R3G450-PA28-09

EC centrifugal fan - RadiPac

backward curved, single inlet

ebm-papst Mulfingen GmbH & Co. KG
Bachmühle 2 · D-74673 Mulfingen
Phone +49 7938 81-0
Fax +49 7938 81-110
info1@de.ebmpapst.com
www.ebmpapst.com

Limited partnership · Headquarters Mulfingen
County court Stuttgart · HRA 590344

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

Nominal data

Type	**R3G450-PA28-09**
Motor	**M3G150-FF**

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}	2140
Power input	W	2900
Current draw	A	4.6
Min. ambient temperature	°C	-25
Max. ambient temperature	°C	60

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}	%	72	56.3
02 Measurement category		A	
03 Efficiency category		Static	
04 Efficiency grade N		77.7	62
05 Variable speed drive		Yes	

09 Power input P_{ed}	kW	2.85
09 Air flow q_v	m^3/h	6605
09 Pressure increase p_{fs}	Pa	1066
10 Speed (rpm) n	min^{-1}	2150
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-176097

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Technical features

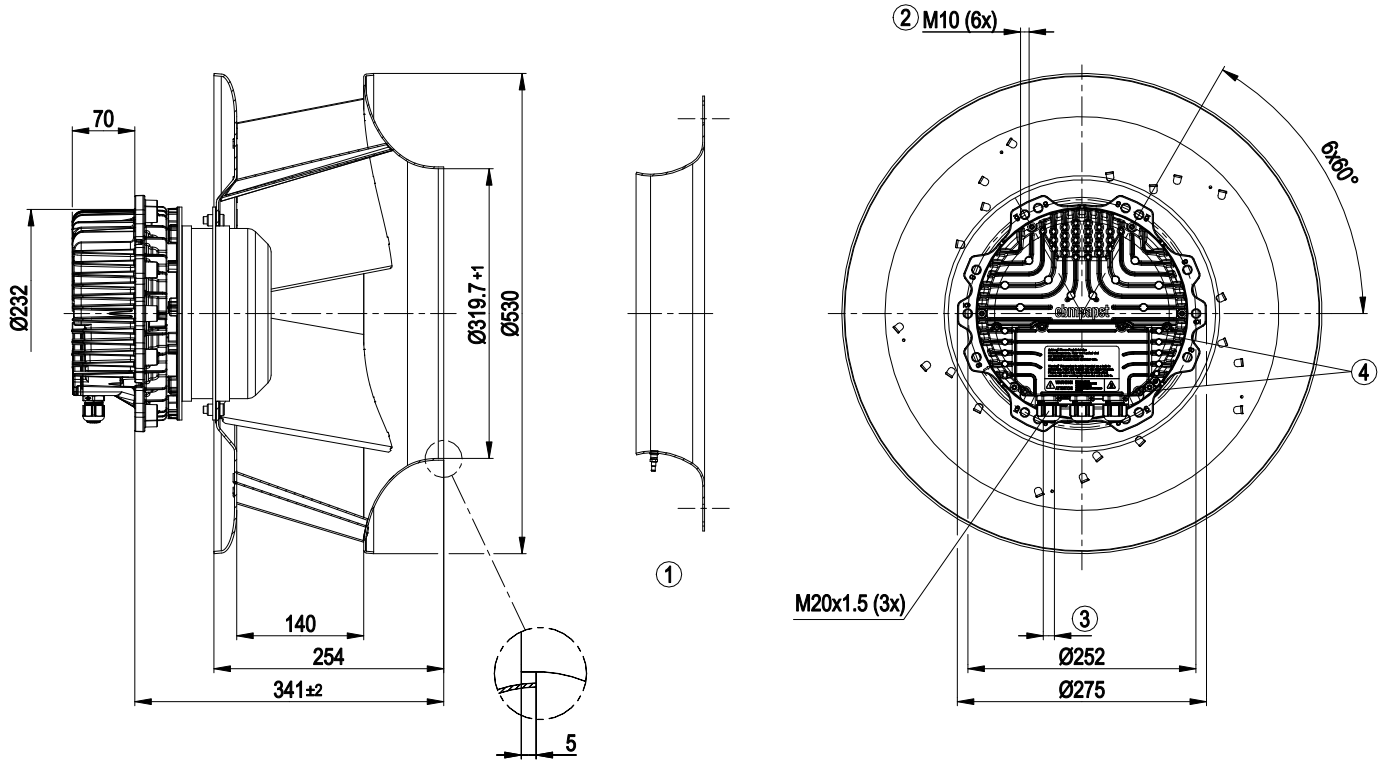
Mass	23.5 kg
Size	450 mm
Surface of rotor	Coated in black
Material of electronics housing	Die-cast aluminium
Material of impeller	Aluminium sheet
Number of blades	5
Direction of rotation	Clockwise, seen on rotor
Type of protection	IP 55
Insulation class	"F"
Humidity (F)/environmental protection class (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
Condensate discharge holes	Rotor-side
Operation mode	S1
Motor bearing	Ball bearing
Technical features	- Output 10 VDC, max. 10 mA - Output 20 VDC, max. 50 mA - Output for slave 0-10 V - Operation and alarm display - Input for sensor 0-10 V or 4-20 mA - External 24 V input (programming) - External release input - Alarm relay - Integrated PID controller - 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 - Over-temperature protected electronics / motor - Line undervoltage / phase failure detection
Touch current acc. IEC 60990 (measuring network Fig. 4, TN system)	<= 3.5 mA
Electrical leads	Via terminal box
Motor protection	Reverse polarity and locked-rotor protection
Protection class	I (if protective earth is connected by customer)
Product conforming to standard	EN 61800-5-1; CE
Approval	C22.2 Nr.77 + CAN/CSA-E60730-1; EAC; UL 1004-7 + 60730

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Product drawing



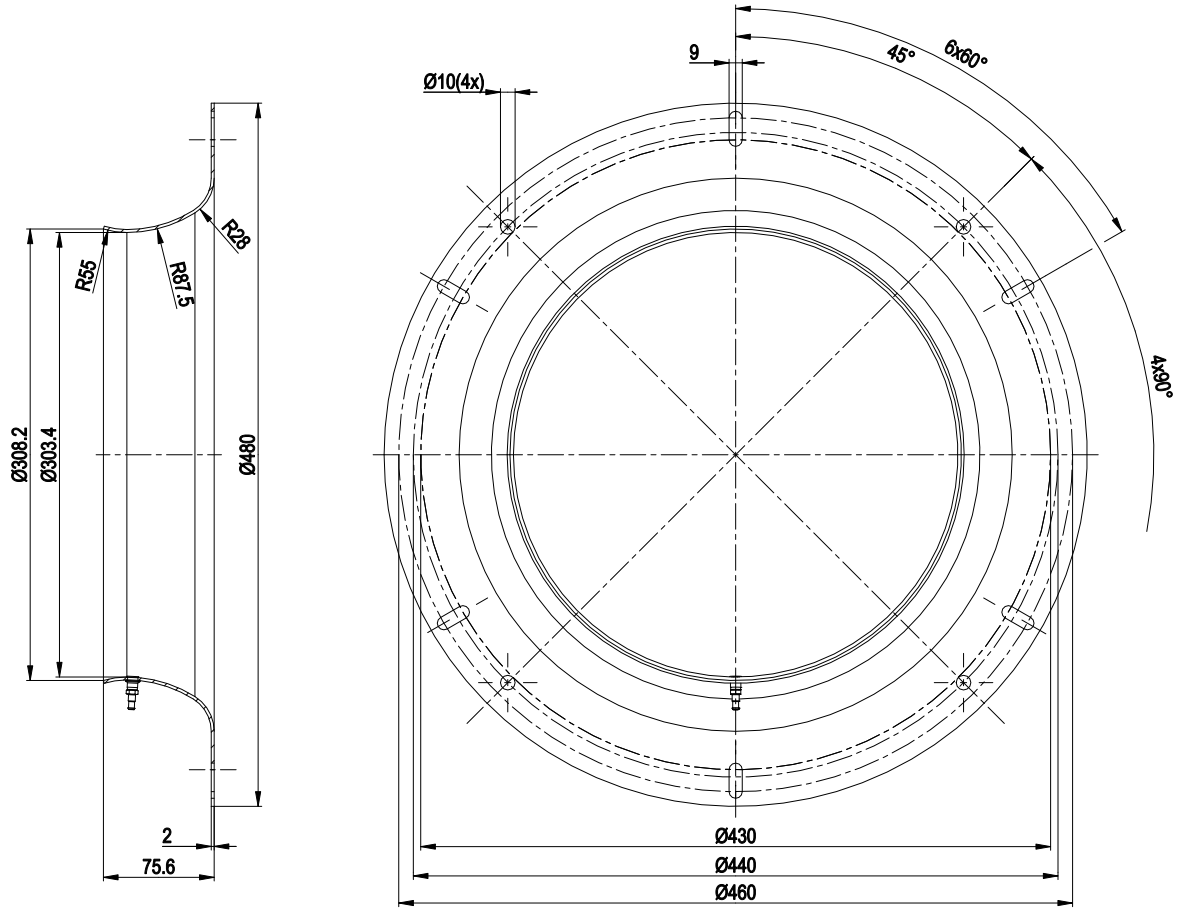
1	Accessory part: Inlet nozzle 45075-2-4013 with pressure tap (k-factor: 240) not included in scope of delivery
2	Thread reach max. 25 mm
3	Cable diameter min. 4 mm, max. 10 mm; tightening torque 4±0.6 Nm
4	Tightening torque 3.5±0.5 Nm

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Accessory part



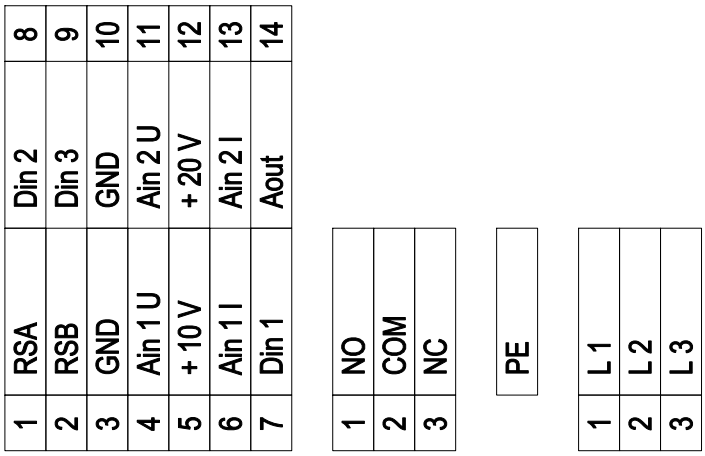
-	inlet nozzle 45075-2-4013 with a pressure tap (k-factor: 240) not included in scope of delivery

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Connection screen



No.	Conn.	Designation	Function / assignment
KL 1	1	L1	Mains supply connection, supply voltage 3~380-480 VAC; 50/60 Hz
KL 1	2	L2	Mains supply connection, supply voltage 3~380-480 VAC; 50/60 Hz
KL 1	3	L3	Mains supply connection, supply voltage 3~380-480 VAC; 50/60 Hz
PE		PE	Earth connection, PE connection
KL 2	1	NO	Status relay, floating status contact; normally open; close with error
KL2	2	COM	Status relay; floating status contact; changeover contact; common connection; contact rating 250 VAC / max. 2 A (AC1) / min. 10 mA
KL2	3	NC	Status relay, floating status contact; break with error
KL 3	1	RSA	Bus connection RS-485, RSA, MODBUS RTU; SELV
KL 3	2	RSB	Bus connection RS-485, RSB, MODBUS RTU; SELV
KL 3	3 / 10	GND	Signal ground for control interface; SELV
KL 3	4	Ain1 U	Analogue input 1, set value: 0-10 V, Ri = 100 kΩ, parametrisable curve, only usable as alternative to input Ain1; SELV
KL 3	5	+ 10 V	Fixed voltage output 10 VDC, +10 V ±3%, max. 10 mA, short-circuit-proof, power supply for external devices (e.g. potentiometer), SELV
KL 3	6	Ain1 I	Analogue input 1, set value: 4-20 mA; Ri = 100 Ω, parametrisable curve, only usable as alternative to input Ain1 U; SELV
KL 3	7	Din1	Digital input 1: enabling of electronics, enabling: open pin or applied voltage 5-50 VDC disabling: bridge to GND or applied voltage <1 VDC reset function: triggers software reset after a level change to <1 VDC; SELV
KL 3	8	Din2	Digital input 2: parameter set switch 1/2, according to EEPROM setting, the valid/used parameter set can be selected via bus or via digital input DIN2. Parameter set 1: open pin or applied voltage 5-50 VDC Parameter set 2: bridge to GND or applied voltage <1 VDC; SELV
KL 3	9	Din3	Digital input 3: controller function of integrated controller, according to EEPROM setting, the controller function of the integrated controller is normally/inversely selectable per bus or per digital input normal: open pin or applied voltage 5-50 VDC inverse: bridge to GND or applied voltage <1 VDC; SELV
KL 3	11	Ain2 U	Analogue input 2, actual value: 0-10 V, Ri = 100 kΩ, parametrisable curve, only usable as alternative to input Ain2; SELV
KL 3	12	+ 20 V	Fixed voltage output 20 VDC, +20 V +25/-10%, max. 50 mA, short-circuit-proof, power supply for external devices (e.g. sensors); SELV

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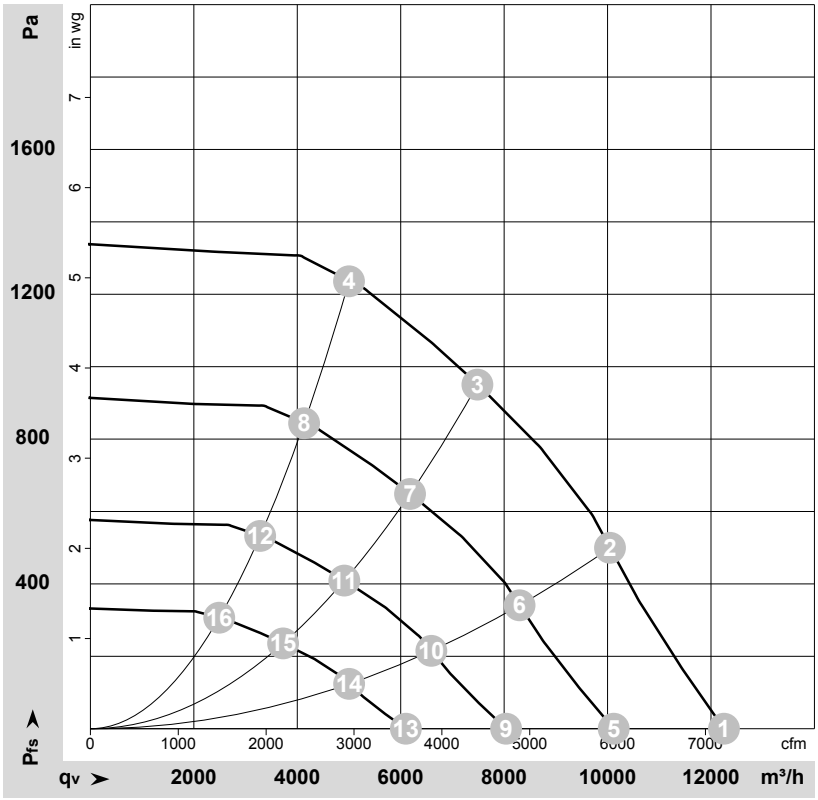
No.	Conn.	Designation	Function / assignment
KL 3	13	Ain2 I	Analogue input 2, actual value: 4-20 mA, Ri = 100 Ω, parametrisable curve, only usable as alternative to input Ain2 U; SELV
KL 3	14	Aout	Analogue output 0-10 VDC, max. 5 mA, output of the current motor level control coefficient / motor speed parametrisable curve; SELV

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Charts: Air flow 50 Hz



ρ = 1.185 kg/m³ ± 2 %

Measurement: LU-176097-1

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	inH2O
1	400	50	2140	1740	2.68	90	96	97	12250	0	7210	0.00
2	400	50	2140	2528	3.87	82	88	91	10045	500	5915	2.01
3	400	50	2140	2900	4.60	75	82	88	7500	950	4415	3.81
4	400	50	2140	2807	4.34	79	86	91	5000	1240	2945	4.98
5	400	50	1775	981	1.51	85	92	92	10120	0	5955	0.00
6	400	50	1775	1425	2.18	77	84	86	8300	341	4885	1.37
7	400	50	1775	1644	2.59	70	77	83	6180	650	3640	2.61
8	400	50	1775	1584	2.45	74	81	86	4130	845	2430	3.39
9	400	50	1410	492	0.76	79	86	86	8040	0	4730	0.00
10	400	50	1410	714	1.09	71	78	81	6590	215	3880	0.86
11	400	50	1410	824	1.30	64	71	77	4910	410	2890	1.65
12	400	50	1410	794	1.23	69	75	80	3280	533	1930	2.14
13	400	50	1070	215	0.33	72	79	79	6100	0	3590	0.00
14	400	50	1070	312	0.48	64	71	74	5005	124	2945	0.50
15	400	50	1070	360	0.57	57	64	70	3725	236	2195	0.95
16	400	50	1070	347	0.54	62	68	73	2490	307	1465	1.23

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

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