EC centrifugal fan - RadiCal

backward curved, single inlet

R3G400-RJ81-71 ebmpapst Datasheet
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Nominal data

Type	**R3G400-RJ81-71**
Motor	**M3G112-EA**

Phase		3~
Nominal voltage	VAC	400
Nominal voltage range	VAC	380 .. 480
Frequency	Hz	50/60
Type of data definition		ml
State		prelim.
Speed (rpm)	min^{-1}	2060
Power input	W	1320
Current draw	A	2.1
Min. ambient temperature	°C	-25
Max. ambient temperature	°C	50

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}	%	62.9	52.8
02 Measurement category		A	
03 Efficiency category		Static	
04 Efficiency grade N		72.1	62
05 Variable speed drive		Yes	

09 Power input P_{ed}	kW	1.32
09 Air flow q_v	m^3/h	4090
09 Pressure increase p_{fs}	Pa	676
10 Speed (rpm) n	min^{-1}	2065
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

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Technical features

Mass	9.1 kg
Size	400 mm
Motor size	112
Surface of rotor	Coated in black
Material of electronics housing	Die-cast aluminium
Material of impeller	PP plastic
Number of blades	6
Direction of rotation	Clockwise, seen on rotor
Type of protection	IP55
Insulation class	"F"
Humidity (F) / environmental protection class (H)	H1
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 - Operation and alarm display - Alarm relay - Integrated PID controller - Output limit - Motor current limit - 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 - Temperature derating - Over-temperature protected electronics / motor - Line undervoltage / phase failure detection
Motor protection	Thermal overload protector (TOP) wired internally
Cable exit	Variable
Protection class	I (if protective earth is connected by customer)
Product conforming to standard	EN 61800-5-1; EN 60335-1; CE
Approval	CSA C22.2 no. 77 + CAN/CSA-E60730-1; EAC; UL 1004-7 + 60730-1

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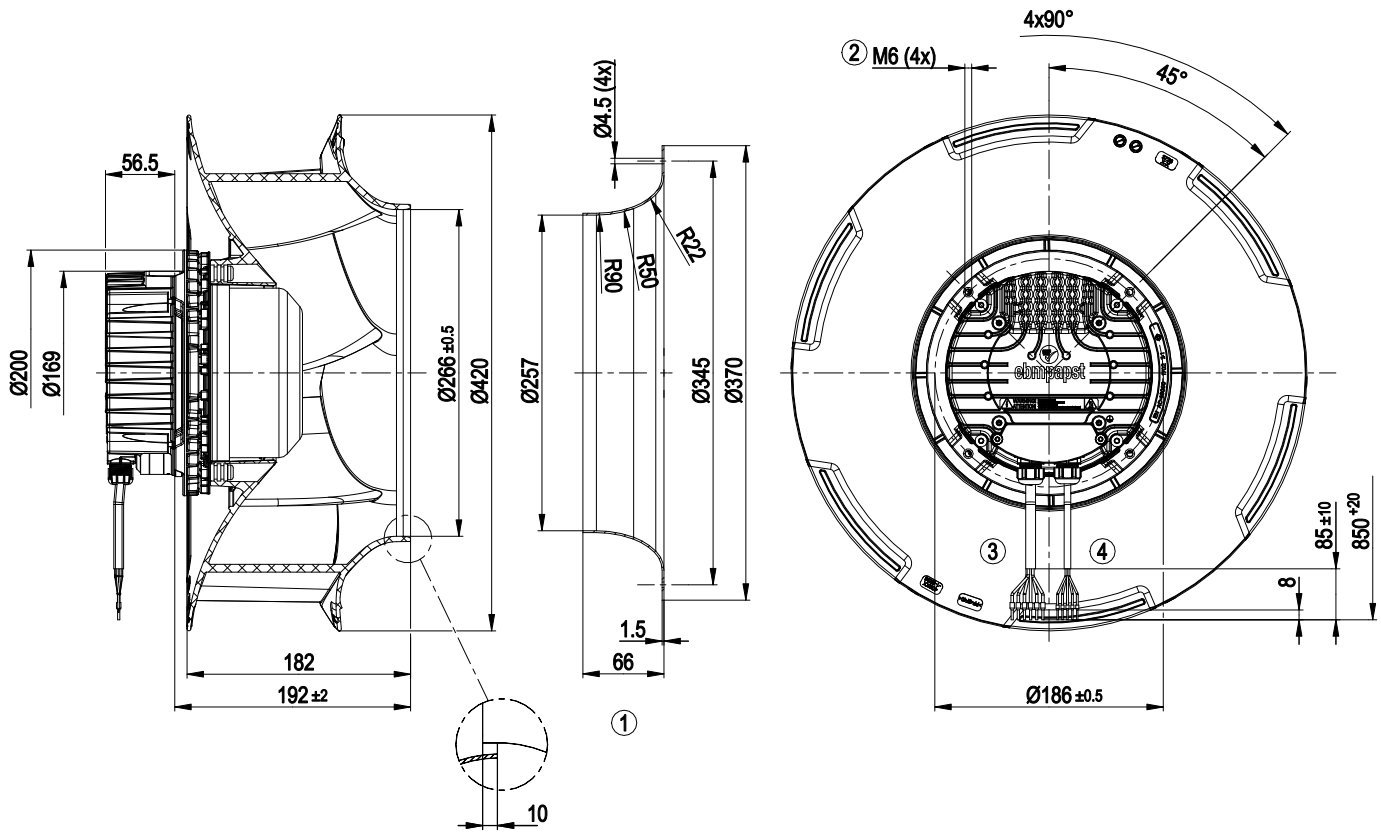
Product drawing



1	Accessory part: Inlet nozzle 54476-2-4013 not included in scope of delivery.
2	Thread reach max. 16 mm
3	Connection line PVC AWG18, 6x crimped core-end sleeves
4	Connection line PVC AWG22, 5x crimped core-end sleeves

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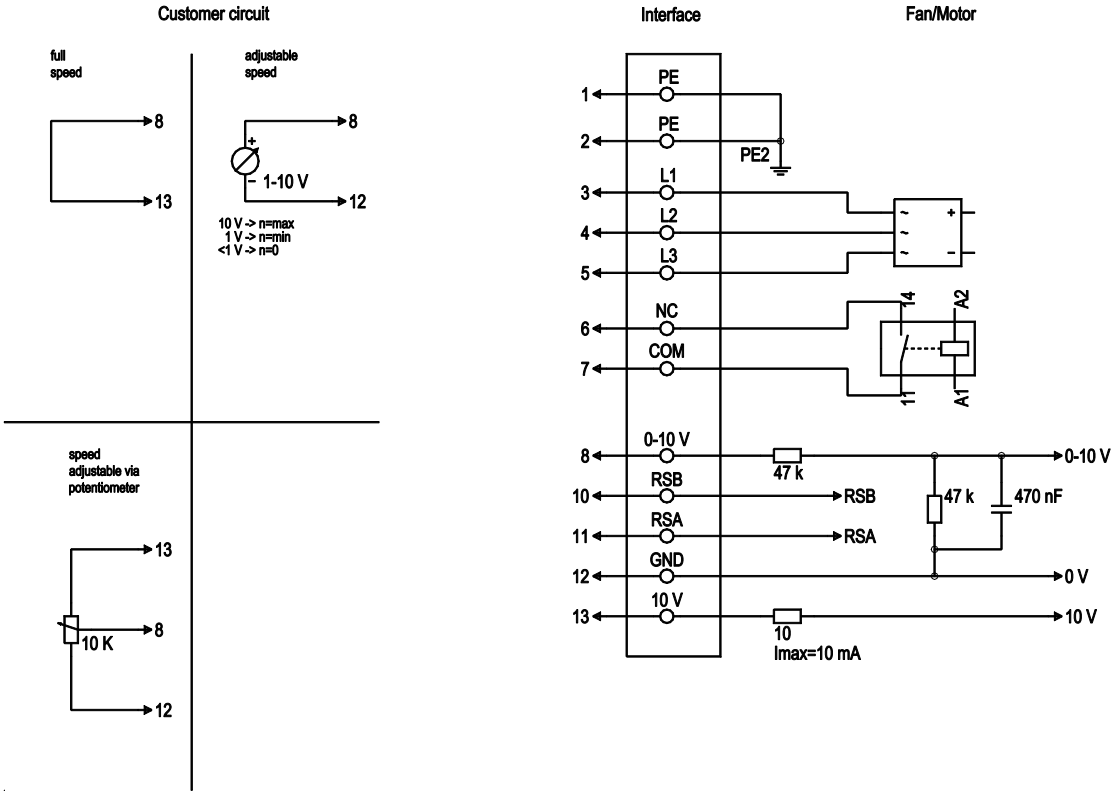
Connection screen



No.	Conn.	Designation	Colour	Function / assignment
1	1, 2	PE	green/yellow	Protective earth
1	3, 4, 5	L1, L2, L3	black	Power supply, phase, 50/60 Hz
1	6	NC	white 1	Status relay, floating status contact, break for failure, contact rating 250 VAC / 30 VDC 5 A minimum contact gap 1 mA / 5 VDC, reinforced insulation with respect to control interface, function insulation with respect to network
1	7	COM	white 2	Status relay, floating status contact, common connection, contact rating 250 VAC / 30 VDC 5 A minimum contact gap 1 mA / 5 VDC, reinforced insulation with respect to control interface, function insulation with respect to network
2	8	0-10V	yellow	Analogue input (set value) SELV, 0-10 V, Ri=100kΩ, parametrisable curve
2	10	RSB	brown	RS-485 interface for MODBUS, RSB; SELV
2	11	RSA	white	RS-485 interface for MODBUS, RSA; SELV
2	12	GND	blue	Reference ground for control interface, SELV
2	13	+10V	red	Fixed voltage output 10 VDC, SELV, +10 V +/-3%, max. 10 mA, short-circuit-proof, power supply for external devices (e.g. potentiometers)

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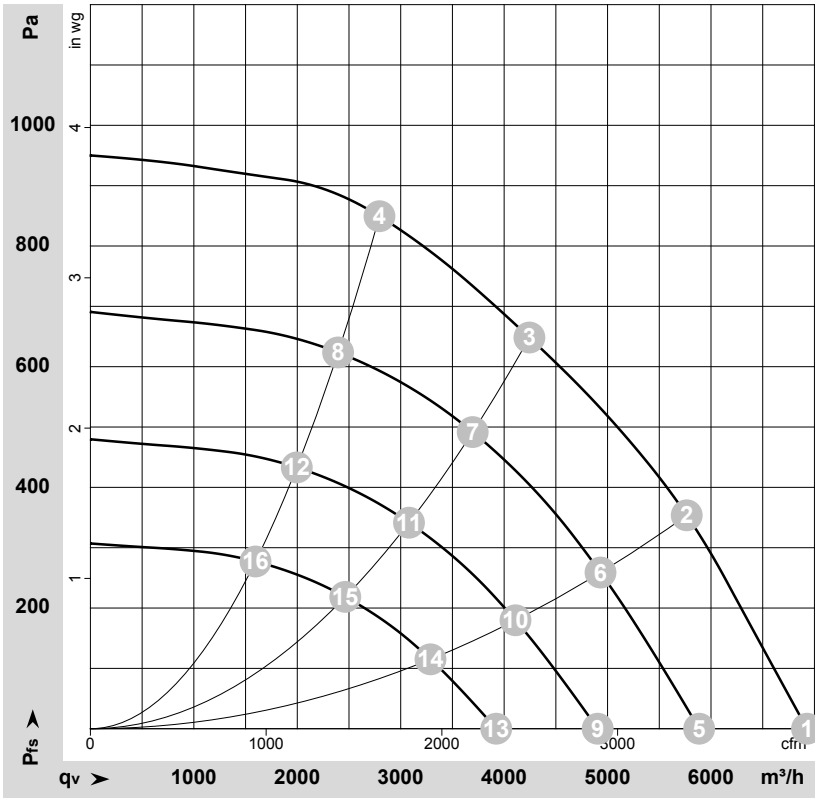
Charts: Air flow 50 Hz



ρ = 1.15 kg/m³ ± 2 %

Measurement: LU-152014-1

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

	U	f	n	P_{ed}	I	LpA_{in}	LwA_{in}	LwA_{out}	q_V	p_{fs}	q_V	p_{fs}
	V	Hz	min^{-1}	W	A	dB(A)	dB(A)	dB(A)	m^3/h	Pa	cfm	in. wg
1	400	50	2100	965	1.56	84	89	92	6930	0	4080	0.00
2	400	50	2100	1245	2.00	75	82	88	5765	360	3395	1.45
3	400	50	2060	1320	2.10	68	75	81	4245	650	2500	2.61
4	400	50	2100	1285	2.06	71	78	83	2795	850	1645	3.41
5	400	50	1800	592	0.96	80	85	88	5885	0	3465	0.00
6	400	50	1800	775	1.24	71	78	84	4930	261	2905	1.05
7	400	50	1800	875	1.41	64	71	78	3695	494	2175	1.98
8	400	50	1800	809	1.30	67	74	79	2395	624	1410	2.51
9	400	50	1500	342	0.55	75	80	83	4905	0	2885	0.00
10	400	50	1500	448	0.72	67	73	79	4110	182	2420	0.73
11	400	50	1500	506	0.81	60	67	73	3080	343	1815	1.38
12	400	50	1500	468	0.75	63	70	74	1995	433	1175	1.74
13	400	50	1200	175	0.28	70	75	77	3925	0	2310	0.00
14	400	50	1200	230	0.37	61	67	73	3290	116	1935	0.47
15	400	50	1200	259	0.42	54	61	68	2465	219	1450	0.88
16	400	50	1200	240	0.38	57	64	69	1595	277	940	1.11

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 · LwA_{out} = Sound power level outlet side
q_V = Air flow · p_{fs} = Pressure increase