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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-PW12-01	
Motor	M3G112-IA	
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	2040
Power consumption	W	2650
Current draw	A	4.1
Min. ambient temperature	°C	-40
Max. ambient temperature	°C	45

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}	%	70	55.9	09 Power consumption P_{ed}	kW	2.62
02 Measurement category		A		09 Air flow q_v	m ³ /h	6630
03 Efficiency category		Static		09 Pressure increase p_{fs}	Pa	948
04 Efficiency grade N		76.1	62	10 Speed (rpm) n	min ⁻¹	2045
05 Variable speed drive		Yes		11 Specific ratio*		1.01

Data obtained at optimum efficiency level.

* Specific ratio = $1 + p_b / 100\,000\text{ Pa}$

LU-197145

The efficiency values displayed for achieving conformity with the Ecodesign Regulation EU 327/2011 has been reached with defined air duct components (e.g. inlet rings). The dimensions must be requested from ebm-papst. If other air conduction geometries are used on the installation side, the ebm-papst evaluation loses its validity/the conformity must be confirmed again. The product does not fall within the scope of Regulation (EU) 2019/1781 due to the exception specified in Article 2 (2a) (motors completely integrated into a product).



Technical description

Weight	15.7 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	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	- Operation and alarm display with LED - External 15-50 VDC input (parameterization) - Alarm relay - Integrated PI controller - Configurable inputs/outputs (I/O) - MODBUS V6.3 - Motor current limitation - RS-485 MODBUS-RTU - Soft start - Voltage output 3.3-24 VDC, Pmax = 800 mW - 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
Electrical hookup	Terminal box
Motor protection	Electronic motor protection
Protection class assignment	I; If a protective earth is connected by the customer This component for installation may have several local protection classes. This information relates to this component's basic design. The final protection class is based on the component's intended installation and connection.
Conformity with standards	EN 61800-5-1; CE



R3G450-PW12-01

EC centrifugal fan - RadiPac

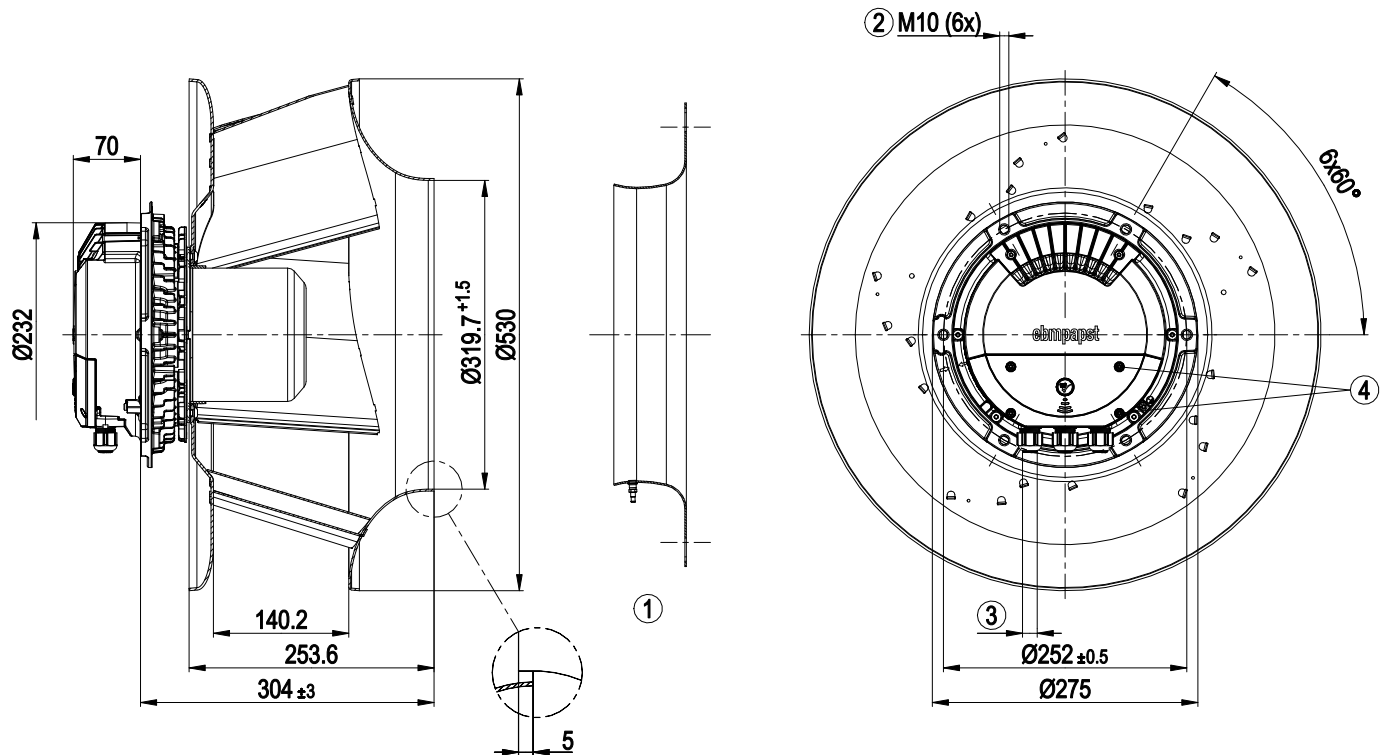
backward-curved, single-intake

Approval

CSA C22.2 No. 77 + CAN/CSA-E60730-1; EAC; UL 1004-7 + 60730-1

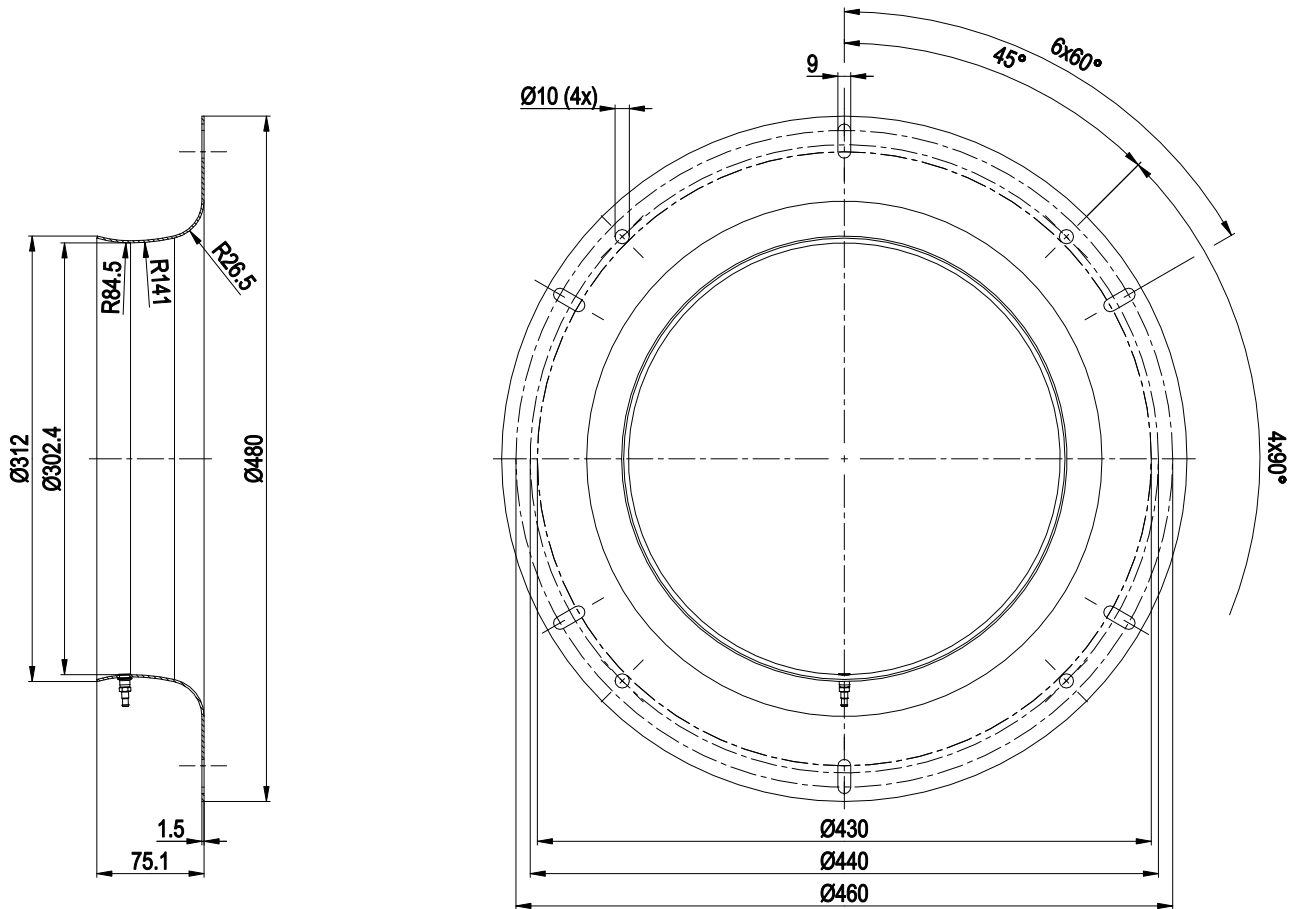


Product drawing



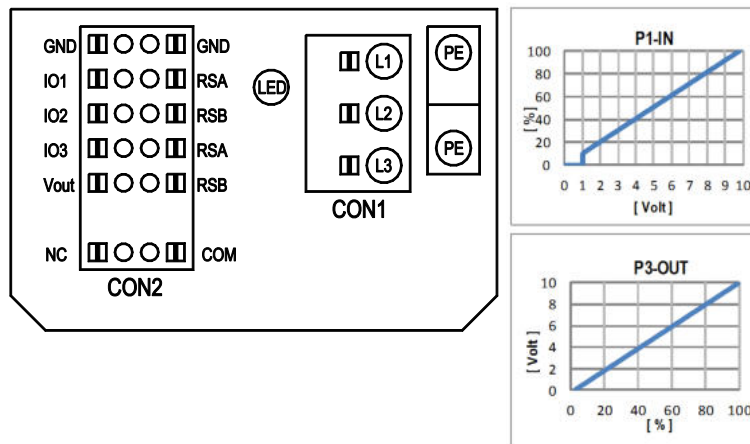
1	Accessory part: Inlet ring 45075-2-4013 with pressure tap (k-factor: 240) not included in scope of delivery
2	Max. clearance for screw 20 mm
3	Cable diameter min. 4 mm, max. 10 mm, tightening torque 4 ± 0.6 Nm (The tightening torque is designed for PVC cables. If the cable materials are different, the tightening torque may have to be adjusted)
4	Tightening torque 1.5 ± 0.2 Nm

Accessory part



Inlet ring 45075-2-4013 with pressure tap (k-factor: 240)

Connection diagram



No.	Conn.	Designation	Function/assignment
	CON1	L1, L2, L3	Power supply, phase, see nameplate for voltage range
	PE	PE	Protective earth
	CON2	RSA	RS485 interface for MODBUS, RSA; SELV
	CON2	RSB	RS485 interface for MODBUS, RSB; SELV
	CON2	GND	Reference ground for control interface, SELV
	CON2	IO1	Function parameterizable (see "Optional interface functions" table) Factory setting: Digital input - high active, function: Disable input, SELV - inactive: Pin open or applied voltage < 1.5 VDC - active: applied voltage 3.5-50 VDC Reset function: Triggering of error reset on change of state from "enabled" to "disabled"
	CON2	IO2	Function parameterizable (see "Optional interface functions" table) Factory setting: Analog input 0-10 V / PWM, Ri=100 kΩ, function: Set value Characteristic curve parameterizable (see input characteristic curve P1-IN), SELV
	CON2	IO3	Function parameterizable (see "Optional interface functions" table) Factory setting: Analog output 0-10 V, max. 5 mA, function: Fan modulation level Characteristic curve parameterizable (see output characteristic curve P3-OUT), SELV
	CON2	Vout	Voltage output 3.3-24 VDC ±5%, Pmax=800 mW, voltage parameterizable Factory setting: 10 VDC short-circuit-proof, supply for external devices, SELV alternatively: 15-50 VDC input for parameterization via MODBUS without line voltage
	CON2	COM	Status relay, floating status contact, common connection, contact rating 250 VAC / 2 A (AC1) / min. 10 mA, reinforced insulation on supply side and on control interface side
	CON2	NC	Status relay, floating status contact, break for failure
		LED	green: status = good, ready for operation orange: status = warning red: status = failure
		P1-IN	Input characteristic curve
		P3-OUT	Output characteristic curve

Terminal/plug assignment

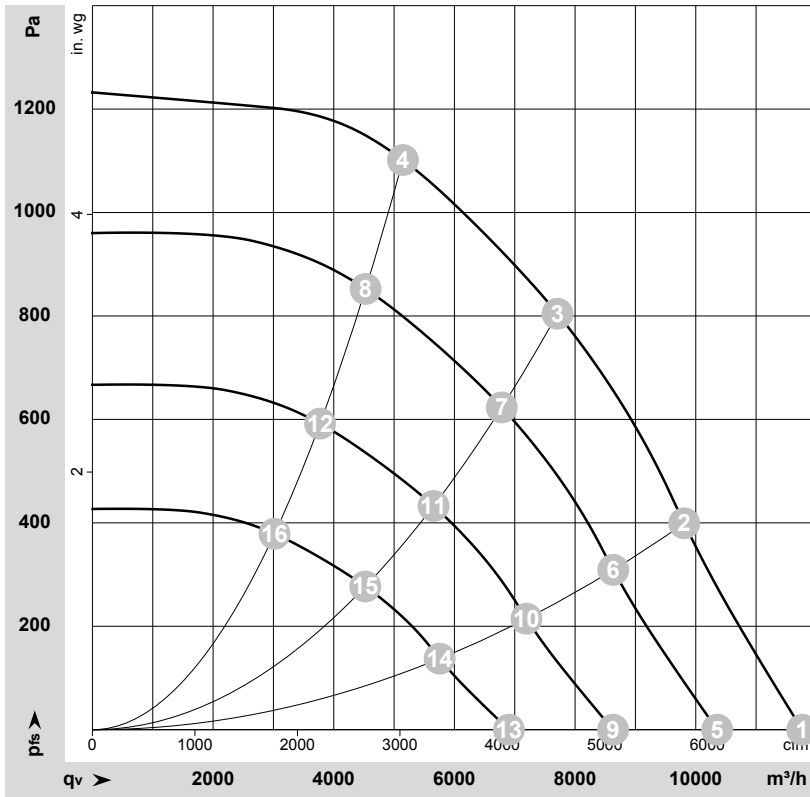
configurable option		configurable IO functions: normal / inverse		MODBUS Register for IO mode configuration		electrical specification		configurable IO mode		OUTPUT																																																																																																							
CON2								D101 [...] source: set value		D147 [...] source: sensor value		D104 [...] switch: parameter set: #1 / #2		D12E [...] switch: control function: heating (pos.) / cooling (neg.)		D148 [...] switch: direction of rotation: cw / ccw		D16C [...] switch: set value source		D16A [...] switch: fan enable / disable		(selected directly via IO mode)		(selected directly via IO mode)		D130 [0] signal: fan modulation level %		D130 [1] signal: actual speed		D130 [2] signal: system modulation level %		D130 [5] signal: remote control output 0-10V		D00C [1] pulse input for auto-addressing		D130 [4] pulse output for auto-addressing																																																																													
IO1		Din1 (active high): digital input		active: applied voltage 3.5-50VDC, SELV not active: pin open or applied voltage < 1,5VDC		D158 [0]		D158 [2] Ri = 100K, characteristic curve parameterizable, f _{PWM} = 1k..10KHz, SELV U _{max} = 50VDC, I _{max} = 20mA, SELV U _{max} = 50VDC, I _{max} = 20mA, SELV		D158 [5]		D158 [6]		D159 [0] active: applied voltage 3.5-50VDC, SELV not active: pin open or applied voltage < 1,5VDC		D159 [2] Ri = 100K, characteristic curve parameterizable, f _{PWM} = 1k..10KHz, SELV D159 [3] Ri = 125R, characteristic curve parameterizable, SELV		D15A [0] active: applied voltage 3.5-50VDC, SELV not active: pin open or applied voltage < 1,5VDC		D15A [1] active: applied voltage < 1,5VDC, SELV not active: pin open or applied voltage 3.5-50VDC		D15A [7] PWM = 40Hz - 10KHz, characteristics parameterizable active: pin open or applied voltage 3.5-50VDC not active: applied voltage < 1,5VDC, SELV		D15A [8] 40Hz - 10KHz, characteristics parameterizable active: applied voltage 3.5-50VDC not active: pin open or applied voltage < 1,5VDC, SELV		D15A [4] function parameterizable, max. 5mA, max output frequency 300Hz, SELV D15A [5] 0-10V/max. 5mA, max output frequency 300Hz, SELV D15A [6] 0-10V/max. 5mA, max output frequency 300Hz, SELV		D15A [4] function parameterizable, max. 5mA, max output frequency 300Hz, SELV D15A [5] 0-10V/max. 5mA, max output frequency 300Hz, SELV D15A [6] 0-10V/max. 5mA, max output frequency 300Hz, SELV		D15A [4] function parameterizable, max. 5mA, max output frequency 300Hz, SELV D15A [5] 0-10V/max. 5mA, max output frequency 300Hz, SELV D15A [6] 0-10V/max. 5mA, max output frequency 300Hz, SELV		D15A [4] function parameterizable, max. 5mA, max output frequency 300Hz, SELV D15A [5] 0-10V/max. 5mA, max output frequency 300Hz, SELV D15A [6] 0-10V/max. 5mA, max output frequency 300Hz, SELV		D15A [4] function parameterizable, max. 5mA, max output frequency 300Hz, SELV D15A [5] 0-10V/max. 5mA, max output frequency 300Hz, SELV D15A [6] 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◦ configurable option

For further information and additional functions see EC Control Software, Fan-Set-App, or MODBUS Parameter Specification V6.3



Curves: Air performance 50 Hz



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

Measurement: LU-197145-1

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}	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	3~	400	50	2040	1627	2.58	87	95	95	11765	0	6925	0.00
2	3~	400	50	2040	2208	3.43	80	87	90	9810	400	5775	1.61
3	3~	400	50	2040	2650	4.10	73	80	85	7710	800	4535	3.21
4	3~	400	50	2040	2586	3.99	78	84	87	5145	1100	3030	4.42
5	3~	400	50	1800	1109	1.76	84	92	92	10355	0	6095	0.00
6	3~	400	50	1800	1505	2.34	77	84	87	8635	308	5080	1.24
7	3~	400	50	1800	1823	2.81	70	77	82	6785	625	3995	2.51
8	3~	400	50	1800	1758	2.71	75	81	84	4525	857	2665	3.44
9	3~	400	50	1500	642	1.02	80	87	87	8630	0	5080	0.00
10	3~	400	50	1500	871	1.35	72	80	82	7195	214	4235	0.86
11	3~	400	50	1500	1055	1.62	65	72	77	5655	434	3330	1.74
12	3~	400	50	1500	1018	1.57	70	76	79	3775	595	2220	2.39
13	3~	400	50	1200	329	0.52	74	81	82	6905	0	4065	0.00
14	3~	400	50	1200	446	0.69	66	74	76	5755	137	3385	0.55
15	3~	400	50	1200	540	0.83	59	67	71	4525	278	2660	1.12
16	3~	400	50	1200	521	0.80	64	70	74	3020	381	1775	1.53

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

