R3G250-BE04-H1

EC centrifugal fan

backward curved, single inlet

for solid fuel heating systems

Limited partnership · Headquarters Mulfingen
County court Stuttgart · HRA 590344

General partner Elektrobau Mulfingen GmbH · Headquarters Mulfingen
County court Stuttgart · HRB 590142

Nominal data

Type	**R3G250-BE04-H1**
Motor	**M3G084-DF**

Phase		1~
Nominal voltage	VAC	230
Nominal voltage range	VAC	200 .. 277
Frequency	Hz	50/60
Type of data definition		ml
Speed (rpm)	min^{-1}	3500
Power input	W	500
Current draw	A	2.3
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 according to ErP directive

		Actual	Request 2015
01 Overall efficiency η_{es}	%	50.2	45.8
02 Measurement category		A	
03 Efficiency category		Static	
04 Efficiency grade N		65.4	61
05 Variable speed drive		Yes	

09 Power input P_{ed}	kW	0.36
09 Air flow q_v	m^3/h	495
09 Pressure increase p_{fs}	Pa	1195
10 Speed (rpm) n	min^{-1}	3500
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-172130

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Technical features

Mass	8.5 kg
Size	250 mm
Surface of rotor	Coated in black
Material of electronics housing	Die-cast aluminium
Material of impeller	Sheet steel, rust and acid-resistant
Material of support structure	Sheet steel, galvanised
Number of blades	6
Direction of rotation	Counter-clockwise, seen on rotor
Type of protection	IP 55
Insulation class	"F"
Humidity (F)/environmental protection class (H)	H0 - dry environment
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
Condensate discharge holes	Rotor-side
Operation mode	S1
Motor bearing	Ball bearing; Hybrid bearing (balls from Si_3N_4)
Technical features	- Output 10 VDC, max. 10 mA - Operation and alarm display - Tach output - Alarm relay - Integrated PID controller - Output limit - Motor current limit - PFC, active - RS485 MODBUS RTU - Soft start - Control input 0-10 VDC / PWM - Control interface with SELV potential safely disconnected from the mains - Over-temperature protected electronics / motor - Line undervoltage / phase failure detection
EMC interference immunity	Acc. to EN 61000-6-2 (industrial environment)
EMC harmonics	Acc. to EN 61000-3-2/3
EMC interference emission	Acc. to EN 61000-6-3 (household environment)
Touch current acc. IEC 60990 (measuring network Fig. 4, TN system)	<= 3.5 mA
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 60335-1; CE
Approval	UL 1004-7 + 60730; C22.2 Nr.77 + CAN/CSA-E60730-1

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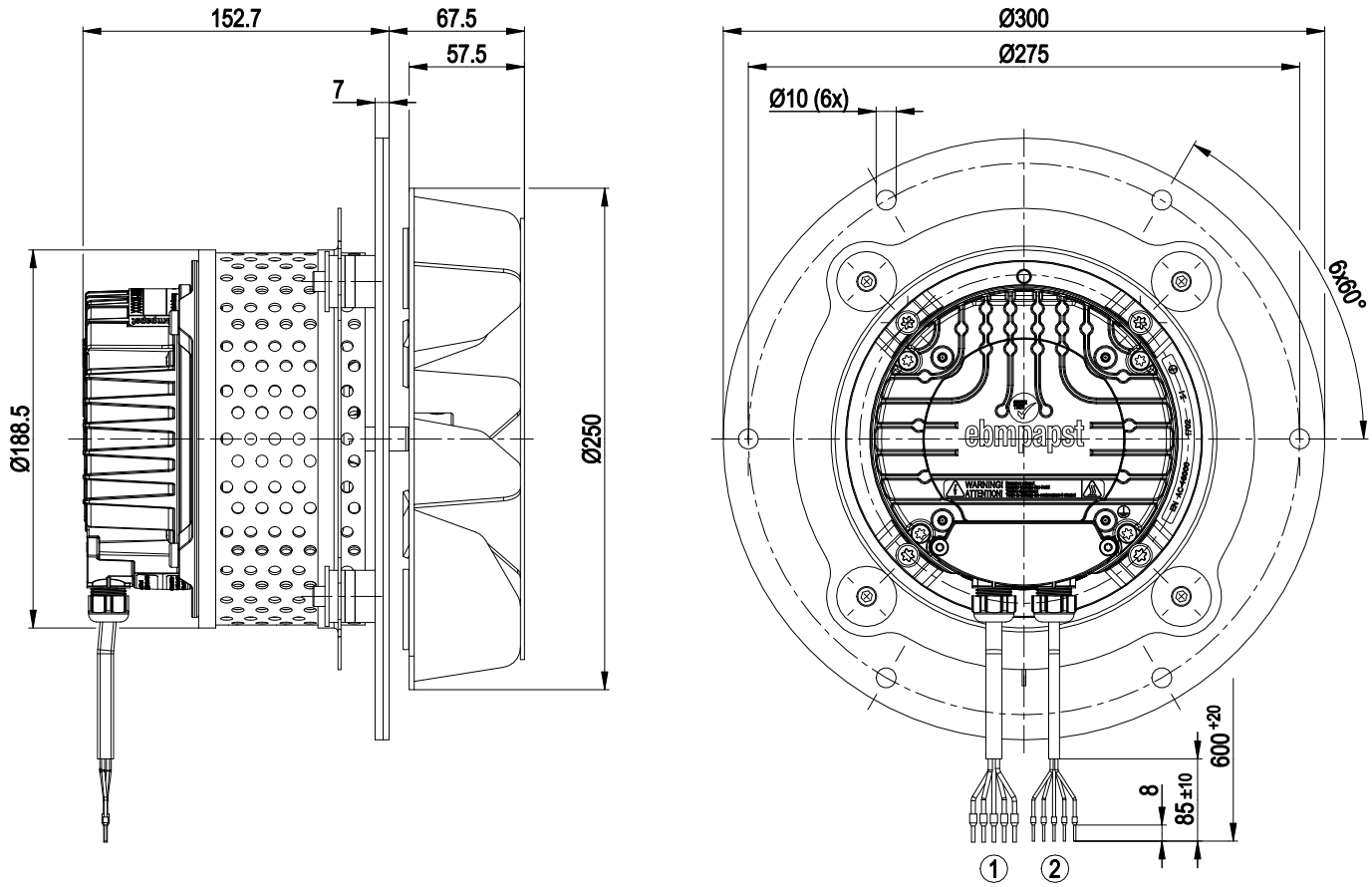
Product drawing



1	Connection line PVC AWG18, 5x crimped core-end sleeves
2	Connection line PVC AWG22, 6x crimped core-end sleeves

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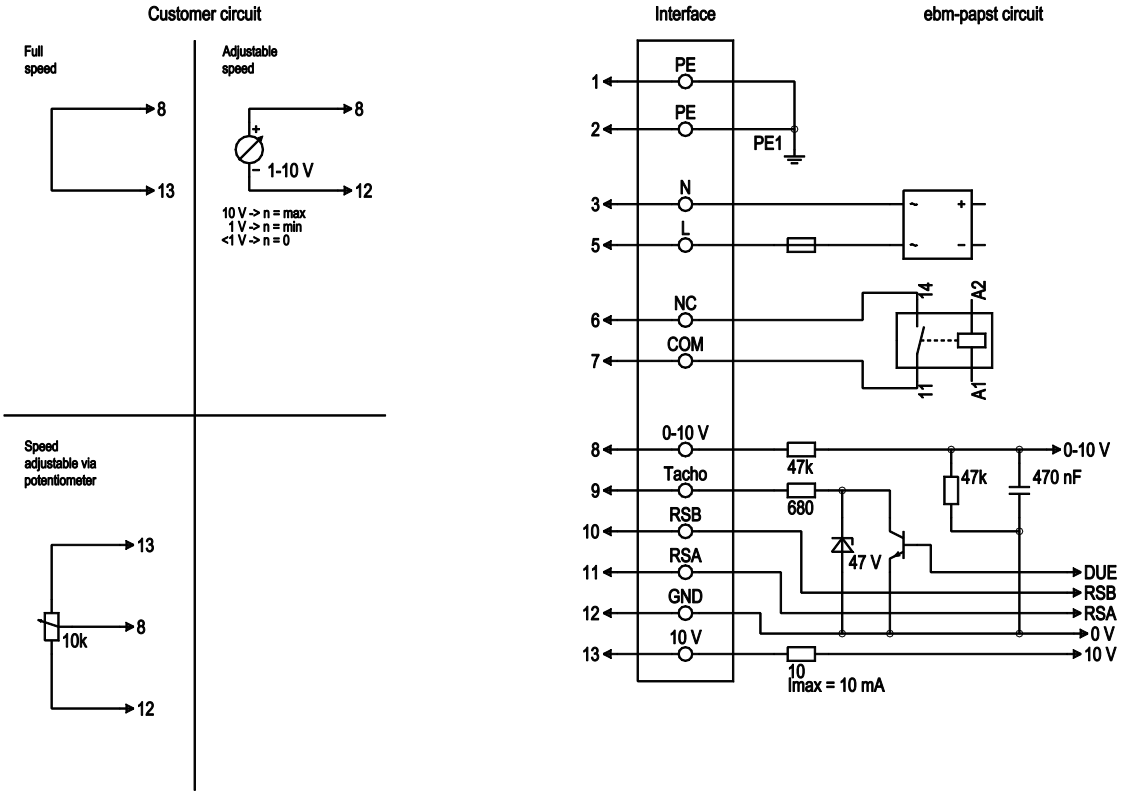
Connection screen



No.	Conn.	Designation	Colour	Function / assignment
1	1, 2	PE	green/yellow	Protective earth
1	3	N	blue	Power supply, neutral conductor, 50/60 Hz
1	5	L	black	Power supply, phase, 50/60 Hz
1	6	NC	white 1	Status relay, floating status contact, break for failure, contact rating 250 VAC / 2 A (AC1) min. 10 mA, basic insulation on mains side and reinforced 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, basic insulation on mains side and reinforced insulation on control interface side
2	8	0-10 V	yellow	Analogue input (set value) SELV, 0-10 V, Ri=100kΩ, parametrisable curve
2	9	Tacho	grey	Tach output: Open collector, 1 pulse per revolution, Isink max = 10 mA; SELV
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	Signal 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. potentiometers); SELV

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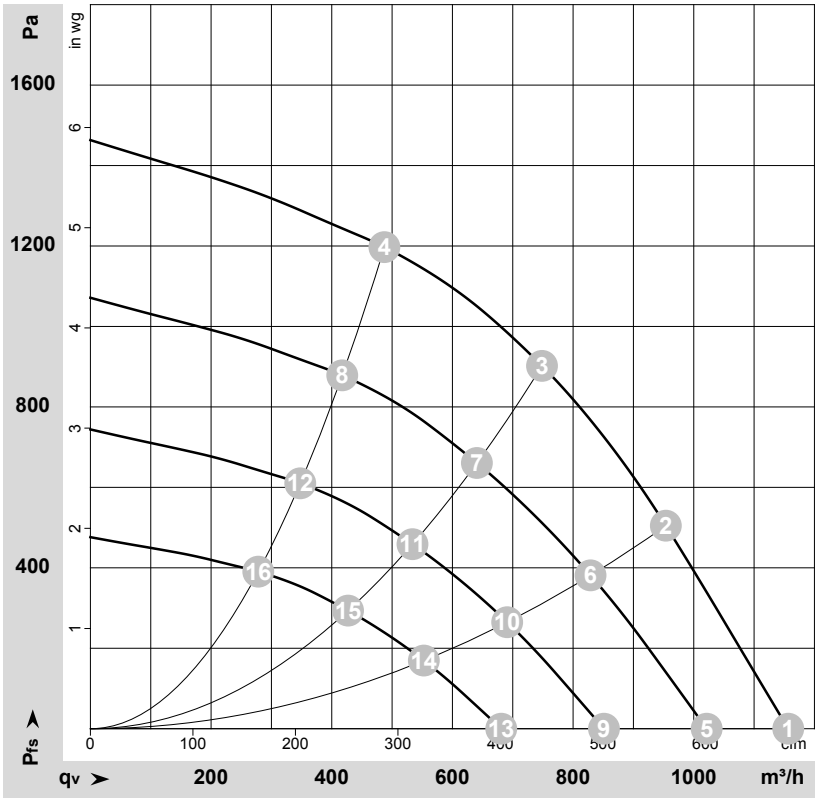
Charts: Air flow 50 Hz



ρ = 1.15 kg/m³ ± 2 %

Measurement: LU-172130-1

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}	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	230	50	3400	500	2.30	86	92	1155	0	680	0.00
2	230	50	3500	500	2.30	80	87	955	500	560	2.01
3	230	50	3500	477	2.08	76	83	750	900	440	3.61
4	230	50	3500	365	1.60	73	81	485	1200	285	4.82
5	230	50	3000	358	1.56	83	88	1020	0	600	0.00
6	230	50	3000	341	1.49	77	83	830	381	490	1.53
7	230	50	3000	299	1.31	72	79	640	661	375	2.65
8	230	50	3000	229	1.01	69	77	415	880	245	3.53
9	230	50	2500	207	0.91	78	84	850	0	500	0.00
10	230	50	2500	198	0.86	72	79	690	265	405	1.06
11	230	50	2500	173	0.76	68	75	535	459	315	1.84
12	230	50	2500	133	0.58	65	72	350	611	205	2.45
13	230	50	2000	106	0.46	72	78	680	0	400	0.00
14	230	50	2000	101	0.44	66	73	555	169	325	0.68
15	230	50	2000	89	0.39	62	69	425	294	250	1.18
16	230	50	2000	68	0.30	59	67	280	391	165	1.57

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