EC centrifugal fan

backward-curved, single-intake

Limited partnership · Headquarters Mulfingen
Amtsgericht (court of registration) Stuttgart · HRA 590344

General partner Elektrobau Mulfingen GmbH · Headquarters Mulfingen
Amtsgericht (court of registration) Stuttgart · HRB 590142

Nominal data

Type	**R3G450-PI88-15**
Motor	**M3G112-IA**

Phase		3~
Nominal voltage	VAC	200
Nominal voltage range	VAC	200 .. 240
Frequency	Hz	50/60
Method of obtaining data		ml
Status		prelim.
Speed (rpm)	min^{-1}	1800
Power consumption	W	1765
Current draw	A	5.5
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

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Technical description

Weight	18 kg
Size	450 mm
Motor size	112
Rotor surface	Painted black
Electronics housing material	Die-cast aluminum
Impeller material	Sheet aluminum
Number of blades	5
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 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 - 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 (parameter setting) - External release input - Alarm relay - Integrated PID controller - Motor current limitation - PFC, passive - RS-485 MODBUS-RTU - 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 interference emission	According to EN 61000-6-4 (industrial environment)
Touch current according to IEC 60990 (measuring circuit Fig. 4, TN system)	<= 3.5 mA
Electrical hookup	Terminal box
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	UL 1004-7 + 60730; EAC; CSA C22.2 No. 77 + CAN/CSA-E60730-1

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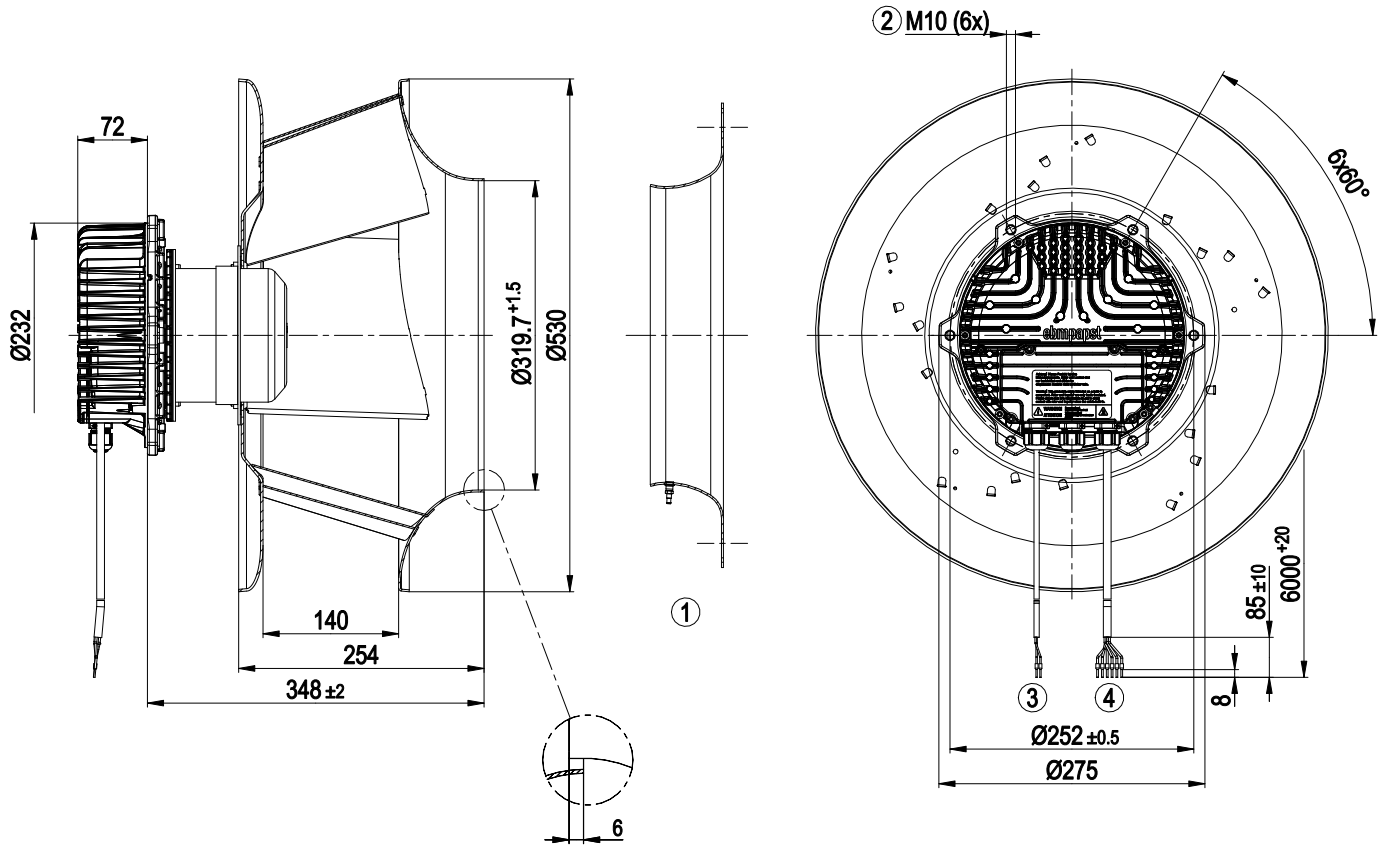
Product drawing



1	Accessory part: Inlet ring 45075-2-4013 with pressure tap (k-factor: 240) not included in scope of delivery
2	Max. clearance for screw 20 mm
3	Cable AWG20
	2x wire-end ferrule
4	Cable AWG18
	6x wire-end ferrule

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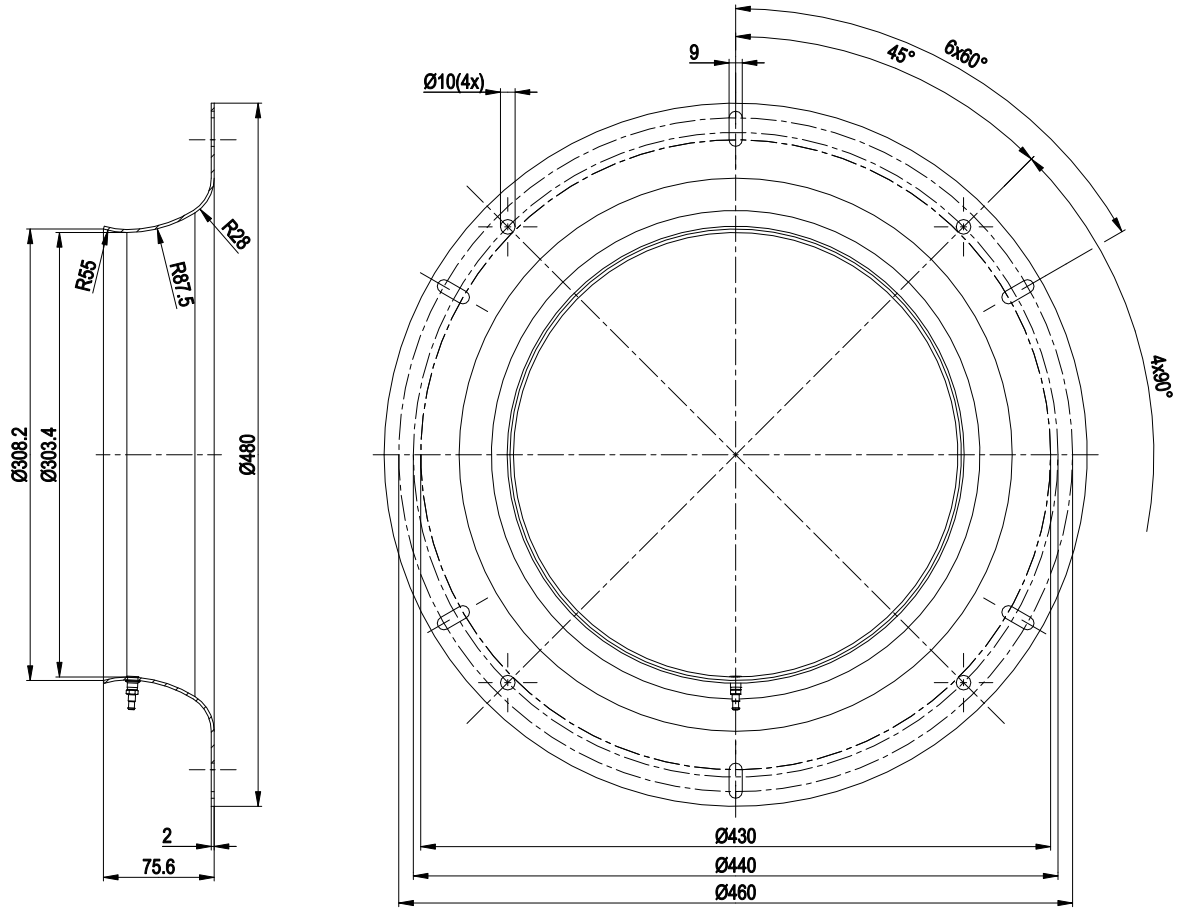
Accessory part



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

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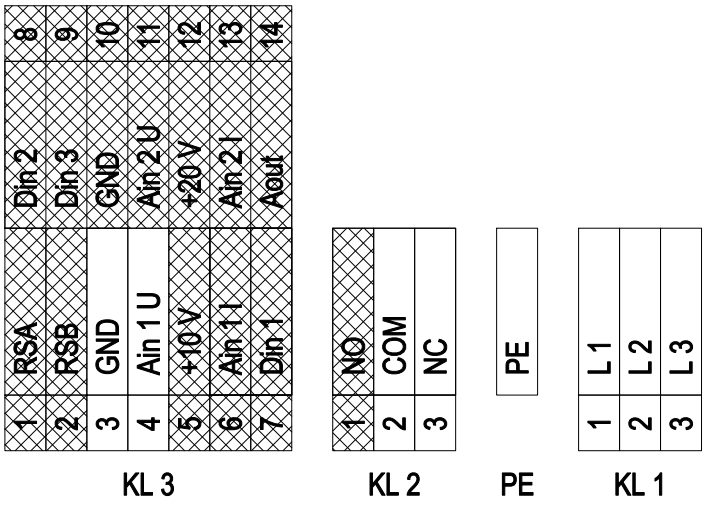
Connection diagram



shaded gray => not brought out via leads

No.	Conn.	Designation	Color	Function/assignment
KL 1	1	L1	black 1	Supply connection, power supply 3-phase 200-240 VAC; 50/60 Hz
KL 1	2	L2	black 2	Supply connection, power supply 3-phase 200-240 VAC; 50/60 Hz
KL 1	3	L3	black 3	Supply connection, power supply 3-phase 200-240 VAC; 50/60 Hz
PE		PE	green/yellow	Ground connection, PE connection
KL 2	1	NO		Status relay, floating status contact; make for failure
KL2	2	COM	white 1	Status relay; floating status contact; changeover contact; common connection; contact rating 250 VAC/max. 2 A (AC1)/min. 10 mA
KL2	3	NC	white 2	Status relay, floating status contact; break for failure
KL 3	1	RSA		Bus connection RS485; RSA; MODBUS RTU
KL 3	2	RSB		Bus connection RS485; RSB; MODBUS RTU
KL 3	3 / 10	GND	blue	Reference ground for control interface
KL 3	4	Ain1 U	yellow	Analog input 1 (set value); 0-10 V; Ri = 100 kΩ; adjustable curves; only usable as alternative to input Ain1 I
KL 3	5	+ 10 V		Fixed voltage output 10 VDC; +10 V ±3%; max. 10 mA; short-circuit-proof; power supply for ext. devices (e.g. potentiometers)
KL 3	6	Ain1 I		Analog input 1 (set value); 4-20 mA; Ri = 100 Ω; adjustable curves; only usable as alternative to input Ain1 U
KL 3	7	Din1		Digital input 1: Enable electronics; Enable: Pin open or applied voltage 5-50 VDC; Disable: Bridge to GND or applied voltage < 1 VDC; Reset function: Triggering of software reset after a level change to < 1 V
KL 3	8	Din2		Digital input 2: Switching parameter sets 1/2; according to EEPROM setting, the valid or used parameter set can be selected via bus or via digital input DIN2. Parameter set 1: Pin open or applied voltage 5-50 VDC; Parameter set 2: Bridge to GND or applied voltage < 1 VDC
KL 3	9	Din3		Digital input 3: Direction of action of integrated controller; depending on EEPROM setting, the direction of action of the integrated controller can be selected as normal/inverse via bus or digital input; Normal: Pin open or applied voltage 5...50 VDC; Inverse: Bridge to GND or applied voltage < 1 VDC
KL 3	11	Ain2 U		Analog input 2; actual value 0-10 V; Ri = 100 kΩ; adjustable curve; only usable as alternative to input Ain2 I
KL 3	12	+ 20 V		Fixed voltage output 20 VDC; +20 V +25/-10%; max. 50 mA; short-circuit-proof; power supply for ext. devices (e.g. sensors)

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No.	Conn.	Designation	Color	Function/assignment
KL 3	13	Ain2 I		Analog input 2; actual value: 4-20 mA; Ri = 100 Ω; adjustable curve; only usable as alternative to input Ain2 U
KL 3	14	Aout		Analog output 0-10 V; max. 5 mA; output of current motor modulation level/current motor speed. Adjustable curve.

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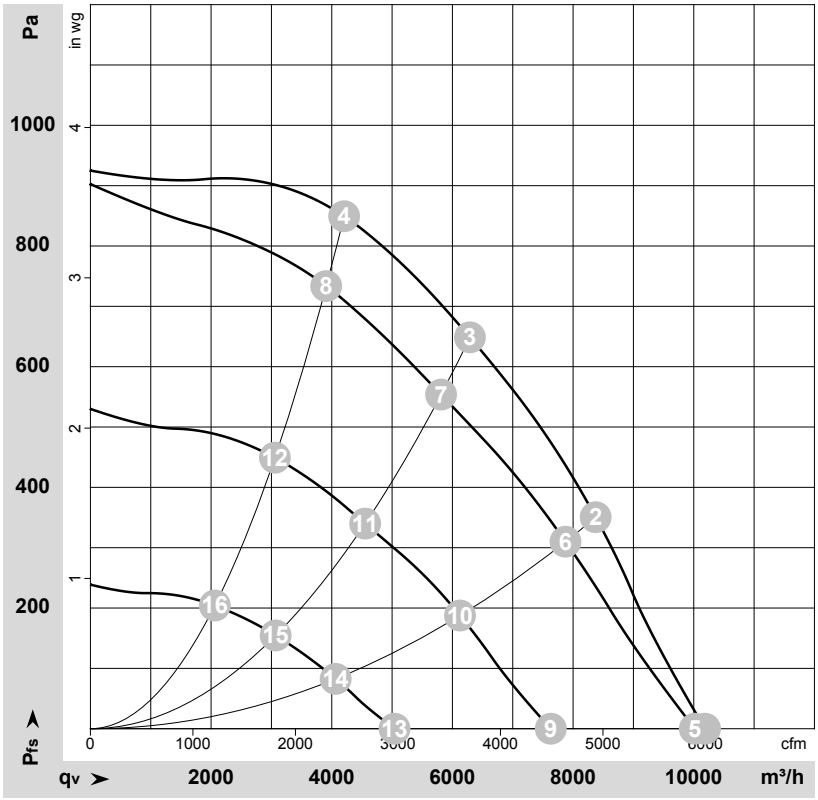
Curves: Air performance 50 Hz



ρ = 1.15 kg/m³ ± 2 %

Measurement: LU-176848-1

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

	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	200	50	1800	1015	3.22	84	92	93	10185	0	5995	0.00
2	200	50	1800	1509	4.67	77	84	86	8375	350	4930	1.41
3	200	50	1800	1765	5.50	70	77	82	6290	650	3700	2.61
4	200	50	1800	1687	5.21	74	81	86	4205	850	2475	3.41
5	200	50	1760	963	3.06	84	91	92	10015	0	5895	0.00
6	200	50	1690	1266	3.95	76	82	85	7875	311	4635	1.25
7	200	50	1660	1407	4.37	67	75	80	5810	554	3420	2.22
8	200	50	1665	1368	4.25	71	79	84	3910	736	2300	2.95
9	200	50	1350	460	1.68	76	85	88	7630	0	4490	0.00
10	200	50	1315	617	2.09	68	75	79	6125	188	3605	0.75
11	200	50	1300	695	2.31	63	70	74	4555	340	2680	1.36
12	200	50	1305	670	2.24	65	73	78	3060	450	1800	1.81
13	200	50	895	168	0.70	64	74	74	5040	0	2965	0.00
14	200	50	880	214	0.87	56	65	69	4065	83	2395	0.33
15	200	50	880	246	0.97	53	60	65	3070	155	1805	0.62
16	200	50	880	237	0.94	55	62	67	2060	205	1215	0.82

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