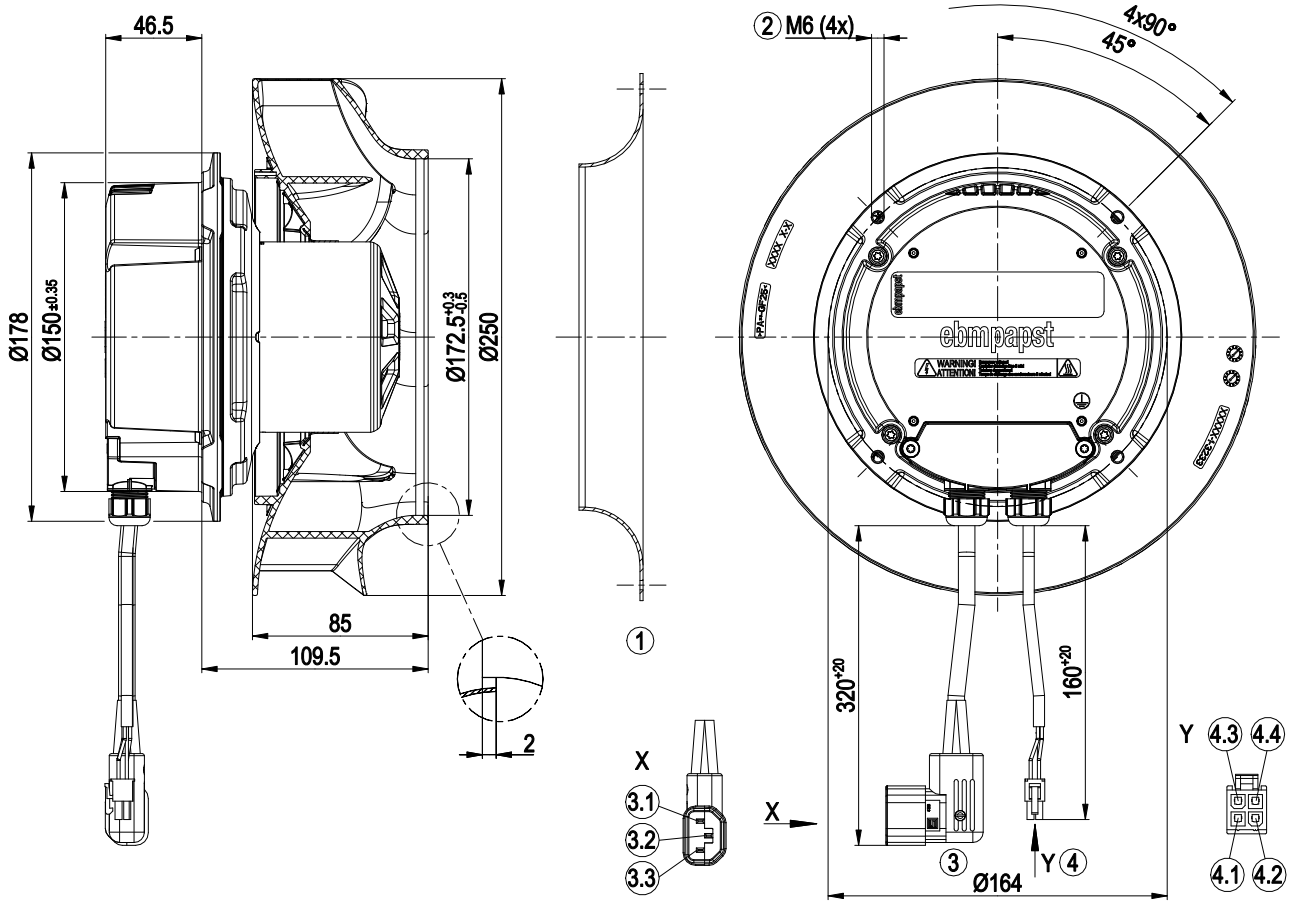
Product drawing



1	Accessory part: inlet ring 96359-2-4013 not included in scope of delivery
2	Max. screw-in depth 10 mm, tightening torque 8 ± 1.2 Nm
3	Cable PVC AWG18
	3-pole connector housing Schurter 4733.0000, 4x splice
3.1	L (black)
3.2	PE (green/yellow)
3.3	N (blue)
4	Cable PVC AWG22
	4-pole connector housing Molex 46992-0410, 4x socket Molex 39-00-0038
4.1	+10 V (red)
4.2	0-10 VDC (yellow)
4.3	GND (blue)
4.4	Tach (white)

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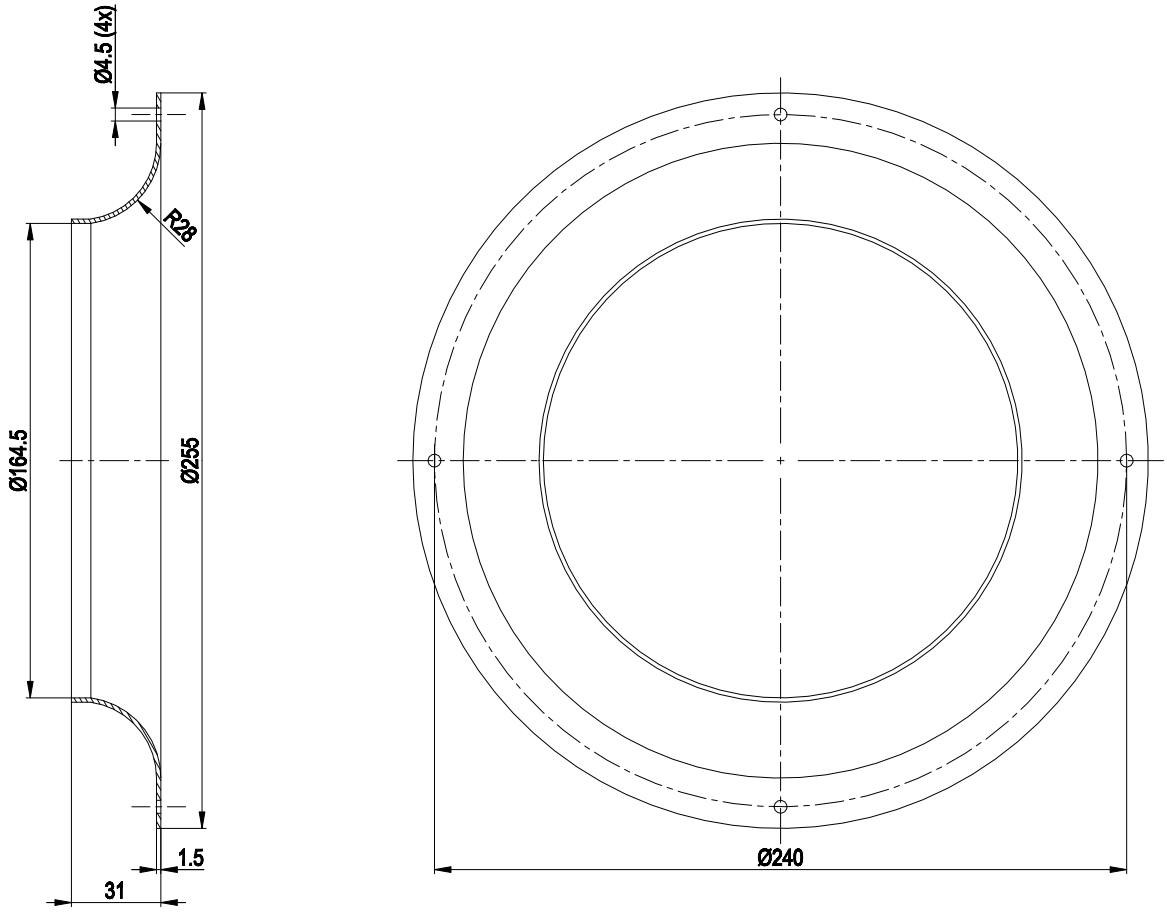
Accessory part



Inlet ring 96359-2-4013

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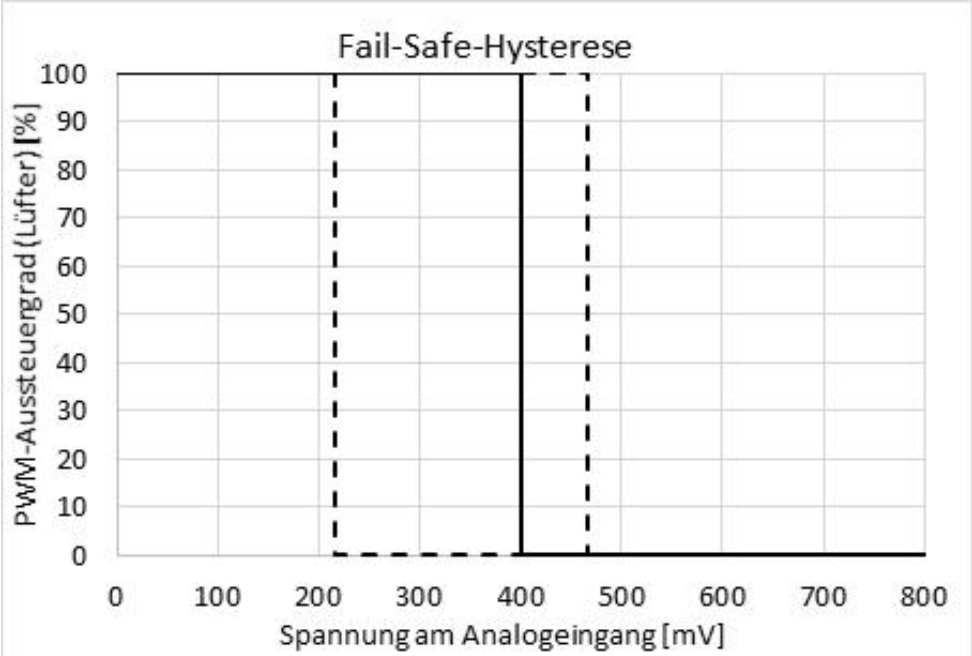

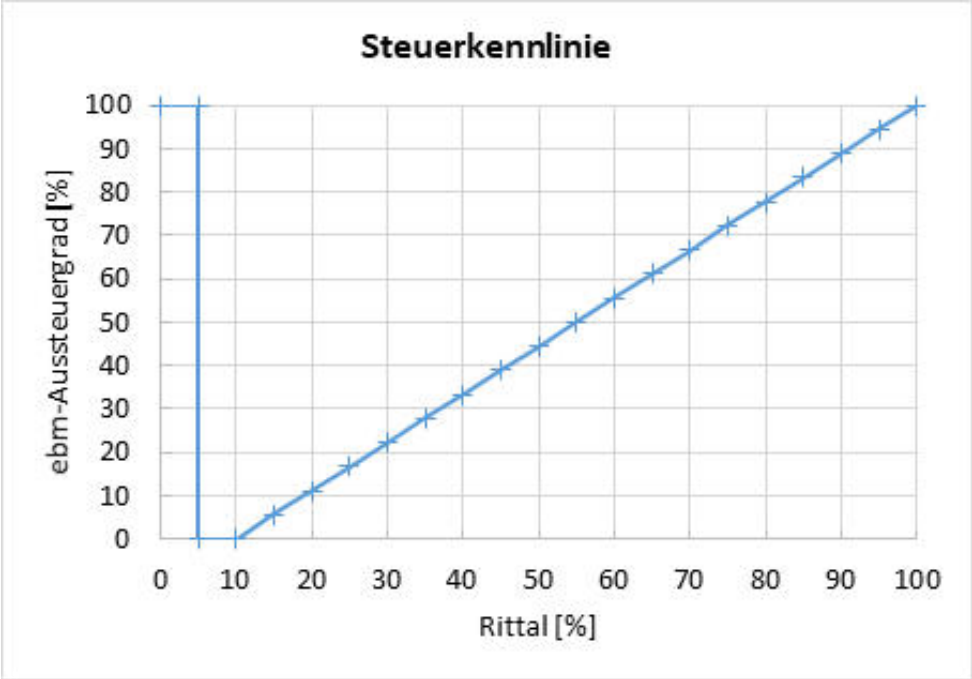

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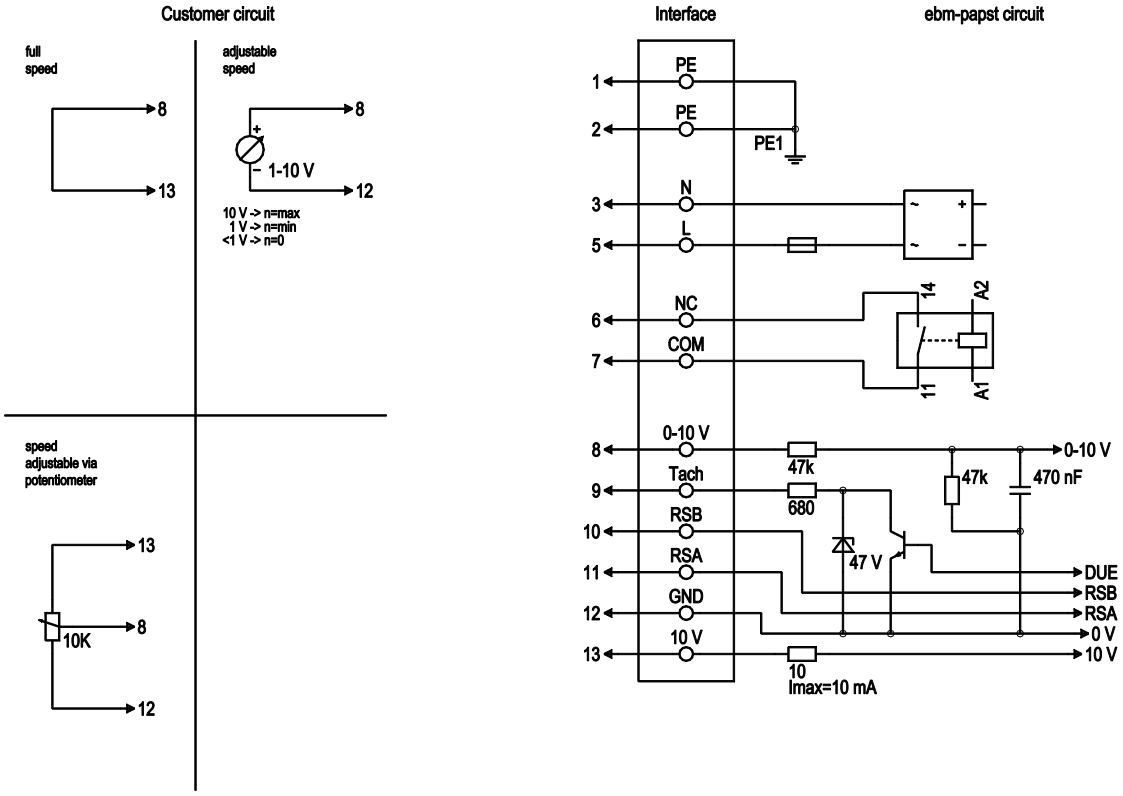
Connection diagram



No.	Conn.	Designation	Color	Function/assignment
1	1, 2	PE	green/yellow	Protective earth
1	3	N	blue	Power supply, neutral conductor, 50/60 Hz
1	5	L	black	Power supply, phase, 50/60 Hz
1	6	NC		not brought out via wire
1	7	COM		not brought out via wire
2	8	0-10 V	yellow	Analog input (set value) SELV, 0-10 V, Ri = 100 kΩ, adjustable curve
2	9	Tacho	gray	Tach output: open collector, 1 pulse per revolution, Isink max = 10 mA, SELV
2	10	RSB		not brought out via wire
2	11	RSA		not brought out via wire
2	12	GND	blue	Reference ground for control interface, SELV
2	13	+10 V	red	Fixed voltage output 10 VDC, +10 V +/-3%, max. 10 mA, short-circuit-proof, power supply for external devices (e.g. potentiometer); SELV

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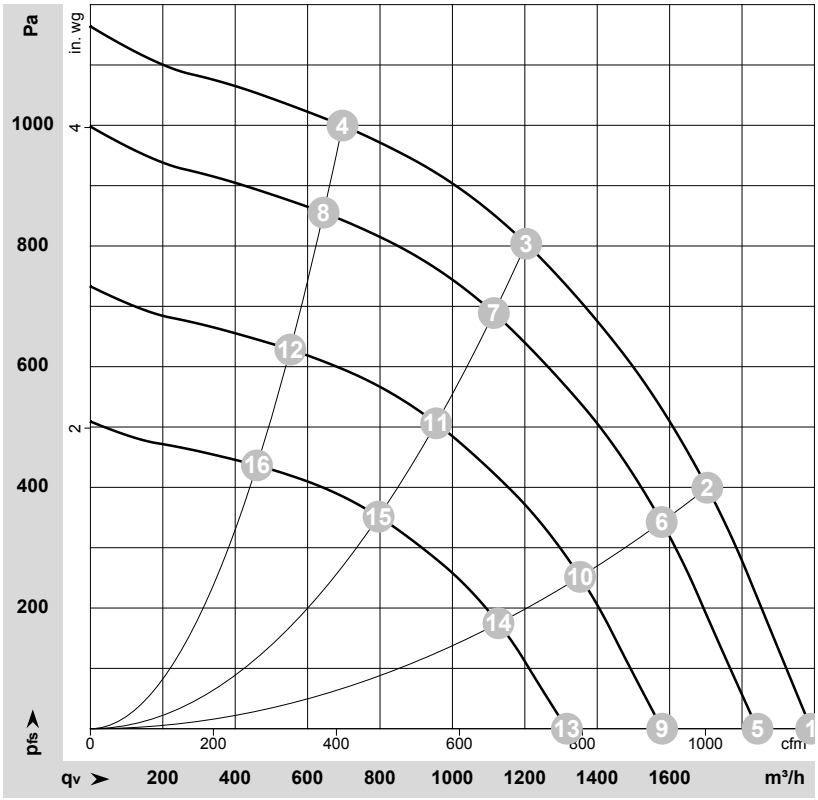
Curves: Air performance 50 Hz



ρ = 1.15 kg/m³ ± 2 %

Measurement: LU-204706-1

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

	Wired	U	f	n	P_{ed}	I	q_V	p_{fs}	q_V	p_{fs}
		V	Hz	min^{-1}	W	A	m^3/h	Pa	cfm	in. wg
1	1~	230	50	3780	383	1.68	1990	0	1170	0.00
2	1~	230	50	3780	448	1.96	1705	400	1005	1.61
3	1~	230	50	3780	500	2.20	1205	800	710	3.21
4	1~	230	50	3780	443	1.94	695	1000	410	4.01
5	1~	230	50	3500	303	1.33	1845	0	1085	0.00
6	1~	230	50	3500	356	1.56	1580	344	930	1.38
7	1~	230	50	3500	399	1.74	1115	692	655	2.78
8	1~	230	50	3500	351	1.54	645	856	380	3.44
9	1~	230	50	3000	191	0.84	1580	0	930	0.00
10	1~	230	50	3000	224	0.98	1355	253	795	1.02
11	1~	230	50	3000	251	1.10	955	508	560	2.04
12	1~	230	50	3000	221	0.97	550	629	325	2.53
13	1~	230	50	2500	111	0.49	1315	0	775	0.00
14	1~	230	50	2500	130	0.57	1125	176	665	0.71
15	1~	230	50	2500	145	0.64	795	353	470	1.42
16	1~	230	50	2500	128	0.56	460	436	270	1.75

Wired = Wiring · U = Voltage · f = Frequency · n = Speed (rpm) · P_{ed} = Power consumption · I = Current draw · q_V = Air flow · p_{fs} = Pressure increase