

EC centrifugal fan - RadiCal

backward-curved, single-intake

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Amtsgericht (court of registration) Stuttgart · HRB 590142

Nominal data

Type	R3G310-FS10-J1	
Motor	M3G084-FA	
Phase		3~
Nominal voltage	VAC	400
Nominal voltage range	VAC	380 .. 480
Frequency	Hz	50/60
Method of obtaining data		ml
Speed (rpm)	min ⁻¹	3100
Power consumption	W	1100
Current draw	A	1.7
Min. ambient temperature	°C	-40
Max. ambient temperature	°C	40

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}	%	69.5	51.8	09 Power consumption P_{ed}	kW	1.06
02 Measurement category		A		09 Air flow q_v	m ³ /h	3205
03 Efficiency category		Static		09 Pressure increase p_{fs}	Pa	770
04 Efficiency grade N		79.7	62	10 Speed (rpm) n	min ⁻¹	3105
05 Variable speed drive		Yes		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 = $1 + p_{fs} / 100\,000\text{ Pa}$

LU-208726

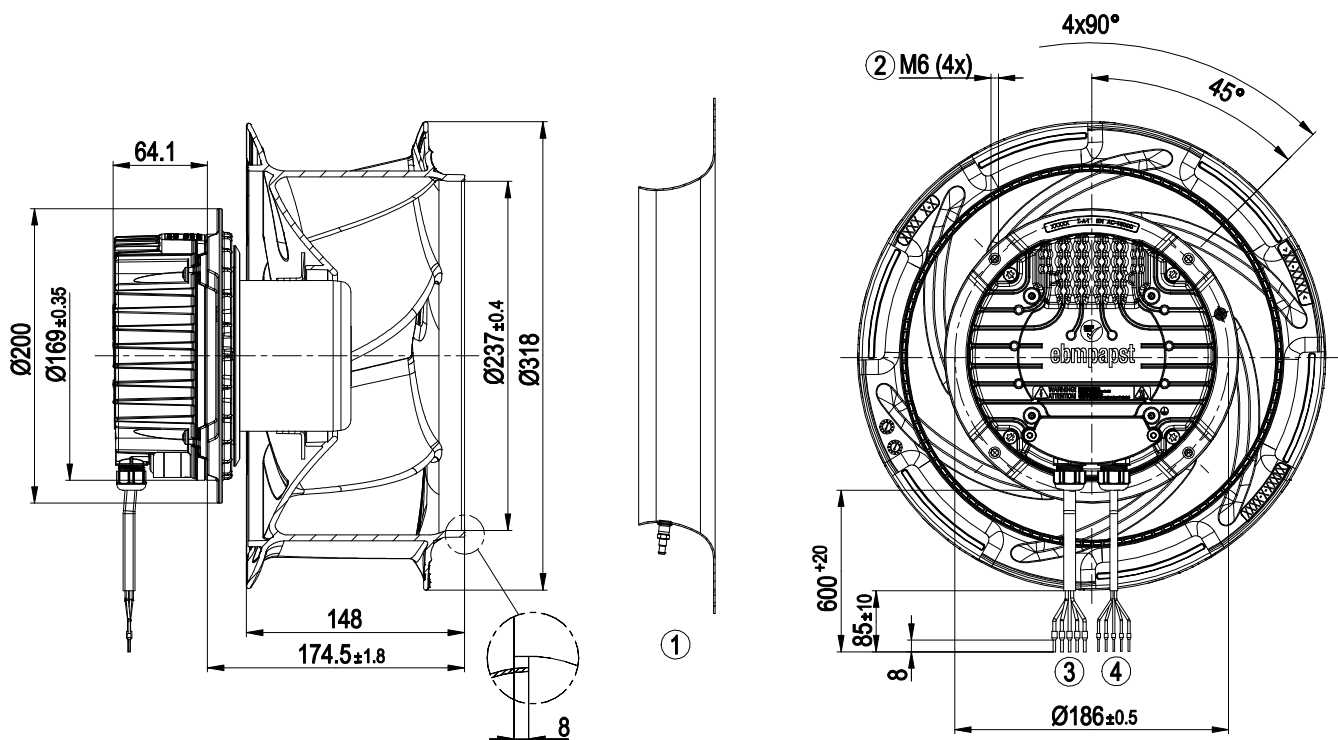


Technical description

Weight	5.54 kg
Size	310 mm
Motor size	84
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	IP55
Insulation class	"F"
Moisture (F) / Environmental (H) protection class	H1
Ambient temperature note	Occasional start-up at temperatures between -40°C and -25°C is permitted. For continuous operation at ambient temperatures below -25°C (such as refrigeration applications), use must be made of a fan design with special low-temperature bearings.
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 - Operation and alarm display - External 24 V input (parameter setting) - Alarm relay - Integrated PID controller - Motor current limitation - 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 - Thermal overload protection for electronics/motor - Line undervoltage / phase failure detection
EMC immunity to interference	According to EN 61000-6-2 (industrial environment)
EMC interference emission	According to EN 61000-6-3 (household environment), except EN 61000-3-2 for professionally used equipment with a total rated power greater than 1 kW
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	Variable
Protection class	I (with customer connection of protective earth)
Conformity with standards	EN 61800-5-1; CE
Approval	CSA C22.2 No. 77 + CAN/CSA-E60730-1; EAC; UL 1004-7 + 60730-1

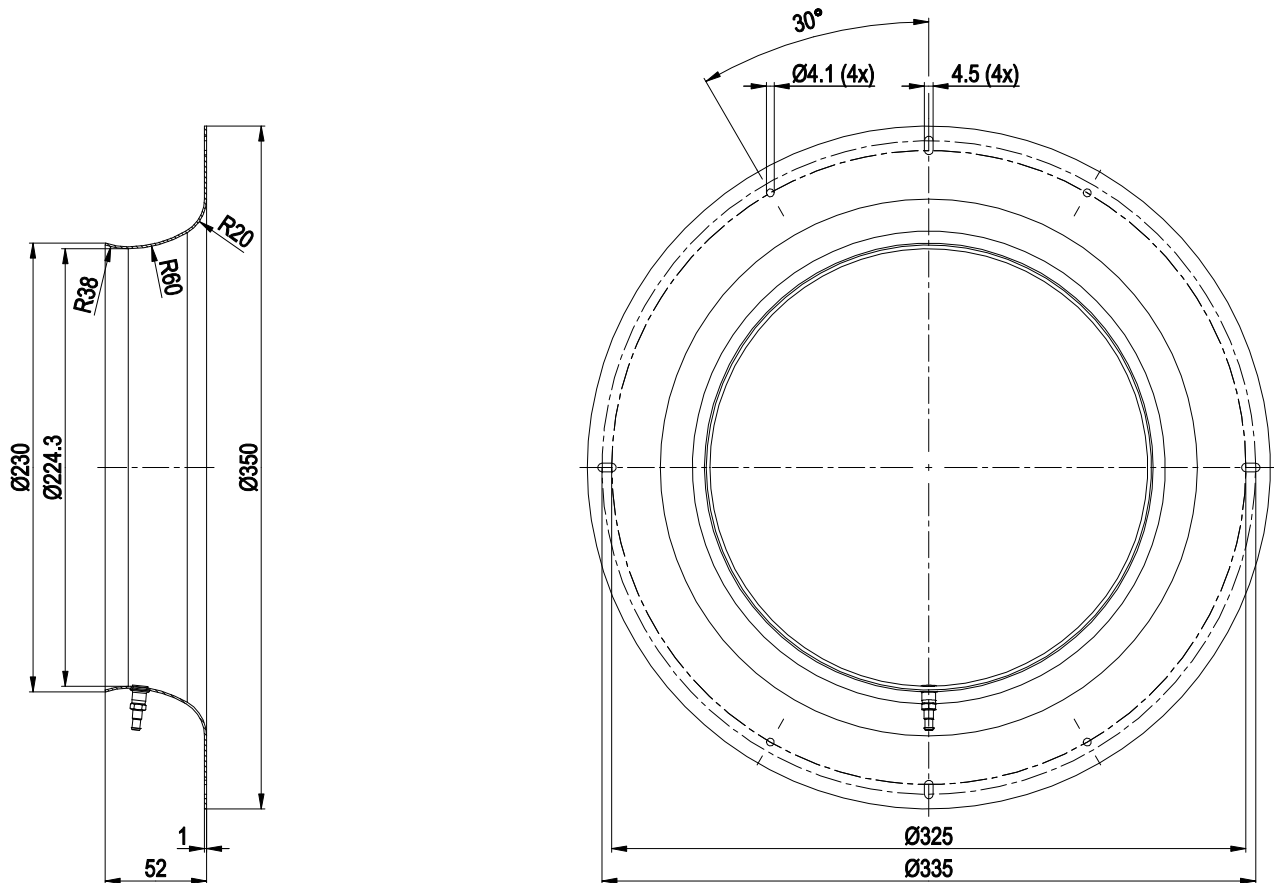


Product drawing



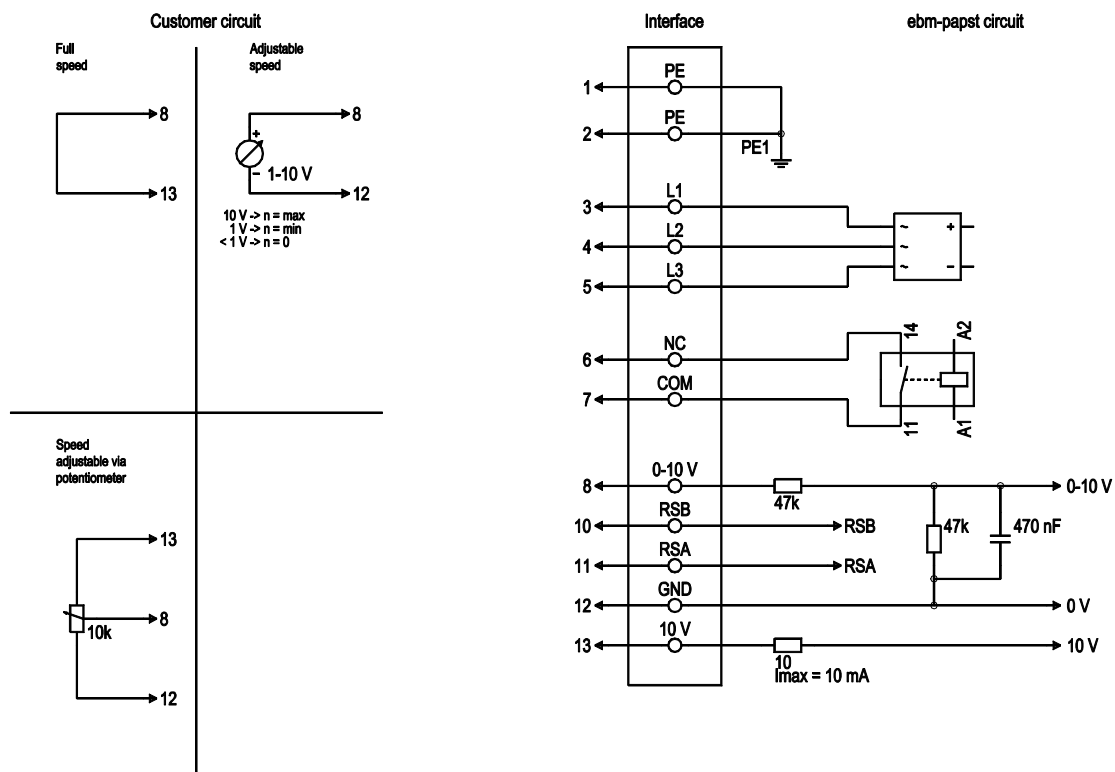
1	Accessory part: Inlet ring 31555-2-4013 with pressure tap (k-factor: 128) not included in scope of delivery
2	Max. clearance for screw 10 mm
3	Cable PVC AWG18 6x wire-end ferrule
4	Cable PVC AWG22 5x wire-end ferrule

Accessory part



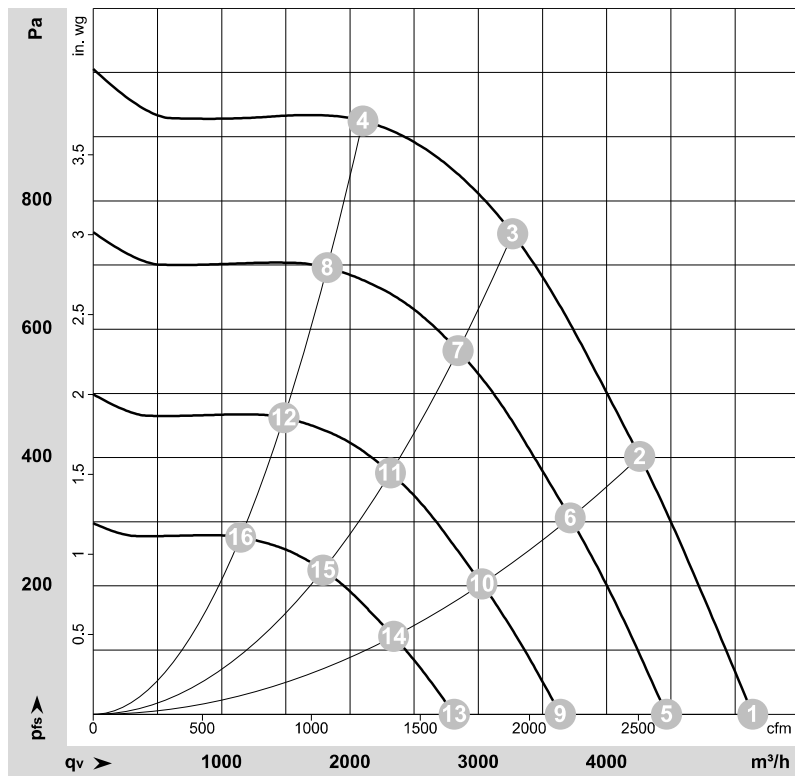
Inlet ring 31555-2-4013 with pressure tap (k-factor: 128)

Connection diagram



No.	Conn.	Designation	Color	Function/assignment
1	1, 2	PE	green/yellow	Protective earth
1	3	L1	black	Power supply
1	4	L2	black	Power supply
1	5	L3	black	Power supply
1	6	NC	white 1	Status relay, floating status contact, break for failure, contact rating 250 VAC / 2 A (AC1) / min. 10 mA; reinforced insulation on supply side and basic insulation on control interface side
1	7	COM	white 2	Status relay, floating status contact, break for failure, contact rating 250 VAC / 2 A (AC1) / min. 10 mA; reinforced insulation on supply side and basic insulation on control interface side
2	8	0-10V	yellow	Analog input (set value), 0-10 V, R _i = 100 kΩ, adjustable curve, SELV
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 fixed voltage input 24 VDC for setting parameters via MODBUS without line voltage supply

Curves: Air performance 50 Hz



$$\rho = 1.15 \text{ kg/m}^3 \pm 2 \%$$

Measurement: LU-208726-1

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	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	3100	718	1.13	80	86	5140	0	3025	0.00
2	3~	400	50	3100	974	1.51	76	82	4260	400	2505	1.61
3	3~	400	50	3100	1100	1.70	72	78	3265	750	1925	3.01
4	3~	400	50	3100	995	1.54	75	82	2100	925	1235	3.71
5	3~	400	50	2700	472	0.74	76	83	4465	0	2630	0.00
6	3~	400	50	2700	648	1.00	72	78	3715	306	2190	1.23
7	3~	400	50	2700	702	1.08	68	75	2840	568	1675	2.28
8	3~	400	50	2700	650	1.01	71	78	1825	697	1075	2.80
9	3~	400	50	2200	255	0.40	71	78	3640	0	2140	0.00
10	3~	400	50	2200	350	0.54	67	73	3030	203	1780	0.81
11	3~	400	50	2200	380	0.59	63	70	2315	377	1365	1.51
12	3~	400	50	2200	352	0.54	66	73	1485	463	875	1.86
13	3~	400	50	1700	118	0.19	64	71	2810	0	1655	0.00
14	3~	400	50	1700	162	0.25	61	67	2340	121	1375	0.49
15	3~	400	50	1700	175	0.27	57	63	1790	225	1055	0.90
16	3~	400	50	1700	162	0.25	60	67	1150	276	675	1.11

Wired = Wiring · U = Voltage · 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

